Understanding the “Who” in Conservation: Why Gender Matters

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Abstract

Environmental management and conservation practices are at their core greatly affected by who is making the decisions for how to manage and address issues. Thus, it is of great importance to understand how the makeup of conservation decision making bodies affects environmental management processes and practices. This research looks at how gender factors into the environmental management space through the investigation of the major overarching question: In what way(s) does gender play a role in conservation / environmental decision making in a developed country context? In particular, it asks: 1) what is the representation of men and women in conservation leadership in New Zealand, 2) how, if at all, do male and female practitioners differ in their environmental values, priorities and strategies for management, and 3) how does gender factor into the decision making space and its processes? To answer these questions, a sample of five large national and seven small local Dunedin-area organizations were selected based on their significance nationally or locally. Secondary data on gender representation by tier (i.e. upper level executive to low-level job position) was procured through contact with each organization, and interviews were conducted with 32 executive members of these organizations. Additionally, a survey aimed at understanding gender differences in conservation values, priorities, and strategies was distributed to employees of various environmental organizations across the country. Results demonstrate that women make up a large portion of conservation organizations generally but a small portion of leadership roles. Male and female practitioners overall are quite similar in ideology with a few important exceptions such that increasing female leadership presence in conservation may lead to increases in indigenous iwi involvement, education investment, regulation of mining and forestry practice, length of deliberation on issues, cautiousness in approach, openness to ideas, and overall communication. Women’s inclusion also appears to affect the work environment of conservation organizations through increasing focus on more interpersonal and “human” aspects. All in all, this research provides an extensive discussion of the representation of women in conservation, gender dimensions of conservation ideology, and gender dimensions of the conservation work environment, providing a strong argument in favor of increasing gender equity in conservation leadership.
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Chapter One: Introduction

“Conservation” can be a difficult term to define. For some, the word conjures up images of biologists carefully breeding endangered felines in far off jungles of the Amazon while others tend to think of hippies chained to trees in an attempt to prevent the clear-cutting of a particular piece of forest. Others imagine bureaucrats in government offices placing limitations on businesses to restrict their pollution. All are correct, but still in its broadest sense conservation can be taken to mean the protection and management of an area’s “natural and historic heritage” (Department of Conservation, n.d.). Conservation normally focuses on the protection of living organisms, but life is inextricably tied to the health of abiotic factors such as water and air quality. Without healthy water, air, soil and the like, there would be no life to conserve. Therefore, in this thesis, “conservation” refers to the safeguarding and managing of both biotic and abiotic factors of the natural environment.

Conservation at its core is about a concern for nature. People value the natural world for a variety of different reasons. Some value the beauty of the colorful, vast array of plants, animals, and ecosystems the world provides. They find happiness in bird watching, observing squirrels gathering acorns, hiking up daunting mountains, walking amongst massive sequoias, sitting on a park bench listening to the sounds of nature, taking cool dips in secluded forest lakes, or watching elephant seals battle for dominance. Others value nature based on their system of ethics, believing all living things have a right to life without interference regardless of their aesthetic beauty. That all life should be treated with respect is an important idea to such people. They might ask, “why should my life be so much more valuable than another creature’s that I can needlessly exploit the natural world for no reason other than my personal desire to do so?” Embodying this ideology beautifully, Albert Schweitzer (1923, np) said, “Ethics in our western world has hitherto been largely limited to the relation of man to man. But that is a limited ethics.”

There are certainly more practical reasons that many people value the environment as well. It is unquestionably the necessary provider of ecological services that provide food, fuel, clothing, and pharmaceuticals for human use. We depend on honey bees for much of the food we eat today, clean water to survive, healthy land and soil to grow the crops we depend on for food and cloth. Though now an old estimate, Costanza et al. (1997), assessed the value of the world’s ecosystem services and natural capital to be worth between US$16 – 54 trillion per
year (for comparison, global gross national product at the time of publication was around US$18 trillion total per year). The net revenue value of undiscovered pharmaceuticals has been estimated to be about US$3 – 4 billion to a private pharmaceutical company and US$147 billion to people as a whole (Mendelsohn and Balick, 1995). As humans, we clearly depend heavily on nature for even our most basic needs.

As research continues, we are finding even more numerous and varied reasons to value nature. A multitude of studies have supported the notion that being in less urbanized, more natural settings improves happiness, well-being, and sundry other health measures (Berman et al., 2012; Bratman et al., 2015; Capaldi et al., 2014; Cunado and Gracia, 2012; Hartig et al., 1991; MacKerron and Mourato, 2013; Nisbet et al., 2010; Welsch, 2005; White et al., 2013). But the argument for conservation can go much further. Poor environmental preservation can be quite hazardous. Recent studies looking at the effect of air pollution on human health estimates that United States combustion emissions can be held accountable for approximately 200,000 premature deaths in the U.S. (Caiazzo et al., 2013), with the number globally being placed at around 7 million (World Health Organization, 2014). In fact, the creation of the Environmental Protection Agency in the United States was in part a response to the 1948 Donora smog event in which an air inversion resulted in trapped air pollution that killed 20 people and sickened 7,000 more (Hamill, 2008). Clearly, lack of good environmental management can be devastating to human life.

There are a myriad of reasons to value environmental protection and conservation efforts, but conservation is a diverse field with many different components for practitioners to specialize in. Unsurprisingly then, there are a variety of ways to practice conservation. For example, some practitioners focus on individual species protection, while others focus on whole ecosystem protection. Some stress invasive species control, while others make it their goal to restore natural areas back to some past “set point”. Some approach conservation using the contributions of individual, formally employed conservationists to produce results, while others attempt to engage broader communities and the general citizenry in their efforts.

Whole organizations as well as individual conservationists can favor vastly different foci and management strategies to reach environmental goals. Of course, this disparity in preference for focus and methodology ispivotally influential in determining how and what kind of conservation is practiced. A CEO of the World Wildlife Fund who, for example, stresses the
importance of whole-ecosystem management and considers it of vital importance to educate and encourage participation of the general public as major components of his or her ethos will design an entirely different conservation program than if the same CEO was convinced of the efficacy of captive breeding and a tough regulatory legal approach. These two hypothetical CEOs would strongly shape the climate of conservation within their organization: while the first may design an action program that focuses resources on protecting entire ecosystems and enhancing public education and involvement, the second may put large sums of money into employing experienced on-the-ground scientists and lobbyists who will push for increased regulation. Consequently, it becomes clear that who the individual decision makers are in a conservation organization is not without consequence. In fact it seems just the opposite: the “who” of decision making in the field of conservation will have immense influence on how environmental management operates.

Despite these many varied approaches, all have one thing in common: to preserve and protect the natural world. It is this commonality in their ultimate goal that underpins the decision in this thesis to group together “conservation”, “environmental management”, “environmental decision making” together as the dependent variable. In this broad approach, each decision made with the preservation and protection of the environment in mind then fall under the category of these conservation “decisions”. Of course, context matters greatly, and numerous influencers such as geographic area, national identity, biological landscape, socioeconomic status, practitioner background, gender, personal environmental ethos, and many more factors can play into the environmental decision making context. With this in mind, it becomes important to think more specifically about who these decision makers are and how their various qualities may affect the way they make decisions relating to the environment. This leads into a critically important question for conservation: In what ways does the “who” on an environmental decision making body matter?

Many conservation bodies are relatively homogenous in certain predictable ways. Gender is one example: many high level environmental decision making bodies appear to be highly male dominated. But, if male and female environmentalists tend to value, prioritize or strategize management of the environment differently, the fact that many bodies are skewed in their gender ratios can be of significant consequence. That is to say, a decision making body made of primarily male practitioners may function or make decisions that are different to those that are female-dominated or more even in gender composition. Because particular
groups may have dissimilar preferences for environmental management, who these decision makers are becomes especially impactful in shaping conservation focus and methods of practice.

In the case of gender, environmental decision making bodies tend to be lacking in female representation, with the majority of high level decision making positions held by men. Logically then, if male and female environmentalists differ in their values, priorities and/or approaches to conservation, this may impact how environmental management has been and is currently being practiced. The United Nations Environment Programme (UNEP) and the International Union for Conservation of Nature (IUCN) (2018, np) recognize this as an issue today, asserting that “just as women and men have different access to education, economic opportunities and free time in many parts of the world, they also relate to the environment differently”. They make a call for information, saying that “through understanding the differences between women and men, we can design better policy interventions to address their particular challenges, and harness their particular strengths.” Supporting this with empirical evidence, a study published in Nature Climate Change just this year conducted a randomized “‘lab’-in-the-field” experiment where 440 forest users from Indonesia, Peru and Tanzania made decisions about extraction and conservation in a forest common (Cook, Grillos, and Andersson, 2019). They found that experimental groups required to have at minimum 50% female representation conserved more trees as a response to a ‘payment for ecosystem services’ intervention and shared the payment more equally compared to controls in which women’s participation was not regulated (these controls averaged 33% women).

It is from this realization of the importance of gender for environmental management and conservation that the research questions which guide this thesis have arisen. Overall, the major overarching research question that guides this work is:

**In what way(s) does gender play a role in conservation / environmental decision making in a developed country context?**

Under this umbrella theme, the thesis will probe into three major research questions:

1) **What is the state of women’s representation and involvement in environmental decision making in New Zealand?**
2) Does gender affect values, priorities, and strategies in environmental decision making bodies? If so, how?

3) Does gender affect perceptions of competence and respect, as well as group dynamics, processes, and communications in environmental decision making bodies? If so, how?

By investigating these questions, perhaps we can begin to understand more of the intricacies surrounding the numerous factors that impact environmental management. This thesis recognizes the importance of understanding the “who” behind management, acknowledging that no work is done in a vacuum, and that the individuals behind any program will invariably affect the project itself. Axes of difference affecting the “who” – such as ethnicity, sexuality, age – may also affect conservation, but in this thesis I focus on asking if the gender of the “who” has an impact on environmental management.

In summary, environmental conservation is an important endeavor of great consequence to the world itself. Since who makes up the decision makers will undoubtedly shape aspects of conservation initiative, the “who” becomes fundamental. At the current moment, the “who” of environmental management is highly male, and thus understanding how gender may affect environmental management is a worthwhile and significant pursuit. It is to this pursuit that this thesis will be dedicated.

**The New Zealand Context**

Environmental management and conservation, for the purposes of this thesis, refers to protecting species from extinction, maintaining habitats and ecosystems, defending biodiversity, and preserving natural areas through any combination of human interventions at any scale from local community efforts to large scale national ones. This definition encompasses a wide range of actions, including legislative protections, resource management, creation of protected areas, implementation of breeding programs, primary sector activities, consumer regulations, hunting and fishing regulations, pest control, in areas all across the country from local to national scale.

In New Zealand, the government entity responsible for overseeing environmental management is the Department of Conservation (DoC), a statutory body established under the
Conservation Act 1987 in part to integrate some functions of the Department of Lands and Survey, the Forest Service and the Wildlife Service. DoC is charged with "conserving New Zealand’s natural and historic heritage" and work toward this goal through striving toward five major outcomes: 1) maintaining and restoring diversity of NZ’s natural heritage, 2) protecting and bringing to life NZ history, 3) getting more people to participate in recreation, 4) getting more people engaged with conservation and valuing its benefits, 5) increasing conservation gains from more business partnerships (DoC, n.d.). They manage with varying levels of protection, from recreational reserves to fully protected areas off limits to tourism, and also operates outside the conservation estate in partnership with private land owners.

Environmental management and conservation in the New Zealand context is distinct from that in other parts of the world. The country is home to a huge diversity of endemic species (species native to a particular area that occur nowhere else), from tuatara and jeweled geckos to kea, kiwi, and Hector’s dolphin. These endemic species evolved in near-isolation after the continent Zealandia broke off from Gondwana about 85 million years ago (New Zealand Ministry for Culture and Heritage – Te Manatū Taonga, n.d.). These years of isolation have led to the evolution of a unique ecosystem that is quite distinct from others on the earth, and this divergent evolutionary path has led, among other things, to a number of organisms with few natural predators. For example, New Zealand has no native land mammals other than bats. Thus, understandably, human’s settlement and introduction of mammalian “pests” in the 1300s has led to a cascade of environmental changes and extinctions throughout New Zealand (Newnham et al., 2018). New Zealand’s ecosystems have been decimated by over-exploitation, introduced mammals, and habitat destruction (Craig et al., 2000; Towns and Ballantine, 1993).

Since around the year 1600, New Zealand has lost over two-thirds of the original forest area and now has one of the worst records of indigenous biodiversity loss in the world (The New Zealand Biodiversity Strategy, 2000). In the last 700-800 years, humans (and the introduced pests they brought) have caused the extinction of: 32% of indigenous land and freshwater birds; 18% of sea birds; three of seven frogs species; at least 12 invertebrates such as snails and insects; one fish, one bat, perhaps three reptiles; and possibly 11 plants (Ministry for the Environment, 1997). According to The New Zealand Biodiversity Strategy (2000, p. 4) about “1000 of our known animal, plant, and fungi species are considered threatened, and it is likely that many presently unknown species are also threatened.”
Species losses have been caused by losses of natural ecosystems and habitats, but collectively invasive pests pose the greatest single threat today (The New Zealand Biodiversity Strategy, 2000). Invasive animal species, such as possums, goats, deer, rats, stoats and feral cats, damage habitats and vital ecosystem processes, prey on indigenous species, and compete with them for food. There are also at least 240 invasive weed species that are considered harmful to native species. These invasive species are pushing natives out of existence through these various direct (e.g. preying on natives) and indirect (e.g. competing with natives) means.

To address such issues, practitioners in New Zealand have implemented a variety of inventive conservation programs. Major focus remains on pest control, habitat restoration, captive breeding and reintroduction, with ecosanctuaries, mainland islands, and protected conservation islands playing an important role in New Zealand conservation. Thus, due to its unique circumstance as a place with many endemic but predator naïve species ravaged by habitat change and introduced mammals, conservation in New Zealand relies on much more actively involved and hands on management strategies (e.g. constant pest trapping / killing, actively managed fence sanctuaries, etc.) compared to other countries. For example, traps, aerial poison, and other methods to kill invasive stoats and possums are a near constant part of conservation practice in New Zealand.

Environmental conservation is a large part of New Zealand’s “clean and green” image. The government’s “Department of Conservation” (DoC) is responsible for a large portion of the conservation activities that occur in the country and are instrumental to achieving conservation goals in the country, employing thousands of people and running massive conservation initiatives like as Predator Free NZ 2050 (an ambitious goal by Department of Conservation, Predator Free 2050 Ltd, and Predator Free NZ Trust to wholly eliminate the most damaging introduced animal pests by 2050), often alongside other environmental organizations. Indeed, though DoC plays a huge and indispensable role, with declining government funding, private organizations are becoming a more and more instrumental and critical part of conservation in the country, as DoC itself recognizes with the recent addition of the goal to increase public-private partnerships (DoC, n.d.).

Forest and Bird is another large conservation player in the country. The second largest player after DoC with 47 branches around New Zealand, this non-governmental organization was
founded in 1923 and focuses on protection and conservation of New Zealand’s flora, fauna, and entire ecosystems through both conservation projects and advocacy at the community, regional and national scale. They are engaged in dozens of projects around the country, from the Raroa Reforestation Project in Auckland to working to bring back seabird populations in Otago, and many, many more (Forest and Bird, n.d.).

A number of other organizations, such as Manaaki Whenua - Landcare Research¹, Fish and Game², Zealandia³, Greenpeace⁴, and countless small, local organizations also play an large role in conservation in the country. Small organizations have a particularly special contribution for their ability to affect large change in a small and regionally significant area, for example by conceiving, planning, and implementing environmental and conservation initiatives at their local scale. Some examples include restoring local areas of bush, creating fence sanctuaries, carrying out pest management (both animal and plant), establishing small protected areas, taking efforts to restore habitats to encourage the establishment of target species, and the like.

Given this varied range of conservation and pro-environmental organizations and practice across the country, defining what constitutes an “environmental decision maker” is fundamental. For purposes of this study, environmental decision makers or leaders are individuals who hold upper level “decision making” positions in any such conservation or environmental organizations, whether that organization be large or small, government or private, national or local, etc. These “decision makers / leaders” are referred to as such because they have the authority to drive direction and decisions on behalf of their organization, for example, by deciding what sorts of conservation issues to focus on, how best to address those issues, et cetera.

An Interdisciplinary Approach

¹ “to drive innovation in the management of terrestrial biodiversity and land resources” (Landcare Research, “About the Organization”)
² “manages, maintains and enhances sports fish and game birds and their habitats in the best long-term interests of present and future generations of anglers and hunters” (Fish and Game, “About”) 
³ “to restore this valley to the way it was before the arrival of humans” (Zealandia, “About”) 
⁴ “non-violent creative action to pave the way towards a greener, more peaceful world, and to confront the systems that threaten our environment” (Greenpeace NZ, “About”)
This study takes an interdisciplinary approach to addressing these research questions. Drawing from fields as diverse as psychology to business leadership, this thesis uses insights gained from numerous fields of scholarly research outside geography and environmental science to inform and provide parallels and congruent explanations to patterns observed in this study of environmentalists. In doing so, this thesis broadens the available pool of knowledge that can be drawn from to better inform and situate this specific gendered environmental context. As I approach from a post-positivist perspective (discussed further in section 4.4 Approaches to Knowledge), I consider the knowledge from academic pursuits in other fields equally valid sources of valuable information that can provide important insights to other areas of inquiry. Thus, by choosing to support a geographical approach with relevant literature from outside geography, a wider and more diverse array of perspectives and ideas opens up and becomes available to strengthen discussion. As a post-positivist approach stresses, this use of varied perspective and schools of thought helps to provide robustness by increasing the range and diversity of explanations and ideas.

This research builds upon knowledge across fields, and draws heavily from studies of women’s involvement and impact on conservation and environmental management in subsistence-based communities in less developed areas of the world. Such studies appear more common in less developed contexts, with India and Nepal being especially well represented. Despite critical differences in context when compared to the developed nation of New Zealand, the pool of thought-provoking research on women’s involvement in conservation and environmental management in less developed areas from key researchers like Bina Agarwal provides a critical background that has been instrumental to this thesis in sparking the question of how women’s involvement in conservation and environmental management may be significant in the developed world as well. The interesting results of these varied studies and what they offer to inform this thesis are covered in greater detail in Chapter Two.

Although the results of these studies in less developed nations may not translate well to the New Zealand context, limited by numerous differences in geography, ecology, socioeconomics, gender equity, culture, political climate, and more, these studies are still the source of the fundamental ideas and inspiration from which this work stems. This thesis builds upon this body of work by exploring how women’s involvement looks in a developed world context and what this might mean for conservation practice. It addresses gaps in the
field of geography and in the question of women in conservation leadership by attempting to understand more about the representation and involvement of women in conservation and environmental management in an entirely new context, one different from the bulk of existing literature in geographical region (New Zealand), types of organizations involved (government, local, etc.), and foci of conservation projects (pest control, species recovery, land preservation, etc.).

**Thesis Format**
This thesis takes an interdisciplinary approach to the research questions at hand, drawing from many different areas of investigation in numerous fields. The following chapter begins by discussing if any general differences exist between men and women (i.e. personality, etc.) which may be important for environmental management in their indirect effects. The next part of Chapter Two focuses on women in positions of leadership in areas outside of environmental management to draw parallels between female leaders in other fields and discuss how these may be similar in the arena of environmental management. The third chapter narrows more in focus by discussing only things related to the environment. It firsts talks about how men and women in the general public compare in levels of environmental concern and pro-environmental behavior, then discusses some possible explanations. Finally, it delves into women in conservation specifically, looking at prevalence and exclusion, barrier’s to participation, ways to increase participation, and the effects of women’s increased representation in environmental decision making. In the fourth chapter, the importance of including gender in environmental research is discussed, and gaps in the current research are identified. The fourth chapter is also where the methodology minutia are discussed in detail. The fifth chapter addresses research question one by presenting data on women’s representation in environmental leadership in New Zealand and discussing possible explanations for it. Chapter Six turns to research question two and delves into findings on the values, priorities and strategies of male and female conservation practitioners in New Zealand, where these ideas differ, and how this might be important for conservation. Chapter Seven then considers research question three and discusses how decision making group dynamics are affected as a function of gender diversity in the group. Then finally, the last chapter ends with a brief summary of findings, implications of the findings on conservation, ideas to increase women’s involvement, limitations and future research, and final concluding remarks.
Chapter Two: Gender Differences in Various Measures

2.1 A Brief History of Geography and Gender

The inclusion of gender as an avenue worthy of serious study has not always been assumed. Only a few decades ago an investigation into, for example, the gendered experience of poverty would likely not have been considered a worthwhile pursuit by many researchers of the day, who were overwhelmingly male. The second wave of the feminist movement which began in the United States in the early 1960s focused on issues of general inequality between the sexes, especially in the family and the workplace, as well as women’s sexuality and reproductive rights (Baxandall and Gordon, 2002). Second wave feminism fostered a great deal of sociological change in the position and societal status of women throughout the subsequent decades across numerous countries. This shift in positioning and opinion of women in society began to change not only amongst the general public, but also in areas of science and research. Simultaneously, likely due to second wave feminist influence, in the 1970s geography as a discipline began to incorporate gender into more and more research (Fluri, 2015). Scholars began to consider how the “gendering” of public and private spaces, divisions of labor, politics, mobility, environmental concerns, and much else might affect issues within their field of study. Largely ignored before the 1960s, the inclusion of gender in geography research added a new dimension for investigation that allowed the addition of more fine-tuned and detailed data which could be used to better discern the intricacies behind a myriad of questions. The rise of gender as a subject worthy of investigation in the field of geography added a new factor that could explain more of the observed world. Since then, issues of gender and intersectionality (the inherent connections of oppressive institutions such as racism, classism, sexism, etc.) have become important issues that geography researchers regularly contemplate (Valentine, 2007). My research grows out of this increased inclusion of gender dimensions in novel subject areas to advance understanding of women’s representation in conservation, especially at leadership, and how gender may be related to differences in values, priorities, processes, participation, outcomes, and even work environments in the field of conservation.
2.2 Introduction to the Literature

Embarking on any critical investigation requires a thorough background of the multitude of scholarly arenas which inform the subject of enquiry. When discussing a question such as how gender plays a role in environmental decision making bodies, one must be knowledgeable of many seemingly disparate fields of enquiry that converge together to inform this one space. Thus, it is important to first give background on a few diverse topics that are essential for understanding how gender might play a role in the environmental decision making context.

This review will follow an inverted pyramid shape in its approach, beginning with the most broad and expansive topics and ending with a discussion of the research most directly related to the inquiry of how gender affects environmental decision making. This structure is taken to establish some base understanding of gender in more general areas before building on it in the specific context of conservation. This chapter (Chapter Two) goes over gender differences in risk, personality, values, and cooperation / conflict resolution before continuing on to discuss gender differences in positions of leadership. Chapter Three will then switch from these more general topics to explicitly environmental ones, proceeding to compare women and men in relation to levels of environmental concern and engagement in pro-environmental behaviors. Finally, the last section of the literature review, Chapter Three, will delve into the current research and understanding of women in environmental decision making, including prevalence, exclusion, barriers and enablers for participation, as well as the effects of women’s inclusion. Each section provides important information on empirically grounded gendered patterns that can assist in understanding some relevant differences between men and women in various arenas, which I suggest may translate to meaningful gender effects within the environmental decision making context. Now discussion begins with a conversation of some general differences between the genders and how these may be useful to understanding the role of gender in environmental decision making.

The assumptions, choices, and processes leading to the selection of the situating topics discussed above began with a thorough review of the literature on women’s involvement in conservation leadership across the world (Chapter Three, Part II). Gathering information about women in conservation generally helped provide a critical and basic understanding to situate the overarching research question, “In what way(s) does gender play a role in
conservation / environmental decision making in a developed country context?” The review of literature, methodically, broadened out from there thus leading to a literature review that was created in approximately reverse order to the way it reads (i.e. starting with Chapter Three, Part II and ending with Chapter Two, Part I).

Delving into the existing literature on how women in positions of conservation leadership relate to the environment differently to male leaders in a variety of studies (Chapter Three, Part II) sparked my interest for a subsequent investigation of men and women’s relationship with the environment amongst the wider population more generally (Chapter Three, Part I). Through such a discussion of how men and women in the general population relate to nature and the environment differently, the reader gains context that helps provide a basis to inform how gender plays out in the more specific and narrow context of conservation and environmental management.

From there, with Chapter Three complete, my exploration of women in conservation leadership led to a questioning of how women might function in a leadership capacity more generally (Chapter Two, Part II). A discussion of women in positions of leadership, how women operate compared to men, and what consequences this has had in other fields is of interest to this discussion, as it provides interesting parallels as to what might be seen in the context of environmental management and conservation more specifically. If women lead differently and their participation in leadership leads to changes in outcomes in, say, business for example, discussion of this information can provide useful parallels to hint as what might be seen in other arenas of leadership, like environmental management, as well.

Finally, after delving into the literature concerning women in conservation leadership, gendered relationships with the environment, and women in positions of leadership, the question of more fundamental gendered patterns in something as basic as personality traits arose as a capstone question that could perhaps underpin many of these other areas of gender difference. This discussion of more general gender differences then became Chapter Two, Part I. Overall, these myriad subjects comprising the literature review all weave together to inform a broad basis of understanding for the focal topic of this thesis: women in conservation leadership.
2.3 Part I: General Gender Differences

Whether or not men and women are generally “different” in various areas of psychology and behavior has been hotly contested and highly controversial for just about as long as it has been a topic of discussion. Many people are resistant to the idea of some pre-determined gender differences, as to some it may lead to the defense of sexist ideas (it deserves to be noted here that the existence of biologically-based differences between men and women in and of itself would not and does not offer a defense for sexism; the presence of differences is not an argument for discrimination based on them). Still today, many, many years after the discussion first began, the controversy is not much less intense on either side of the debate. Some argue that there are certainly at least some basic differences between men and women (e.g. Feingold, 1994; Geary, 1998; Wrangham, 1996), while others fervently maintain that men and women are similar in most respects, from cognition to communication, social parameters to motor behaviors, with measures between individuals within a gender often larger than those between genders (e.g. Costa, 2001; Hyde, 2005). In reviewing the current academic literature, however, there do appear to be a few consistent differences amongst men and women that appear rather regularly in empirical research (these will be discussed shortly). Thus, I will take the position that there are some recognized differences that exist generally between men and women (it is important to note of course that there is overlap in these differences and such generalizations do not always hold true in individual cases). However, before continuing onto a discussion of the research on what some of these differences are, it is worth discussing, at least briefly, ideas on the ultimate source(s) of such differences and the relevance of this to my research.

2.3.1 Nature versus Nurture

The foremost dialogue behind the ultimate causes of supposed differences in men and women comes down to a debate that any student of introductory psychology is familiar with: nature versus nurture. This long standing debate has focused on the importance of genetic influences (nature) versus socialized and acquired influences (nurture) in creating an individual’s characteristics (especially behavioral ones). In specific reference to differences between men and women, a “nature” argument would be, as one example, that men and women differ in some basic biological underpinning, and this is the cause for differences in how they behave. For example, Richard Wrangham (1996) argues in his book *Demonic Males* that males and female differ in certain behaviors (especially focusing on violence in this book) due to
evolutionary tactics that have increased reproductive success differently for each gender (i.e. aggressive behaviors have increased reproductive success for males, but not as much for females, causing males to exhibit higher aggression than females generally). A “nurture” argument, for example, might instead insist that gender socialization or learned expectations for gendered behavior cause the differences one observes through research. Hoyenga and Hoyenga (1993), for instance, argue that gender socialization and childhood environment play a pivotal role in determining conceptions of male and female-ness. The society and family socializes daughters to become “women” and sons to become “men”, ingraining in them conceptions about what it means to be male and female, and what traits are acceptable and desirable (and conversely unacceptable and undesirable) for each gender. Using violence again as an example, a nurture argument might claim that males are more violent because they have been socialized to think violence is more acceptable than women have.

Today, the nature versus nurture divide has evolved from an argument about whether genes or environment are responsible for some phenomena, and has moved to a recognition that both factors likely play a role. The recognition of developmental plasticity, where environmental inputs during development are recognized to have long-lasting phenotypic effects on individuals, works alongside genes to explain various individual differences (e.g. English et al., 2015). This is to say the character of the debate has changed from a winner-take-all type of dispute in which only one side (nature or nurture) could be correct, to a discussion of the relative importance of biology and the environment in any particular case, both of which are acknowledged to play vital roles in the creation of an individual. Thus, the question is not so much whether males and females are biologically different in some ways that affect their behavior (they probably are) or whether males and females act the way they do as a result of the environment in which they are surrounded (they probably do), but rather what contribution of each of these has in relative strength to one another.

Further digression into this topic is not necessary, as the reason that differences between men and women seem to exist is not to the major concern for this discussion on the effect of gender on environmental decision making groups. The pertinent factor for the purposes of this thesis is that there exist some differences between men and women at all, no matter the reason, and that these differences may cause gender to be a significant influencing factor in the environmental decision making space. Whether the reason for these differences is mostly biological or mostly socialization is much less of a concern to the present discussion than
their existence in the first place, because the fact that they exist means there are gender differences that may impact environmental management, regardless of the reason for their presence. Thus, I will end this aside here and begin discussing the current state of literature on a few gender differences that are well supported through research findings. These include risk aversion, personality traits, personal values, and levels of cooperation. Differences in such measures between men and women are of interest to this investigation for two reasons: 1) any consistent differences between men and women in one area hints at the possibility of differences in others areas that may be yet to be investigated; and 2) these specific factors may directly or indirectly impact how an individual thinks about and manages the environment, so the fact that men and women differ in these respects may cause there to be a difference in how men and women manage the environment. Overall, the presence of gender differences in various areas lends support to the idea that looking at the impact of gender in environmental decision making bodies in a worthwhile pursuit.

2.3.2 Risk

One of the strongest and most consistent gender differences appears to be that of risk taking and risk perception. Even many non-scientists have made the observation that men are more likely than women to seek “adrenaline rushes” and engage in risky behaviors, from extreme sporting to gambling. Research corroborates this commonly cited trend: women are consistently shown to be more sensitive to a number of threats, exhibiting an amplified perception of risk for disease (Brown et al., 1993), crime (May et al., 2010; Warr and Stafford, 1983), injury from nature (Drottz-Sjoberg, 1994), HIV/AIDS (e.g., Hillman, 2008; Robertson et al., 2006), smoking and other health risks (e.g. Duckworth et al., 2002; Lundborg and Andersson, 2008), technological risks (e.g. Fincucane, 2000; Siegrist et al., 2005; Smith et al., 2008), and more (Charnessa and Gneezyb, 2012; Croson and Gneezy, 2009; Slovic, 1999, 2001; Xiao and McCright, 2012), leading them to be more likely to avoid harm from these things. From an evolutionary perspective, some researchers have argued that men may have been able to greatly increase their reproductive success by taking larger risks to increase their attractiveness to the opposite sex, while for women the cost more likely outweighed the benefits (Harris, 2006). Another possible evolutionary explanation for women’s increased risk aversion is that women may possess a greater perception for risk in order to increase the chances of her offspring surviving. Since human babies are particularly helpless for an exceptionally long period, women who are more cautious with their risk-
taking may be more effective parents. That is, mothers who are risk averse may increase the survival of their children by avoiding behaviors that can put them in danger. A possible socialization argument for women having higher risk sensitivity is that women have been taught that they are weaker and more susceptible to harm than males, who were conversely taught that they are tough and should remain unafraid of threats. This disparate fear and bravery training between men and women would lead to men feeling more brazen and women more vulnerable, thus causing women to exhibit a higher risk sensitivity than men.

Whatever the reason, disparities in risk sensitivity have been demonstrated to translate to dissimilarities in decision making. Due to their heightened risk sensitivity, women of a similar age, education, wealth, and experience level often operate differently than men, frequently emphasizing risk reduction and choosing to manage resources more conservatively than their male counterparts (e.g. Dwyer, 2002; Olsen and Cox, 2001; Watson and McNaughton, 2007). This pattern may be important to the environmental context as well. Drawing from this body of research, one might conjecture that women may be more sensitive and responsive to the risks and possible repercussions from environmental degradation. Thus, women therefore may be more likely to think of environmental problems as more alarming or concerning than men do. Interestingly, this appears to be the case as women do show increased environmental concern, and risk perception seems to be a suitable explanation (discussed in detail in Chapter Three). The fact that men and women differ in risk perceptions is of significance to gender in conservation decision making, as it could perhaps lead women to favor stricter environmental regulations or a more “precautionary principle” type of approach.

2.3.4 Personality

Another commonly claimed difference between men and women is that of personality. One of the more trusted and reliable measurement scales used for personality research is the Revised NEO (Neuroticism-Extraversion-Openness) Personality inventory. It is a test that scores individuals on the “Big Five” personality traits (openness, conscientiousness, extroversion, agreeableness, and neuroticism) with high internal consistency (i.e. Church and Katigbak, 2002; McCrae and Costa, 2010; Sherry et al., 2007) and good validity (Cano-García et al., 2005; Conard, 2006; Korukonda, 2007).
One study conducted four meta-analyses of data from these sorts of personality inventories from 1940 – 1992 and personality literature from 1958 – 1992 and found that females tend to rate higher in anxiety, extraversion, trust and especially tender-mindedness (e.g. nurturance) while men are higher in assertiveness and slightly higher in self-esteem (Feingold, 1994). Similarly, in a secondary analysis of data from Revised NEO Personality inventories across twenty-six cultures, researchers found that women tend to rate higher in neuroticism (traits of anxiety, self-consciousness, envy, etc.), agreeableness, warmth, and openness to feelings whereas men tend to be higher in assertiveness and openness to ideas (Costa, Terracciano, and McCrae, 2001). Still, the differences vary across cultures, with gender differences perhaps counterintuitively being most pronounced in European and American cultures where traditional sex roles are minimized. Costa, Terracciano, and McCrae (2001) suggest possible explanations for this, the most plausible of which suggesting that gender differences in personality appear to be more divided between “communal vs. individualist” countries rather than “developed vs. developing” countries, thus supporting the idea that socialization and other environmental factors, not just biology, play a very important role in shaping how men and women think and act differently.

Nonetheless, other aspects of gender difference in personality may have biological roots. Differences in empathetic cry responses in babies differ along gender lines, with multiple studies demonstrating that female infants cry more in response to the cries of another infant (Levine and Hoffman, 1975; Sagi and Hoffman, 1976; Simner, 1971). It can be argued that this may be a biological artifact as mothers who were more empathetic and responsive to their children would likely increase the survival of their offspring, out-competing less empathic women.

These personality differences may translate into dissimilarities in the way men and women interact with others. For example, in a theoretical dictator game experiment, researchers found that women as a group tend to be “equalitarians” who prefer to share evenly regardless of changes to income and price, while men are either “perfectly selfish or perfectly selfless” depending on whether altruism is cheap or expensive in a particular circumstance (Andreoni and Westerlund, 2001). Also quite commonly cited is the idea that women are more altruistic than men, which a great deal of research supports (e.g. Bolton and Katok, 1995; Capraro, 2015; Capraro and Marcelletti, 2014; Dreber et al., 2014; Dufwenberg and Muren, 2006; Eckel and Grossman, 1998; Houser and Schunk, 2009), though recent evidence suggests both
men and women alike tend to overestimate the level of altruism among women (Brañas-Garza, et al., 2016).

Disparities in personality traits like these may affect how women and men function in a general decision making and management capacity. For example, theoretical models predict that overconfident investors trade excessively, and psychological research demonstrates that men (at least in finance) are generally more overconfident than women, leading to the prediction that men will tend to trade more excessively than women (Barber and Odean, 2001). In an analysis of stock investments from more than 35,000 households in a large discount brokerage, Barber and Odean (2001) found that men indeed trade 45% more than women, leading to a 2.65% reduction in net returns per year compared to 1.72% for women. These gendered differences in personality can affect environmental management directly. Take for instance that women are generally found to be less narcissistic than men (e.g. Bushman and Baumeister, 1998; Farwell and Wohlwend-Lloyd, 1998; Foster et al., 2003; Stinson et al., 2008; Tschanz et al., 1998; Twenge et al., 2008). A recent meta-analysis of studies on gender differences in narcissism confirms this pattern (Grijalva et al., 2015). In one laboratory experiment modeled after the tragedy of the commons concept, participants were told they represented one of two or four forestry companies and were asked to harvest timber from a renewable forest. Narcissists (individuals with an overinflated view of self) harvested more than the non-narcissists competing with them, and the more narcissists participated the faster the forest was depleted and the less timber was able to be harvested overall leading to a benefit to the narcissistic individual in the short term but a long term cost to everyone and the forest itself (Campell et al., 2005). Since women have been established to be less likely than men to exhibit narcissistic personalities, the gender composition of environmental management teams could then affect the strategies and outcomes of conservation initiatives. Indeed, this was demonstrated in a recent experiment, where groups with a gender quota intervention conserved more trees in response to a “payment for ecosystem services” (PES) system than groups without this quota (and thus with a lower proportion of women) (Cook, Grillos, and Andersson, 2019).

In general, various personality traits affect how someone operates in countless aspects of life. In fact, this is essentially the definition of personality: “individual differences in characteristic patterns of thinking, feeling and behaving” (Kazdin, 2000, np). Since personality is of great significance to predicting how a person will act and what they will
choose to do in any given circumstance, the personality of each member of conservation leadership is of great significance. Since men and women seem to show some consistent personality differences, the different personality alignments of men and women in general may lead to some interesting patterns in how male and female members think of and operate in the environmental decision making sphere. Perhaps women’s higher levels of “tender mindedness” leads to different views of environmental protection or their greater extraversion leads women to more participatory approaches in conservation, for example.

2.3.5 Values
Similar to differences in personalities are differences in values. For instance, a study of Turkish undergraduate students found women score higher in values of universalism, hedonism, benevolence and security than men (Dirilen-Gumus and Buyuksahin-Sunal, 2012) while a study of entrepreneurial organizations founded and led by women in three Southeast Asian countries similarly found women stress values related to universalism, benevolence, self-direction and security (Borquist and de Bruin, 2019). A survey in Canada again finds evidence that women value universalism more highly than men, and also that women place more value on power and achievement while men place greater importance on tradition (Lyons, Duxbury and Higgins, 2005).

Differences in values are especially common in the social and job context. From a sample of American high school seniors, women are more likely to place significantly higher importance on having a good marriage / family life and working to correct social / economic inequalities, while men are more likely to place significantly higher importance of having lots of money (Ovadia, 2001). Overall, a number of studies find evidence to characterize men’s preference as working with “things” while women’s preference is more inclined toward working with people (e.g. Beltz, Swanson, and Berenbaum, 2011; Su, Rounds, and Armstrong, 2009). In line with findings on general personality and value differences, when choosing employment, women tend to value intrinsic, altruistic and social rewards of a job more while men value leisure related aspects (Marini et al., 1996). Specifically, women place higher importance on the job being interesting, educational, conducive to the use of one’s skills, allowing of creativity, productive of visible results, helpful to others and society, conducive to contact with a lot of people, and conducive to the formation of friendships. Conversely, men generally place greater importance on the job leaving lots of time for other
things in life, allowing freedom from supervision, providing two or more weeks of vacation time, and providing an easy atmosphere that allows a slow pace of work (Marini et al., 1996). Another study of American high school seniors found more than half of female respondents – but only about one-third of males – said that it was “very important” to have “a job that gives you an opportunity to be directly helpful to others” and “a job that is worthwhile to society” (Johnson, 2001). Overall, numerous studies find evidence that women commonly place more emphasis on intrinsic rewards, social and interpersonal interaction, and work-life balance, whereas men place more emphasis on extrinsic rewards such as pay and prestige (Beltz, Swanson, and Berenbaum, 2011; Elizur, 1994; Johnson, 2001; Johnson and Mortimer, 2011; Konrad et al., 2000; Lechner et al., 2017, 2018; Marini et al., 1996; Ovadia, 2001; Peterson, 2004; Schwartz and Rubel, 2005; Sortheix et al., 2013, 2015; Su and Rounds, 2015; Su, Rounds, and Armstrong, 2009; Weisgram, Bigler, and Liben, 2010).

These gender differences in values, especially in work places, can have important implications for conservation practice. It is possible that because women have different preferences for an optimal work environment that decision making bodies with more women operate differently, perhaps focusing more on interpersonal relations between colleagues than a male dominated group would. Even more, gender differences in these general values suggest the presence of differences in other, more specific values (e.g. political values, environmental values, etc.). As will be discussed in Chapter Three, numerous studies establish that women on average demonstrate greater concern for the environment than men (e.g. Coertjens et al., 2010; Davidson and Freudenburg, 1996; Dietz et al., 1998; Luchs and Mooradian, 2012; Martino, 2008; McCright, 2010; McStay and Dunlap, 1983; Mohai, 1992, 1997; Wester and Eklund, 2011). These disparities in values and perceptions regarding the environment amongst the general public suggest the possibility for gender differences in the way male and female conservationists more specifically value, prioritize, and manage the environment as well.

2.3.6 Cooperation and Conflict Resolution

In addition to gender differences in risk perception, personality, and values, another salient factor for group decision making is cooperation and conflict resolution. Because much environmental management at the uppermost levels of seniority is done within a group context, intragroup dynamics can affect group processes and outcomes. Thus, gender
differences in cooperation and conflict resolution are of great interest to the environmental decision making context and the relevance of cooperation and conflict resolution to group decision making of any kind, including the environmental context, should not be overlooked.

Although other variables may influence cooperative behavior more than gender, studies have found women to be slightly more likely to cooperate with others than men (Stockard et al., 1988). For example, in a study of 150 college students in business administration, groups with a majority of females cooperated more than other groups (Busch, 1996). Social pressure may be a factor in this: one study found that when observed by peers, males cooperate substantially less while females cooperate substantially more, perhaps, as suggested by the authors, because men wish to signal formidability to their peers while women prefer to signal cooperativeness (Charness and Rustichini, 2011).

Other studies find situation specific patterns: a meta-analysis of social dilemmas finds that cooperation does not differ overall between men and women, but that male–male interactions are more cooperative than female–female interactions, while women are more cooperative than men in mixed-sex interactions (Balliet et al., 2011). The circumstances in which males and females cooperate appear to be based on different ideologies: studies in the formation of coalitions amongst triadic (3-member) groups demonstrate that males play more competitively and with a strong desire to win while females concern themselves more with ethical and social considerations and achieving outcomes satisfactory to all participants, strategies labeled by psychologists as “exploitative” or “accommodative” respectively (Bond and Vinacke, 1961). Female triads exhibit a higher incidence of no coalition and triple alliance coalition (strategies in which no one or everyone wins) and relatively fewer two-person alliances. However, in mixed-sex interactions when one “all powerful” male refuses to ally with anyone, females band together to put these competitive males in their place (Bond and Vinacke, 1961). Also, females tend to bargain less aggressively than males when alliances are necessary to win and establish alliances when coalitions are not necessary to win, further suggesting the emphasis females put on group equality and group relations over winning (Vinacke and Gullickson, 1964). Later evidence has supported this with the finding that the percentage of prosocials (cooperators) is slightly higher in women than men while the proportion of proselves (individualists and competitors) is higher amongst men (Van Lange et al., 1997).
These tendencies may begin quite young, as one study of Grade 4 (6 yr old) children found that girls were reluctant to take toys away from each other unless it was the only way to win, but boys claimed toys regardless of how this affected the game’s outcome (Roy and Benenson, 2002). In light of these findings, the strategies of female players appear more likely to be based on a preference for equal treatment of the group over the male preference for competition and winning. This is in-line with self-reported evidence wherein women are especially likely to cite their behavior in an experimental social dilemma as more altruistic, principled and concerned with pleasant group relations (Stockard et al., 1988). Perhaps as a result of this emphasis on harmonious group relations, female participants at the end of the social dilemma cooperation experiment were found to be less likely to be nervous or upset than men.

The effect of culture on gendered differences in cooperation and competition is not well understood. A study in India found that although males in patriarchal villages tended to become more competitive than females around puberty, there was no difference in competitiveness at any age in the matrilineal villages (Anderson et al., 2013), suggesting that differences in competitiveness at the very least may be partly influenced by culture. However, competitiveness is only one part of the story in group relations. Crossing cultural and gender axes, one study on conflict resolution strategies by Holt and DeVore (2005) found that females across both individualistic and collectivist cultures are more likely than males to endorse compromising (which expresses medium concern for both production and people), while males were more likely than females to use forcing (high concern for production, low concern for people). Although the effects of culture and biology may be difficult to discern and are largely understudied, research on our closest existing relatives, chimpanzees and bonobos, may help enhance insight. In chimpanzee society females have far fewer fights than males, more than likely because they actively work to avoid them (de Waal, 2005). The same may be true of humans as well. In a study of peacemaking among children, researchers found that girls’ games operated in smaller groups and were less competitive than boys (Butovskaya et al., 2000).

Such gendered patterns in cooperation and group relations can be important in determining how a group functions. Inferring from these results, perhaps a male-dominated group in which members are competitive and fight for their idea to “win” out amongst others may be more riddled with conflict than ones that include more females who are more likely to take an
interest in compromise and preserving amicable group relations. Such differential focus on achieving goals versus maintaining group relationships hints at ways in which the gender composition of a group might affect the way decisions are made. Primatological studies demonstrate the importance of females in group relations (de Waal, 2005, 2007) and suggest that the effect of gender makeup in human groups might be significant too. Perhaps a preponderance of one gender in a decision making group would change not only group dynamics and conflict, but possibly even how decisions are made or even what the final judgements are. The relative proportions of men and women could cause measures of cooperation and conflict resolution to vary as a function of gender proportionality. There seems to be good support for this hypothesis, as a study by Molinas (1998) found that cooperation in local-level collective action in Paraguay increased as the level of women’s participation and social capital increased. Even more directly relevant to environmental decision making bodies, Westernmann et al. (2005) found that women’s presence within conservation groups increases collaboration, solidarity, conflict resolution, norms of reciprocity, and the capacity of self-sustaining collective action (this as well as similar studies will be discussed in further detail in Chapter Three).

2.3.7 Time and Gender Differences

As Section 2.3.1 establishes the role of both nature and nurture in shaping gender differences, it is important to recognize the possibility that gender differences in various measures (e.g. personality, risk aversion, etc.) may also be a product of the times in which the data was collected. That is, these same patterns for gender differences that were observed in the past may not be observed today, and today’s patterns may not be around in another few decades. Personal values and gendered attributes do not necessarily stay static over time. Intergenerational inheritance, for example, can create changes in values over time. The job occupation that one’s mother holds, for example, can subsequently shape the choices of both male and female children alike (van der Vleuten et al., 2018). Likewise, values change with time and economic development, as recent generations have seen a rise in individualistic and more politically egalitarian attitudes (Tarabar, 2019). Even more, large changes in culture, ranging from gradual changes in perceptions and zeitgeist to major changes resulting from feminist movements, gay rights, or the like also create changes in patterns in gendered attributes. Nonetheless, the more recent studies discussed in the section on gender differences are in line with the findings of older studies. Thus, in the absence of newer studies suggesting
changes in the aforementioned gender differences with time, discussion will proceed noting this as a possibility but under the assumption that until new studies point to different results, these older studies will be presumed to still have relevance to today.

2.3.8 Conclusions

Together, these findings on common gender differences in risk perception, personality, values, and cooperation / conflict resolution suggest a myriad of ways in which gender can conceivably affect environmental management. The higher risk sensitivity of women may lead them to engage more in precautionary environmental management measures, be more conservative in their estimations, or require more information about projects to mitigate risk, as examples. Differences in personality may affect the various choices made for conservation and how group members interact and make decisions together, and further, the existence of these gender differences in general values suggest the possibility for gender differences in specific environmental and conservation values as well. Furthermore, differences in work values may have direct effects on shaping the work milieu of environmental decision making bodies, and women’s stereotype as “peacekeepers” with their somewhat greater emphasis on people and relationships may also affect group dynamics. Overall then, these common differences between men and women in these variety of areas may be important both directly and / or indirectly for their impact on environmental decision making. Next, differences between men and women in positions of leadership and the possible influence this may have on environmental management is discussed.

2.4 Part II: Women in Positions of Leadership

If gender affects decision making through variation in risk, personality, values and cooperation as suggested in Part I, then gender may also have noteworthy relationships with various aspects of leadership. Indeed, women in positions of leadership have been found to think and behave differently to their male counterparts in their style of leadership and also in relation to how they operate in the context in which they work. The following discussion delves into these gender dimensions of leadership.

2.4.1 Leadership Style
There are a myriad of ways to interact with others, and consequently, a number of different ways to lead. Before turning to explore how gender might shape leadership style, it is useful to identify some categorizations of leadership approaches. There are three main leadership styles relevant to the current discussion. Laissez-faire leadership is a form of leadership in which the leader essentially removes him/herself from the governance role by allowing subordinates great freedom of action and little guidance or structure (Law, 2009a).

Transactional leadership, also called authoritative leadership, in contrast, is a style of leading others that is grounded upon the establishment of clear goals and objectives created by the leader, and accompanied by the use of reward and punishment of employees to achieve desired outcomes (Law, 2009b). Transformational leadership, on the other hand, is a leadership style that emphasizes striving toward the achievement of some vision, usually through inspiring employees to rise to challenges and work to accomplish the organization’s vision through their own motivation (Law, 2009c). This sort of leadership is highly reliant on the leader’s ability to appeal to the higher ideals and drives of followers and their ability to foster feelings of trust and loyalty. Thus, successful transformational leadership generally involves a determined but responsible charismatic leader who sets clear and optimistic—though achievable—visions (this is termed “inspirational motivation”). Transformational leaders recognize each team member for the specific contributions they make (“individualized consideration”) and encourage open exchange of ideas and opinions. To summarize, laissez-faire leadership takes a hands-off approach to leadership, transactional leadership embodies a structured and authoritative attitude, and transformational leadership employs an enthused participatory style.

It is no surprise that different people employ different leadership styles. A number of papers focusing on gender differences in leadership style come to the conclusion that men and women do indeed tend to employ different leadership approaches when in positions of power. In a study of self-reported leadership styles, women were more likely to specify engaging in transformational leadership (the more participatory style) than their male counterparts (Burke and Collins, 2001). Women also reported slightly higher feelings of perceived effectiveness for coaching and communicating, attributes associated especially with the more involved transformational style of leadership rather than the more authoritative transactional style or the hands-off laissez-faire style.
A study by Bass et al. (1996) that examines gender differences in the use of transformational and transactional leadership styles found that female leaders display key aspects of transformational leadership such as charisma and individualized consideration more often than their male counterparts, though the effect size was relatively small. Similarly, Eagly and Johannesen-Schmidt (2001) found that women on average score higher than men in a number of characteristics of transformational leadership: preferences for the use of inspirational motivation, idealized influence, and individual consideration (with levels of individual consideration especially high compared to male counterparts). Women also tend to score higher than men on contingent reward (one part of the transactional style of management), suggesting women are more likely than men to reward their employees for good performance. Male managers, on the other hand, exceed female counterparts in the use of active and passive management-by-exception and laissez-faire leadership styles. All in all, quite a few studies corroborate the idea that women are more likely than men to use transformational leadership (e.g. Aldoory and Toth, 2004; Appelbaum et al., 2003; Carless, 1998; Díaz Carrión, Lozano Ramírez, and Montiel Flores, 2018; Rosener, 2011; Trinidad and Normore, 2005). Eagly et al.’s (2003) meta-analysis confirms the overall pattern: analyzing forty-five studies of transformational, transactional, and laissez-faire leadership styles, female leaders were found to be more transformational than male leaders and more engaged in the contingent reward component of transactional leadership, while male leaders were generally more likely to manifest the other aspects of transactional leadership (e.g. active and passive management by exception) and laissez-faire leadership.

Gender differences such as these amongst leaders can have important consequences on how workplaces operate. Where gender composition of management teams vary, teams with a higher proportion of women have been shown to monitor employee feedback and development more and promote greater interpersonal communication and employee participation in decision-making processes (Melero, 2011). Additionally, when it comes to wielding power, men have been found to be more likely to make use of the power granted to them by their organizational position and formal authority while women are more likely to ascribe their power to charisma, interpersonal skills, hard work, or personal contacts (Rosener, 2011).

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5 Leadership style which brings issues to management attention only when they deviate from the norm
Stanford et al. (1995), at the risk of sounding a bit reductionist, characterize common attributes of a stereotypical female leader quite neatly:

The themes unravelled through content analysis led to the development of a heuristic model of female leadership. This model characterizes a woman leader as one who prefers to operate from a reward or referent power base. She possesses a high degree of employee involvement that typically results in a team-based management approach. Additionally, this woman has entrepreneurial vision, which she is able to communicate effectively to her employees; this in turn serves as an extraordinary motivating force to achieve the organization's mission. Lastly, this female leader fosters mutual trust and respect between herself and her employees. (p. 15)

Overall, the stereotypical female manager appears more likely than the stereotypical male manager to value team participation, communication, and trust as well as the use of reward. This suggests that female leaders may stress positive social relations more so than male leaders. These findings, combined with information from the previous section on general gender differences where it was determined that women exhibit greater preference for interpersonal interaction and involvement, suggests that women as a group tend to place more emphasis on interpersonal relations, which perhaps underpins why women are more likely to govern using participatory approaches than men. In a study by Kabacoff (1998) on gender differences in organizational leadership, women were found to rate more highly than men on empathy (defined as demonstrating an active concern for people and their needs and forming close, supportive relationships with others), people skills (defined as sensitivity to others, likeableness, ability to listen and to develop effective relationships with peers and superiors), and communication (defined as stating clear expectations, expressing thoughts and ideas plainly, maintaining flow of communications). Also, despite popular opinion, women tended to score more highly on orientation towards production (defined as strong pursuit of achievement and holding high expectations for self and others) and the attainment of results, while men tended to score higher on orientation towards strategic planning and organizational vision.

General gender differences such as these can feed into strategies for leadership, as women as a group commonly place more emphasis on interpersonal relationships and communication. As mentioned in the previous section on differences in values, Marini et al. (1996) found that
women are more prone to focus on the intrinsic, altruistic and social rewards of a job while men commonly focus more than women on the leisure related aspects. This is consistent with the fact that women are more likely to engage in transformational leadership, since it makes use of community and charisma, while men engage more in transactional and laissez-faire leadership, which employs tit-for-tat and freedom based approaches to management, respectively. Overall, it appears women are more likely than men to engage in transformational leadership, which stresses active member participation, exchange and other social – rather than hierarchical – ideals about leadership. The pattern should be quite meaningful to this investigation of gender in the environmental decision making context, as the gender of group members may affect how the group operates and interacts with its own members and other junior employees within the organization. The impacts of leadership style, which appears to be fairly gendered, can influence how an entire organization operates since leaders shape the organization as a whole. Thus, perhaps more women in environmental leadership would lead to a more collegiate and people-focused atmosphere. However, it is worth briefly discussing why women might be more participatory in their leadership approaches. It is to this question that discussion now turns.

**Drivers for Women as Transformational Leaders**

Eagly and Johannesen-Schmidt (2001) suggest three possible explanations for the gendered pattern in leadership style. First, they propose that female managers are more likely to employ transformational leadership styles because it is more effective and female leaders must be more competent than their male counterparts to make it into management level positions (or similarly, that male managers are not penalized as heavily for bad performance). Thus, women could be more likely to use transformational management styles because these are more effective, and a female manager often has to be more competent than a similar male manager to make it to a position of leadership. Bringing social dimensions of gender bias into consideration again in an alternative explanation, Eagly and Johannesen-Schmidt suggest another possible driver for this pattern: female managers may encounter resistance if they employ the more traditional command-and-control / authoritative management styles, perhaps because this violates subordinate’s ideas of expected or acceptable female behavior. Finally,

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6 The relationship between manager effectiveness and contingent reward (one sub-measure of transactional leadership) and all sub-measures of transformational leadership are positive and relatively large ($r_{(1,570)} > .54$) while correlations are negative for passive management-by-exception ($r_{(1,570)} = -.28$), and laissez-faire leadership ($r_{(1,570)} = -.36$) (Center for Leadership Studies, 2000)
Eagly and Johannesen-Schmidt put forward a third supposition in line with what I have already hinted at: namely, that women are more likely to employ a transformational style of leadership due to the alignment of transformational style with traditional feminine gender norms or feminine qualities. This is similar to the argument I have made that general gender differences in attributes like personality and values can affect management style preferences. For example, from the previous discussion on general gender differences (i.e. risk, personality, values, and cooperation), women seem to consistently stress more interpersonal and social ideals than men, whether due to socialization or some innate qualities. This in turn may lead women to prefer the transformational leadership style, which stresses a more people- and interaction-oriented approach to leading.

2.4.2 Women in Business

In addition to gender variation in leadership style, another popular and highly relevant topic for gender research recently is the involvement of women in executive levels of business. There have been numerous investigations into the effects of gender in the business context that closely parallels this current investigation of how gender factors into the environmental decision making space (a leadership space itself). Looking at research on women in business not only provides a similar topic of enquiry that closely mirrors this one, albeit in a different field, but it is also important to discuss as the results in this area hint at what might be observed in other areas as well. The following sections will discuss three noteworthy findings of how gender factors into the business context.

Business Ethics

Numerous studies from countries around the world have investigated the effect of gender on values related to business ethics. A recent study of business students in Lebanon found that while male and female students appear to similarly weight the significance of characteristics associated with being visionary in business (such as being creative, adaptable, diligent, motivated, and favoring of development), female students place greater importance than their male counterparts on the values of ethics (including consideration of others, cooperation, forgiveness, courtesy, broadmindedness, social equality, humor, cautiousness, and fairness) and citizenship (obedience, openness, orderliness, and moral integrity), while male students seem to be more inclined toward value traits of “masculinity” (defined as values of autonomy, aggressiveness, and logic/rationality) (Ismail, 2015). In a related study of business
students in the USA, researchers discovered that although male and female business students do not differ in their evaluation of ethical behaviors that are blatant violations of the law, female respondents demonstrate higher ethical standards of behavior for situations that involve sexual exploitation, social issues, or the integrity of employee relations (Smith and Oakley, 1997). Likewise, in a sample of students pursuing master’s degrees in business in Finland, female students were found to place greater weight on corporate ethical, environmental, and societal responsibilities (Lämsä et al., 2008).

Another gender difference in ideas of responsibility toward others is in preferences for stakeholder versus shareholder business models. The stakeholder model is a business philosophy that asserts a company has a responsibility to a wider group of possible stakeholders rather than just the business’ direct shareholders, while the shareholder model promotes the idea that the sole responsibility of a business is to increase profits for shareholders. In the previously referenced study of Finnish business master’s students, results demonstrated that although students as a whole value the stakeholder model over the shareholder model, female students are even more strongly in favor of the stakeholder model when compared to their male fellows (Lämsä et al., 2008). This finding, combined with the findings of gender differences in ethical valuations and standards in business, suggests that the average female’s ideas on social responsibility may be different from the average male’s. That is, women seem to feel more strongly that they have duties to a wider range of people than just the direct shareholders of a company.

The implications of this are interesting: research on how gender composition of a business’s board of directors relates to measures of corporate social responsibility (CSR\(^7\)) find that with increased women’s representation comes higher CSR (e.g. Bear et al., 2010; Boulouta, 2013; Post et al., 2011; Zhang et al., 2013). In a study across 64 industries in more than 500 of the largest companies listed on the United States (U.S.) stock exchange, it was discovered that greater numbers of female directors is associated with better corporate social responsibility performance in their respective industry (Zhang et al., 2013). Corroborating this, an analysis of 126 companies over a five year period found that increased gender diversity has a strong positive result on corporate social performance (Boulouta, 2013). Although an increase in

\(^7\) Corporate social responsibility is defined as a firm’s self-regulation toward improving their social and environmental impacts, often beyond what is required by law.
gender diversity did not affect “positive” business practices, like increasing the use of recycled materials or giving to charities, it did cause an increase in reduction of “negative” practices like polluting, engaging in controversial judgements, or deriving substantial revenue from fossil fuels.

Given this information, it is no coincidence then that Bernardi et al. (2009) found that having a higher proportion of women on the board of directors is associated with the company being listed on Ethisphere Magazine's ‘World's Most Ethical Companies’ list. For environmental concerns specifically, in an evaluation of 78 Fortune 1000 companies, firms with three or more female directors scored higher on measures of environmental corporate social responsibility (Post et al., 2011). Similarly, a recent look at the relationship between board gender diversity and environmental responsibility in 1,893 lawsuits against Standard and Poor’s 1500 firms finds that companies with greater female board representation experience significantly fewer lawsuits for environmental infringements (Liu, 2018). The consequences of these results are quite significant for businesses: higher corporate social responsibility ratings make companies look good. High ratings of corporate social responsibility have a positive impact on reputation, and thus oftentimes companies with more women on their board enjoy better reputations as a result (Bear et al., 2010; Brammer et al., 2009).

If women on average have stronger ethical and value-based leanings for how they conduct business, as these studies suggest, it is possible that in the arena of environmental management that male and female decision makers may hold somewhat different values, strategies, and priorities for setting and achieving conservation goals.

**Financial Performance**

Although select studies have found no impact of gender diversity on corporate firm financial performance (Carter et al., 2010; Chapple and Humphrey, 2013; Gallego-Álvarez et al., 2010), with one even finding a net overall negative impact despite many other positive impacts of gender diversity in the board room, the majority of studies on gender diversity and corporate performance support the idea that increased gender diversity tends to increase financial performance (e.g. Adams et al., 2004; Bear et al., 2010; Dezsö and Ross, 2012; 

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8 In this study, it is worthwhile to note that the negative effect was driven by companies with fewer takeover defenses; refer to Adams and Ferreira, 2009 for more information
Dwyer et al., 2003; Erhardt, 2002; Rodríguez-Domínguez et al., 2012). For example, a study of 215 Fortune 500 companies found that firms with a higher number of female executives outperformed industry medians on all three measures tested: revenue, assets, and stock holder equity (Alder, 2001). The firms with the most women performed best; that is, the top 10 firms for women outperformed the 15 top, and so on. Similarly, in a study by Curtis et al. (2012) of 2,360 of the largest companies worldwide over a six year period, companies whose board of directors included women had better financial performance than companies with male-only boards. Overall, firm financial performance is positively correlated with percentage of women and minorities on the board of directors according to a sample of 127 large U.S. companies (Erhardt, 2002). Multiple other studies corroborate the general finding that women’s participation in top management increases a firm’s financial performance (Campbell and Mínguez-Vera, 2008; Desvaux et al., 2010; Francoeur et al., 2008; Smith et al., 2006).

The same seems to be true in experimental studies as well: in a three year sample of 37,914 students who competed in a business strategy game throughout 2200 business school across 128 countries, mixed-gender teams consistently outperformed both male- and female-only teams (Apesteguia et al., 2012). A similar experiment, also of business students, discovers analogous results: teams with an equal gender ratio outperform male-dominated teams in measures of sales and profits in course-related startup ventures (Hoogendoorn et al., 2013).

Consolidating this research on financial performance, a meta-analysis that combines results from 140 studies demonstrates that female board representation is positively related to monitoring / strategy involvement and accounting returns, with a more positive relationship in countries with stronger shareholder protections (Post and Byron, 2015). The relationship between women’s board representation and market performance was found to be positive in countries with greater gender parity, but negative in countries with low gender parity which the authors suggest may be due to how investors may evaluate future earning potential of firms with more female directors in such countries.

The reasons for this pattern, though not well understood, may again be explained by drawing the possible explanations Eagly and Johannesen-Schmidt (2001) proposed when thinking about why women tend to prefer different leadership styles than men. Namely, it is possible that firms with higher women’s representation perform better because women executives
must be more competent than their male counterparts to make it into management level positions (or, equally, male managers are not penalized as heavily for bad performance). If only women who are more competent than their male counterparts are selected for high level positions, then the overall competency of the executive members would be higher, leading to increased financial performance. Another explanation provides an alternative view: perhaps women, through socialization or some innate difference, simply choose to go about conducting business differently than male counterparts, and this other way of conducting business leads to enhanced performance.

**Summary**

To reiterate, research on gender and business finds that women appear to have stronger ethical preferences, which may lead to the observed increases in corporate social responsibility and firm reputation as more women become represented in leadership roles. Additionally, female participation in top management seems to improve firm financial performance. Although these findings on ethics, corporate social responsibility, and financial performance may be more specific to the corporate for-profit business context, the effects of women’s involvement in the business world can provide important insight on how women’s involvement may impact the environmental leadership context, because these environmental bodies are a part of businesses themselves (albeit one generally not concerned with profit as the primary goal). The fact that women’s involvement at the executive levels in businesses can have important impacts on how that company functions and performs suggests that the gender of conservation leadership could also important effects on how the organization operates, perhaps in ways that are specific to the conservation context.

**2.4.3 Women in Government**

Women’s involvement in government and policy-making are also noteworthy in their impacts. As discussed previously, studies on general personality differences have provided support for the idea that women are more cooperative than men. More specific studies on leadership and power claim much of the same, bolstering the notion that women are more collaborative and men more individualistic, commanding and competitive (Paustian-Underdahl, 2014; Volden et al., 2013). In a position of power, women tend to empower others through collective means, while men are more likely to assert their power over others (Paustian-Underdahl et al., 2014). Some have noted that women use their political power as a
way to “get things done” while men use it as a way to control others (Paxton and Hughes, 2014). Not surprisingly then, in the political sphere women are more likely to work with opposition political party members to come to decisions (Goetz, 2007; Paxton and Hughes 2007). As a result, female lawmakers are able to keep parliamentary bills alive longer than their male counterparts as a member of the minority party in times of polarization (though men are more effective majority party members in the same polarized atmosphere, possibly because of a less compromising approach) (Volden et al., 2013). Additionally, in times of conflict, female politicians are more likely to try novel solutions to address issues while men are more likely to approach conflict using a more authoritative and manipulative method, eschewing cooperation with the opposition (Iwanaga 2008). These patterns lead women to resolve conflicts more democratically (Jacobson, Palus, and Bowling, 2010).

Outside of the peer workgroup context, female policy-makers still appear to be more collaborative and participatory. In a comparison of male and female city managers, it was discovered that female city leaders are more likely to incorporate citizen input, facilitate communication, and encourage citizen involvement in their decision-making process, and also to believe their responsibilities include motivating staff and communicating with citizens and elected officials (Fox and Schuhmann, 1999). Perhaps not coincidentally then, female participation in government legislatures is negatively correlated with levels of corruption (Dollar et al., 2001) and positively correlated with greater government transparency and higher levels of democracy (Goetz, 2007). Additionally, the presence of more women seems to increase government effectiveness: 16.34% of the variation in government effectiveness across the world can be accounted for by the variation in levels of women in parliament to the effect that a one percent increase of women in parliament would command a 0.042-point increase in the level of government efficiency (Tootell, 2015). With no women in parliament the expected government effectiveness rating would be -0.557.

As far as subjects of policy focus are concerned, male and female government officials are quite similar in most areas (e.g. men and women do not significantly differ in ideas about the economy). However, there are a few notable exceptions. For instance, in a European study, even though no difference is observed amongst male and female politicians in regards to values on the free market economy, European political issues, and moral traditionalism, women are more likely to propose and / or support ideas directly related to women’s issues (e.g. affirmative action, gender equality scales) even after controlling for other influential
variables (Lovenduski and Norris, 2003). Numerous studies find that male and female policy makers are similar in many respects but that female policy-makers are more likely to prioritize women’s issues, and some also find that women are more likely to introduce or support bills concerning more social policies such as those regarding children and family issues, education, the environment, health, housing, and other human services (Berkman and O'Connor, 1993; Bratton, 2005; Chattopadhyay and Duflo, 2004; Clayton, Josefsson, and Wang, 2017; Devlin and Elgie, 2008; Gottlieb, Grossman, and Robinson, 2018; High-Pippert and Comer, 1998; Iwanaga 2008; Saint-Germain, 1989; Schwindt-Bayer 2006; Swers, 2001; Swiss et al., 2012; Taylor-Robinson and Heath, 2008; Thomas, 1994; Wang, 2013; Wängnerud, 2000). Such findings appear across countries, with one study in India finding female local council heads to be more likely to highlight issues seen as mostly under women’s sphere, such as drinking water and sanitation (Chattopadhyay and Duflo, 2004). Female leaders also appear more liberal on welfare policy than men (Poggione, 2004), and may also think a bit more holistically. For example, in a sample of more than 150 Texas city leaders, male and female leaders espouse similar ideas on traditional economic development, though women consider the influence of economic development on the community environment and aesthetics more than their male counterparts (Vanderleeuw et al., 2011).

Interestingly, women’s participation in government also has direct effects on environmental protection. A study of 130 countries finds that nations with greater representation of women in parliamentary positions are more likely to be ratify environmental treaties (Norgaard and York, 2005). Similarly, a study across 25 developed and 65 developing countries finds that nations with more women in parliamentary positions are more likely to set aside national land for conservation (Nugent and Shandra, 2009).

To summarize, the body of research on women in law and politics finds they are often more care-oriented, collaborative and participatory than their male colleagues. Additionally, in the government arena, men and women are largely similar on a great deal of issues, though women appear to lend more support for women’s issues, some social issues, and even environmental issues.
**Significance**

These findings on gender disparities in government operation and policy preference present extremely interesting results that provide ample justification for encouraging the investigation of gender in the environmental leadership context. For example, the finding that female city managers are more likely to reach out and incorporate citizenry in government processes suggests there could be similar sorts of patterns in environmental management as well, where one might conjecture that female employees in conservation organizations may demonstrate a stronger preference for the inclusion and education of the public on conservation issues. Moreover, the fact that women in politics are more likely to favor not only policies relating directly to women’s interests, but also social interests as a whole may further indicate the possibility of similar patterns elsewhere. Within the environmental context, the mirror for this finding is that perhaps women embrace disparate values, priorities and strategies for managing the environment compared to men.

**2.5 Conclusions**

Overall, in roles of power, from general leadership to business ethics and outcomes, to government and policy decisions, women and men appear to think and behave differently in some interesting ways. Studies all over the world from disciplines as diverse as business, political science, gender studies, geography, and more have uncovered some fascinating discoveries on the role of gender in the workplace. The significance of this important discovery should not be overlooked. Such gender differences and their impacts on processes and even outcomes signal how important and substantial the gender composition of a space can be in a variety of contexts. However, there still remain countless areas yet to be explored. In the field of environmental management, much more remains to be known about how gender fits into the picture. This study aims to illuminate more of this image.
Gender has now been established to be linked to various average differences in risk taking and perception, personality, values, cooperation / conflict, leadership style, business management, and legal / government operations. These areas of gender difference themselves may have important effects on how women operate within the environmental decision making context, and even more suggest the presence of similar gender differences that may be unique to the conservation and environmental management context. However, up to now, this discussion leaves open the question of preceding research on gender differences in relationships with the environment and conservation. Thus, focus next turns to a two part discussion on gender and the environment. Part I covers research on gender differences in environment concern, pro-environmental behavior, and environmental management amongst the general public, then Part II turns to a discussion of gender in the field of conservation work more specifically.

3.1 Part I: Gender and Environmental Concern, Behavior, and Management

3.1.1 Differences in Environmental Concern

Do men and women feel similarly when it comes to environmental issues? Fortuitously, a multitude of studies delving into the possible differences in environmental concern between men and women have been completed to date. By and large, these studies are carried out by surveying numerous participants on their opinions and feelings relating to the environment. Generally, these studies ask people to fill out surveys with various statements carefully crafted to gauge respondents’ concern for the environment (or lack thereof), which are then statistically analyzed for differences between male and female respondents. Although there has been discussion as to the seemingly mixed results of these studies in the past, the current state of literature seems to show a clearer, more consistent picture. Taken as a whole, the majority of studies investigating how gender affects environmental concern find support for the idea that there is a slight but statistically significant difference, with women in general showing greater concern for the environment, especially in areas of concern that may pose a health risk. The following discusses the intricacies of the studies and will help establish the
overall consensus. The following section derives from a thorough search of academic literature using Google Scholar and the University of Otago’s “Library Search” function. Searches were done using the terms “environmental concern”, “gender”, “sex”, and “women” in various combinations in each of the two search engines. Any and all relevant studies from these searches were included in the review. In this way, the following section is similar to a systematic review.

Despite the fact that some studies did not identify any gender differences (Arcury et al., 1987; Evans et al., 2007; Hayes, 2001; Kanagy et al., 1994; Levine and Strube, 2012; Tognacci et al., 1972), the vast majority support the conclusion that women show statistically significant, although not substantially higher, general and issue specific environmental concern than men (e.g. Baldassare and Katz, 1992; Blaikie, 1992; Casey and Scott, 2006; Coertjens et al., 2010; Davidson and Freudenburg, 1996; Dietz et al., 1998; Dolisca et al., 2009; Eells, 2008; Greenbaum, 1995; Klineberg et al., 1998; Lee, 2009; Luchs and Mooradian, 2012; Mainieri et al., 1997; Martino, 2008; McCright, 2010; McStay and Dunlap, 1983; Mohai, 1992, 1997; Ozanne et al., 1999; Roberts, 1993; Rogers and Vandeman, 1993; Steel, 1996; Stern and Dietz, 1994; Stern, Dietz, and Kalof, 1993; Van Liere and Dunlap, 1980, 1981; Wester and Eklund, 2011; Wiidegren, 1998; Xiao and Dunlap, 2007; Xiao and McCright, 2013, 2014). This pattern holds true even when controlling for possible confounding factors such as age, education, income and residence. It also appears to hold true across different geographic regions: in a study by Torgler et al. (2008) that looked at seven different variables for environmental concern across thirty-three Western and Eastern European countries, it was found that women are more pro-environmental in their views, and that they demonstrate a higher willingness to contribute to environmental protection by paying additional taxes or giving income. Similarly, in North America, a study found that women more commonly hold preservationist ideals, and are more likely to back bans on environmentally damaging activities (Steger and Witt, 1989). In China, women exhibited greater environmental concern and higher levels of perceived seriousness of environmental problems, pro-environmental attitude, and perceived environmental responsibility than males (Lee, 2009). This difference seems to be present even at a young age, with a study of children in Flemish eco-schools finding that girls have more biophilic tendencies and stronger feelings for the environment than boys (Boeve-de Pauw and Van Petegem, 2011). Amongst sixth grade children in Canada, though there was no difference between boys and girls in ecologistic attitude (the primary concern for the environment as a system and for interrelationships
between living species and natural habitats), girls scored higher on measures of moralistic attitude (the primary concern for the right and wrong treatment of the environment, with strong opposition to exploitation of cruelty to the environment) (Eagles and Demare, 1999). These patterns appear robust across not only countries, age groups, and particular environmental issues, but also over time, with women showing more concern for climate change and environmental destruction and protection consistently over the period from 1990 to 2011 in a Swedish study (McCright and Sundström, 2013).

Nonetheless, it is worth discussing some of the studies which have found no difference in environmental concern between men and women (Arcury et al., 1987; Evans et al., 2007; Hayes, 2001; Kanagy et al., 1994; Levine and Strube, 2012; Tognacci et al., 1972). Many such studies have specific limitations that appear to have led to this finding. Some studies, like Arcury et al. (1987), come to the conclusion that men and women do not differ in environmental concern by testing just one environmental issue (in this case, acid rain). Testing just one factor reduces the generalizability of the research and makes it very difficult to make conclusions about overall environmental attitudes and concern. To say that because women and men do not differ in general environmental concern merely because they did not differ in levels of concern for acid rain would be too much of a sweeping generalization to make with such limited information.

Other studies are merely a bit more nuanced in their results. Blocker and Eckberg (1989), for example, found that women in their study were no more concerned about general ecological issues than men but are more concerned with local scale environmental issues. A study of forest owners in Finland did not find that women were more environmentalist, but upon deeper investigation the reality seemed a bit more complex: women – especially women who were the sole owners of their forest parcels – adopted the position of “logger” and refused to identify with environmentalism (Vainio and Paloniemi, 2013). Since forestry is still considered a largely male domain that is highly shaped by predominant masculine interests and ideologies, women are thought to take the traditionally masculine image of “logger”, eschewing protectionist perspectives as a way to fit in to the status quo while avoiding possible contentious disagreements within a largely male industry. Although there were no gender differences in willingness to engage in conservation, women’s conservation preferences did not translate into action, as men’s did. This further supports the idea that women, being in a hugely male dominated industry, feel they cannot act on their
environmentalist tendencies as much as they might like for fear of violating the existing status quo. Similar studies by Reed (2000, 2003, 2004) support this idea: in a logging forestry culture, women, being a small portion of the stakeholders, adopt positions that fit the current economy-driven status quo rather than take on the enormous challenge of disputing a largely unquestioned system where they make up only a small minority. The discussion of such intricacies provides deeper insight as to why some studies have found no gender difference in environmental concern: sometimes the drivers are a bit more complex than they may seem and some issues are case specific.

Bord and O’Connor (1997) found that women are more concerned with environmental issues that involve specific risks (climate change and hazardous chemical waste in this case), but when health-risk perceptions are controlled for the gender gap disappears. The authors contend that this means women’s greater environmental concern is driven by their heightened sensitivity to risks, and they insinuate that men and women are not really different in their environmental concern at all, that the difference exists merely because women are more likely to feel threatened by environmental problems. However, this conclusion can be interpreted differently. Similar to Arcury et al.’s (1987) study with acid rain, this argument has limited applicability to general environmental concern, as this study only looked at attitudes on climate change and hazardous chemical wastes. This is a very limited scope of environmental concern, with both of these issues being more directly related to human well-being than some other environmental matters (for example, ecosystem or wildlife conservation). When many people think of issues of climate change and especially hazardous chemical waste, their first worry is of the danger it might pose to them personally. This is not the case in numerous other areas of environmental concern that are not primarily driven by fearful self-interest. But even more, Bord and O’Connor’s argument that differences in men and women’s environmental concern exist only because of gendered differences in health-risk perception misses the point: even if the driver for women’s increased concern for environmental issues is due to higher health-risk sensitivity, there still exists a difference between genders. This in no way minimizes the differences between men and women’s environmental values, but rather strengthens them. This contrasting perception of urgency and threat of environmental issues is an important component that distinguishes men and women. It is not some confounder to be controlled for, but rather a central difference shaping environmental opinions. The fact that women and men look upon environmental issues with differing views of risk and severity in no way lessens the fact that men and women differ in
environmental concern, and in fact does exactly the opposite by providing a reasonable explanation for the pattern. Women may then be conjectured to view environmental issues with more gravitas, and indeed a number of studies have found women rate the seriousness of environmental issues higher than men (e.g. Baldassare and Katz, 1992; Lee, 2009; McCright, 2010).

Moreover, while women often view wildlife and the environment as worthy of protection irrespective of its utility to people, men (at least in Western countries) commonly rate higher on dominionistic and utilitarian scales for animals and the environment, seeing humans as having dominion over the earth and valuing the natural world more for its usefulness to fulfill human needs and desires than for its own inherent worth (Boeve-de Pauw and Van Petegem, 2011; Kellert and Berry, 1987; Oerke and Bogne, 2010; Zinn and Pierce, 2002). In a study by Zinn and Pierce (2002), on a seven point scale of values toward wildlife where +3 is strongly utilitarian and -3 is strongly protectionist, women as a group scored a mean of negative (-) 0.18 (in the protectionist range) while men scored positive (+) 0.74 (in the utilitarian range), a difference that is statistically significant with a p < .001. It is perhaps unsurprising then that numerous studies find women to be less supportive of hunting compared to men (Kellert and Berry, 1987; Mankin et al., 1999; Martino, 2008; Thornton and Quinn, 2009) and more concerned for the welfare of wildlife (Arjunan et al., 2006; Czech et al., 2001; Howard and Parsons, 2006; Kellert and Berry, 1987; Martino, 2008; Uliczka et al., 2004; Wolch and Zhang, 2004; Yang et al. 2010).

Similarly, women exhibit higher support for the Endangered Species Act (ESA) and value the importance of species protection relative to private property rights more highly than men in the United States (Czech et al., 2001). This is even the case in rural areas where the animals under protection could pose a danger to humans and where women’s higher risk perception may be thought to push them toward less pro-wildlife stances. For example, women in a rural area of India close to a tiger reserve are more supportive of tiger and forest conservation than men, citing the reason for this being they felt the tigers had a right to live (Arjunan et al., 2006). Similarly, with cougars in North America, despite surveys that indicated women feared the animals more than men, they still were more likely to take a stronger stance for their conservation (Thornton and Quinn, 2009; Zinn and Pierce, 2002). Overall, women and men appear to value wildlife differently, with women especially viewing wildlife as objects
of affection that deserve protection and men being more likely to view wildlife and nature as a resource to be used for people’s benefit.

In summary, while some researchers have discussed the “mixed” results of studies looking at the effect of gender on environmental concern, the reality is the vast majority of studies on this topic corroborate the claim that women are more pro-environmental, though by a modest margin. Just a handful of studies find no difference between genders and only two studies of all identified found men to exhibit greater environmental concern that women (Arcury and Christianson, 1990; Xiao and Hong, 2010). Moreover, in many of the studies that did find no gender differences, further investigation reveals reasons to suggest the result may be somewhat misleading. With the overwhelming number of studies that support the idea that women display greater environmental concern, just a few that show no difference, and even fewer that find the opposite, the current consensus is that environmental concern is usually somewhat higher in women than in men.

3.1.2 Differences in Pro-Environmental Behaviors

Similar to the case for gender differences in environmental concern, there has been some discussion of the seemingly “mixed” results of studies looking at gender and pro-environmental behavior. Nevertheless, a systematic and chronological look at the literature helps demonstrate that there are not inconsistent results so much as there are nuanced differences in men and women’s engagement in different types of environmental behaviors. Here I will go over the timeline of important publications and the changes each of them has made to the discussion over time. These studies look at people’s engagement in various environmentally friendly activities and test for gender differences, though gender differences in environmental behavior are not necessarily the sole focus of all of these studies.

In an early study by McStay and Dunlap (1983), it was discovered that among both samples of environmentalists and the general public, women were more involved with five of the seven environmental factors tested: pollution control, resource conservation, environmental regulations, environmental spending, and personal behavior. The only two factors in which a gender difference was not apparent were population control and public behavior. The authors were astute to draw from their results the conclusion that although women are generally more pro-environmental in their concern and in most behaviors, this pattern is not observed in the
more public behavioral spheres. In other words, although women seem to be more active in many environmental behaviors, this is not the case in public pro-environmental activities such as socio-political action.

A study several years later had a similar design and result, also testing pro-environmental views and behaviors of men and women amongst environmentalists and the general public (Schahn and Holzer, 1990). Similar to McStay and Dunlap, they found women generally score higher in environmental affect, verbal commitment, and self-reported actual commitment as well as in specific pro-environmental activities including residential energy conservation, water conservation, pro-environmental purchasing, recycling and waste reduction, and protection of health against toxicants. Also similar to McStay and Dunlap, no gender differences were found in the only two categories not related to household behavior: pro-environmental political involvement and conservation of transportation energy.

It is at this point, however, that the literature seemingly becomes more mixed in its results. A study by Mohai (1992) that looks at how gender ties into environmental activism found that even though women exhibit a greater concern for the environment, their rates of environmental activism are actually lower than men’s. This study created a great deal of bewilderment amongst researchers, who had difficulty reconciling the fact that women’s greater concern seemed inconsistent with their lesser activism. Add to this the fact that the results of this study seemed to contradict previous studies which found women to be more pro-environmental in their behavior and it becomes apparent why scientists in the field began to feel unsure of the effect of gender on pro-environmental behavior. It is from this article in particular, it must be stressed, that much of the controversy and confusion surrounding whether or not men and women exhibit different levels of pro-environmental behavior has stemmed. The effect of this article has been long lasting and hard to purge: many subsequent publications on gender differences in environmental behavior have repeatedly referenced this specific study as one of the major works contributing to the confusion surrounding the relationship of gender with pro-environmental behavior.

Not long after the publication of Mohai’s work though, a study found that women engage in higher levels of pro-environmental behaviors and decision making (Roberts, 1993), providing additional literature to help advance researchers on their quest for clearer understanding. Shortly after, another study found much the same, supporting previous work (i.e. McStay and
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Dunlap, 1983; Mohai, 1992) by finding women were more likely to participate in pro-environmental consumer (private) behaviors, while men were more likely to participate in pro-environmental political (public) behaviors (Scott and Willits, 1994).

Not long after this however, a study somewhat contradicted the dominant thread by finding that women were more likely to participate in both pro-environmental behaviors and policy issues, with behavior difference growing even greater as age increased (Steel, 1996). This study served to slightly contradict the dominant message that women are more likely than men to engage in pro-environmental private behavior and less likely than men to engage in pro-environmental public behavior, as this study supported the idea that women were more active on both measures. Also confusingly, a study in the subsequent year found that although women did show higher levels of concern for the environment, they were not more likely to engage in overall environmental action than men, though they were very slightly more likely to take part in personal environmental actions such as recycling, and significantly more likely to lead a “green” lifestyle (Blocker and Eckberg, 1997).

Fortunately, a study with clearer and more consistent results then emerged. This project investigated environmentally friendly consumer behavior, and found that women were more likely to recycle and engage in pro-environmental buying behaviors (Mainieri et al., 1997). They were also more likely to buy one household product over another because they thought it was more environmentally friendly. However, men and women were not found to differ in their likelihood of taking part in pro-environmental political or organizational (public) activities. These results were consistent with the findings in previous papers (discussed above) that had found women to engage in higher levels of pro-environmental private behaviors (including consumer behaviors), with public pro-environmental behaviors showing either no gender differences, or with males demonstrating higher involvement. This was corroborated the following year when another study found that women engage in more pro-environmental consumer behavior (Dietz et al., 1998).

It was at this time – seven years after Mohai’s original publication that raised these initial doubts – that a pivotal paper which attempted to directly address the “paradox” in Mohai’s paper was finally published, at last providing an explanation for why gender differences in environmental behavior are not actually inconsistent in their findings as some have suggested. In this investigation, the researchers demonstrate that women are more likely to
participate in recycling, purchase environmentally friendly products, and engage in pro-environmental political behavior (like much of the past research had shown), but are no more or less likely to participate in organizational environmental action (a public behavior), while men are more likely to attend meetings of environmental organizations (also a public behavior) (Ozan et al., 1999). The authors argue that if Mohai had used an indicator for pro-environmental behavior other than membership in environmental organizations, there would not have been a paradox to begin with, as this seems to be the only measure in which men are more likely to participate than women. Instead, they claim that if environmentally friendly consumerism is the indicator used to measure levels of pro-environmental behavior instead of environmental organization membership, the pattern is clear: women tend to display more pro-environmental behavior than men in private but not public arenas. This explanation made perfect sense. Moreover, it had plenty of previous research supporting it: time and time again past studies did in fact show the same thing: although women participate more in private ecofriendly behavior, this is not the case for public participation. Although this had been said multiple times by researchers before, it seemed no one had clearly connected the confusion surrounding the topic to this one problem. Thus, this study helped clear the confusion by providing an explanation to rectify the paradox, supported by numerous previous publications.

Finally, at the beginning of the new millennium, a review of a decade’s (1988 to 1998) worth of literature accompanied by additional studies that looked at gender differences in environmental outlook and behavior was published, providing further clarification about gender’s impact on environmentalism (Zelezny et al., 2000). By studying all the available literature from the previous decade and conducting three additional studies, this assessment found that women did indeed consistently show stronger pro-environmental attitudes and behaviors than men, with this pattern remaining consistent across many countries and age classes. Also interestingly, the study found that although the difference between genders in measures of environmental concern is relatively modest, the difference between men and women’s participation in pro-environmental behavior has a consistently larger margin.

Next in the line of relevant research came another milestone paper also seeking to clear up the supposedly contradictory effects of gender on environmental behavior. Rather than conduct an analysis of existing literature, the researchers chose to run their own trial, comparing male and female activism and pro-environmental behavior in a sample of
participants of various forest organizations in British Columbia, Canada (Tindall, Davies, and Mauboules, 2003). Their results corroborated previous research, finding once more that although there is no gender difference in rates of environmental activism, women partake in significantly greater levels of pro-environmental behavior. Strangely, while Tindall, Davies, and Mauboules (2003) discovered that level of activism was the strongest predictor of ecofriendly behavior in women, it was not a significant predictor at all for men’s likelihood to engage in “green” behavior. This suggests that women especially seem to make connections between day to day activities and how these small actions relate to larger issues of environmentalism and sustainability.

At this point in the timeline, Hunter, Hatch, and Johnson (2004) attempted to clear up any remaining controversy as clearly as possible by focusing specifically on private and public environmental behaviors and how men and women differ in these across twenty-two different countries. They elected to directly test the two hypotheses that had come about as a result of the brewing debate. Namely that 1) women participate in more private pro-environmental behaviors than men, and 2) there is no gender difference in likelihood of participation of public pro-environmental behavior. For the first hypothesis, Hunter and his team found considerable support for the notion that women do generally engage in more private pro-environmental behavior. This pattern was statistically significant in fourteen of the twenty-two countries, with countries in the sample that rank higher in gross national income being more likely to exhibit this difference between genders. In no case did men demonstrate higher levels of private pro-environmental behavior. The second hypothesis was also supported: in seventeen of the twenty-two total countries, there was no statistically significant difference in public pro-environmental behaviors between men and women. In the remaining five countries, there were three in which women engaged in more pro-environmental public behavior compared to men, and two where men participated more. Both men and women were found to participate in more pro-environmental private behaviors than public ones. This study was very helpful in finally putting to rest the controversy by providing clear support that women do in fact participate in more private (but not public) environmental behavior. More recent studies around the world have continued to corroborate this finding (Ando et al., 2010; Anvar and Venter, 2014; Casey and Scott, 2006; Chen et al., 2011; Delhomme, Cristea, and Paran, 2013; Hadler and Haller, 2011; Haytko and Matulich, 2008; Kim, Jeong, and Hwang, 2012; Lee, 2009; Luchs and Mooradian, 2012 Melgar, Mussio, and Rossi, 2013; Oztekin et al., 2017; Verdugo et al., 2006; Vicente-Molina et al., 2013; Wester and Eklund,
2011; Xiao and Hong, 2010; Xiao and McCright, 2014; Zheng, 2009), though there are still a very small number have found no difference (Chatterjee and Sravasti, 2015; Markowitz et al., 2012).

Looking at the literature to present day, it is safe to say that women engage in higher levels of private ecofriendly behaviors like buying sustainable products, recycling, etc. while men and women do not seem to differ in their public environmental behaviors like political involvement, activism, etc. With the explanation for the reason behind Mohai’s (1992) paradox and all the new research to support the clarification, the controversy at present seems to be settled, and recent articles evaluating similar ideas appear to accept the notion that women exhibit higher levels of pro-environmental behaviors when it comes to private though not public affairs. Recent research has been careful to make this distinction so they can appreciate and take into account the different realms of environmental behavior and how these finer subdivisions of behavior vary between men and women.

3.1.3 Geographical Notes on Environmental Concern and Behavior

Although the majority of studies delving into the gendered effects of environmental concern and behavior have been completed in Western nations, thus bringing into question the global and cultural generalizability of the findings, there are a number of studies that have been done in non-Western nations, most of which support the general finding that women show higher levels of environmental concern and behavior than men.

In terms of nature and wildlife conservation, studies from several non-Western nations consistently find women to be more pro-environmental. One study from China finds that female adolescents exhibit greater environmental concern and higher levels of perceived seriousness of environmental problems, pro-environmental attitude, and perceived environmental responsibility than male adolescents (Lee, 2009). Another study in China that compares the Yi and Mosuo ethnic groups finds women to be more positive than men toward wild animal conservation amongst both ethnic groups (Yang et al., 2010). Similarly, in India women demonstrate more favorable attitudes toward their local forest reserve, tiger conservation and the Forest Department (Arjunan et al., 2006), while women in the Bañados del Este Biosphere Reserve in Uruguay are more likely to see local lands as endangered and important to conserve while also being more concerned with the status of wildlife (Martino,
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In Haiti, women more than men exhibit positive attitudes and greater levels of conservation behavior in regards to forest conservation (Dolisca et al., 2003). These myriad studies across various non-Western nations all converge toward the same conclusion as research from Western nations: women show greater environmental concern than men.

When it comes to pro-environmental behavior in non-Western countries, the findings are still much the same. A study from Mexico found that women report higher participation in water conservation practices (Verdugo et al., 2006), while a recent study by Vicente-Molina et al. (2013) finds women in Mexico and Brazil are more likely than men to engage in various pro-environmental behaviors. This pattern is observed across Asia too: a study by Zheng (2010) compared pro-environmental behavior in the four major East Asian cities of Tokyo, Beijing, Taipei, and Seoul, finding that amongst every one of these cities, women are more likely than men to engage in every environmental action measured, including buying more environmentally friendly household products, reducing water consumption, reusing / recycling, using public transport, reducing fuel for cooking, cooling and heating, and buying organic / chemical-free vegetables. Women are also found to be more likely to participate in pro-environmental behaviors in other urban areas of China (Chen et al., 2011) and in Japan (Ando et al., 2010) as well. Similarly, in Hong Kong, female adolescents are shown to participate in significantly higher levels of green purchasing behavior (Lee, 2009). Thus, overall, most studies in non-Western nations likewise find that women participate in pro-environmental behaviors more than men.

Nevertheless, just as with the studies in Western nations, there are a few in non-Western nations whose results contradict the dominant thread. For example, one study among undergraduate students in Kolkata, India did not find a gender difference in environmental behavior (Chatterjee and Sravasti, 2015). Additionally, two studies in China show a pattern that is different from the common findings in one area but corroborate another: these studies find, contrary to most, that women show lower levels of environmental concern than men, however similar to common findings these studies also discover that despite this difference in concern, women’s participation in environmentally friendly behaviors is still higher than men’s (Chen et al., 2013; Xiao and Hong, 2010).

Thus, though most studies on gender differences in environmental concern and behavior have been carried out in Western nations, there are quite a few from other countries that one can
use to inform understanding of possible regional or cultural variations in this pattern. Looking at all the studies together, it seems that as a general trend women exhibit higher levels of environmental concern and behavior than men worldwide, with cultural and regional variation not appearing to exert much influence on this pattern.

3.1.4 Reasons for Gender Differences

At this point, one might ask, “But why?” Why do women generally seem to care more about environmental issues than men? And why do women participate in more private behaviors, but not differ in public ones? Many researchers have wondered the same and have attempted to answer these very questions. In general, most researchers conjecture that men and women display disparate levels of environmental concern and behavior due to one or a number of gendered socio-cultural characteristics that affect environmental concern and behavior. A number of hypotheses have been proposed, each with varying levels of support. Davidson and Freudenburg (1996) produced a foundational work discoursing the topic in the late 90s which serves as a foundation for this discussion. Davidson and Freudenburg’s (1996) work is built upon and evaluated here with a variety of more recent evidence, with discussion working in order from the least to most well-supported hypotheses.

**Knowledgeable Support Hypothesis:**

The hypothesis with the lowest level of empirical backing is the Knowledgeable Support Hypothesis. The reasoning behind this hypothesis is people who are better informed regarding risk-related issues are generally less concerned with them (since not knowing can lead to an over exaggerated sense of risk and fear). Because men are often more informed on environmental issues, according to this hypothesis, this is why they demonstrate lesser ecological concern than women (Davidson and Freudenburg, 1996). Although it is generally true that men have better knowledge of the environment than women (e.g. Arcury et al., 1987; Blocker and Eckberg, 1997; Boeve-de Pauw and Van Petegem, 2011; Coertjens et al., 2010; Hayes, 2001; Kellert and Berry, 1987; McCright, 2010; Schahn and Holzer, 1990; Steger and Witt, 1989; Xiao and Hong, 2010), this lesser knowledge does not translate to lesser concern, and in fact sometimes does the opposite (e.g. Blocker and Eckberg, 1997; Davidson and Freudenburg, 1996; Hayes, 2001; McCright, 2010; Xiao and Hong, 2010). Because level of environmental knowledge and ecological concern do not seem to have any
significant negative relationship, the idea that men care less because they know more does not seem to be a likely explanation for gender differences in environmental concern.

**Social Roles: Parental Roles and Economic Salience Hypotheses:**

Another hypothesis with minimal support is the Social Roles Hypothesis. This view asserts that men and women differ due to the disparate roles they play in society, with their differing social experiences and skills causing a divergence in environmental concern (Greenbaum, 1995). It asserts that women, as mothers, are shaped to think of the environment in one way (Parental Roles Hypothesis) while men, as economic providers, are shaped to think of the environment in another way (Economic Salience Hypothesis).

The idea behind this hypothesis is that men and women think of impacts on their families in ways related to their social familial role, with mothers being more concerned with the health and care of their family (as nurturers) and fathers being more concerned with economic and material well-being (as providers) (Stern, Dietz, and Kalof, 1993). This is argued to lead mothers to a greater concern for the health and safety of their children, and by extension the health of the environment (whether because of concern for how it may impact their children or a generalization of nurturing principles), while fathers become less concerned with the environment and more concerned instead with economic issues (Davidson and Freudenburg, 1996). This leads men to adopt a “marketplace mentality” focused on material gains and fiscal well-being, while women assume a “motherhood mentality” that extends protection from the immediate family out to other things also perhaps in need of protection, such as animal and plant species or the environment as a whole (McCright, 2010).

Following from this train of thought, parenthood status should then increase concern in mothers and decrease it in fathers, and employment status should be inversely related to environmental concern. Thus, to study the impacts of social roles on environmental concern and behavior, researchers have centered on the effects of employment, homemaker, and parenthood status on environmental views and actions. However, when looking at these factors, most studies have found no significant effect of either parenthood status, full-time employment status or home-maker status on levels on environmental concern or behavior in either men or women (e.g. Freudenburg and Davidson, 2007; McCright, 2010; Mohai, 1992, 1997; Strapko et al., 2016; Xiao and McCright, 2012, 2013, 2014). Even more, between full-
time employed men and women, women still demonstrate greater levels of environmental concern (Mohai, 1992). With little evidence to support the idea that social role affects environmentalism, there seems to be negligible support for the Social Roles Hypothesis.

**Institutional Trust Hypothesis:**

The Institutional Trust Hypothesis contends that women are less trustful of institutions (such as business, government, and science), and as trust decreases levels of environmental concern increase (Davidson and Freudenburg, 1996). When Davidson and Freudenburg first assessed the empirical support for this hypothesis in an investigation of existing research, they found that six of eight studies they identified that looked at men and women’s differing levels of institutional trust revealed that women were indeed less trustful, and seven of nine identified studies corroborated the idea that lower levels of institutional trust translates to higher levels of environmental concern. They did not find any studies with significant findings suggesting opposite patterns, leading them to conclude that the Institutional Trust Hypothesis seems to be a plausible explanation for why men and women differ in their levels of environmental concern and behavior.

However, newer information fails to support this earlier finding. As far as the relationship between institutional trust and environmental concern goes, there is still support for the idea that greater trust is linked with lowered risk perceptions (e.g. Bronfman et al., 2008; Norgaard, 2007; Poortinga et al., 2008; Siegrist et al., 2000). But, this does not always translate to lesser environmentalism, as some studies actually find that trust in government and management facilitates greater willingness to pay for pro-environmental measures like carbon dioxide emission reductions (e.g. Adaman et al., 2011), higher prices for natural resources (e.g. Speelman et al., 2010), and increased eco-tourism taxes and fees (e.g. Jones et al., 2011). This is probably because higher trust in institutions generally also means greater faith in their effectiveness, and therefore greater support given to them. Additionally, a recent study found that trust in government and science was related to increased, rather than decreased, environmental concern (Xiao and McCright, 2013). Taking these findings as a whole, the assertion that increased institutional trust leads to lesser environmentalism does not seem to be all that consistently supported. Greater trust is linked to not only lessened risk perception as the hypothesis suggests, but also increased willingness to pay for pro-environmental measures, and sometimes even increased environmental concern.
Moreover, although there is still recent research that does find men to have greater trust in various institutions (e.g. Cole et al., 2004; Goldfinch et al., 2009; Van der Meer, 2010), there are even more that find no difference between men and women’s institutional trust (e.g. Carman, 2010; Cook and Gronke, 2005; Goold et al., 2006; Gronke and Cook, 2007; Hero and Tolbert, 2004; Kim, 2010; Lawless, 2004; Price and Romantan, 2004; Schyns and Koop, 2010; Slomczynshi and Janicka, 2009), with a few even showing that women have greater trust (e.g. Fuse and Hanada, 2009; Kelleher and Wolak, 2007). The finding that men and women may not actually differ in institutional trust seriously challenges a major assumption of the Institutional Trust Hypothesis, which asserts that women demonstrate higher environmental concern than men due to their lower institutional trust. If there is no gender difference in institutional trust, one of the two main premises of this hypothesis is not established, and the hypothesis is no longer viable. With the current existing research on this topic suggesting a mixed relationship between trust and environmentalism and a possible absence of gender difference in institutional trust, it seems that there is not much evidence to support this hypothesis at the present time.

**Safety Concerns Hypothesis:**

A hypothesis with relatively consistent evidence is the Safety Concerns Hypothesis. This idea contends that health and safety issues are of greater importance to women, leading them to display higher levels of concern for the environmental issues that pertain to specific risks (Davidson and Freudenburg, 1996). When Davidson and Freudenburg first assessed this notion by looking into the relevant research publications, they found support for the assertion that women show greater concern especially for environmental issues that involve risk, supporting the hypothesis. Other studies reinforced this idea as well, finding the greatest magnitude of gender differences of environmental concern in areas that deal with specific risks (e.g. Flynn et al., 1994; Greenbaum 1995; Klineberg et al. 1998; Mohai 1992), similar to Bord and O’Connor’s (1997) argument from the first section of this chapter where they argued the gender difference in environmental concern was a relict of women’s more sensitive health-risk perceptions. As discussed in the section on general differences in men and women from Chapter Two, a myriad of research across disciplines supports the contention that women are more sensitive to numerous types of threats, often showing a heightened risk perception for disease (Brown et al., 1993), crime (May et al. 2010; Warr and
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Stafford, 1983), injury from nature (Drottz-Sjöberg, 1994), HIV/AIDS (e.g. Hillman 2008; Robertson et al. 2006), smoking and other health risks (e.g. Duckworth et al. 2002; Lundborg and Andersson 2008), technological risks (e.g. Fincucane, 2000; Siegrist et al. 2005; Smith et al. 2008), and more (Charnessa and Gneezyb, 2012; Croson and Gneezy, 2009; Slovic, 1999, 2001; Xiao and McCright, 2012). With this being the case, it would make sense that women’s increased sensitivity to risk might translate to increased environmental concern, especially with issues that involve some sort of personal risk.

Going back to the previously discussed paper by Bord and O’Connor (1997), the authors claim that studies showing gender differences in environmental concern are driven by women’s increased sensitivity to risk and hypothesized that women would show higher concern for environmental issues involving risk, but when health-risk perceptions are controlled for, gender differences would disappear. In their study, which looked for gender differences in concern for global warming and hazardous waste, they were able to find that women do demonstrate higher concern, and indeed controlling for health-risk perception causes the gender effect to disappear (in the case for climate change) or at least lessen greatly (in the case for hazardous waste). A more recent study also supported this idea: again they found that gender was a significant and strong predictor of risk perception, that risk perception predicts environmental concern, and that controlling for risk perception eliminates gender differences in environmental concern (Xiao and McCright, 2012). Notably, Xiao and McCright (2012) also found generalized risk perception to be the most influential predictor of environmental concern across all included years studied, accounting for about half of the explained variation in environmental concern. These findings clearly provide support for the idea that women’s increased perception of risk contributes to their greater environmental concern.

However, this hypothesis fails to explain the reason women express higher perceptions of environmental risk in the first place. Furthermore, it fails to explain the great deal of research that finds women also display higher levels of non-risk related environmental concern. If women’s greater environmental concern is driven solely by risk perception, why do so many studies still find women to show greater environmental concern and behavior in areas that are not much related to personal risk? For example, the Safety Concerns Hypothesis cannot explain why women show greater concern for wildlife conservation even though they do not perceive a species’ endangered status as personally threatening or when they feel more
threatened by these animals than men do. Such a gap in explanatory power suggests that the Safety Concerns Hypothesis cannot by itself fully explain the reasons women generally show greater environmental concern and behavior than men all on its own. Another hypothesis must fill in these gaps. This is where the next and final explanation comes in.

**Gender Socialization Hypothesis:**

The most strongly supported and robust explanatory hypothesis for why women exhibit higher levels of environmental concern and behavior is the Gender Socialization Hypothesis. This hypothesis provides a promising explanation for why women often demonstrate greater environmental concern and behavior, even in areas that may not closely tied to personal risk.

Socialization as a concept and term from the mid-1900s is taken by sociologists to refer to the lifelong process of learning and internalizing the value systems, norms, customs and ideologies that are necessary for individuals to become “acceptable” members of the society in which they are a part (Clausen, 1968). Gender socialization, then, more specifically refers to the way males and females are differentially “trained” into patterns of thought, actions, ideology, norms, etc. that are “suitable” for their identity as male or female. Overall, the foundational texts on gender socialization theory contend that males are encouraged to be more competitive, unemotional, rational, controlling, independent, and separatist while females are expected to be more nurturing, compassionate, docile, empathetic, and cooperative (Chodorow, 1978; Gilligan, 1982). Masculinity is thought of as being oriented toward achieving individualism and success, while femininity is focused on attachment and relationships. Correspondingly, in family dynamics, fathers are expected to become economic providers and mothers nurturers and caretakers.

Prominent work in the field of gender socialization asserts that males and females may be socialized differently even in areas of early moral development (Gilligan, 1982). From a young age, females are repeatedly told to consider the feelings and wishes of others, leading to their socialization to be more altruistic in their moral values than males. Similarly, some have claimed that because of their socialization for caretaking and nurturing, women are indirectly shaped to be more concerned for others (e.g. Van Liere and Dunlap, 1980; Mohai 1992; Davidson and Freudenberg, 1996).
This socialization of women toward increased altruism, amongst other significant traits, underpins the Gender Socialization Hypothesis. The idea that women are socialized toward some characteristic that in turn relates to environmental concern and behavior is the crux of this hypothesis. In the case of altruism, a study on the management of commonly-held resources found that individuals who displayed higher levels of altruistic values were more likely to act in the collective interest than those with who hold less altruistic values (Kopelman et al., 2001). Because of trends like this, numerous scientists have supported the idea that altruism may be related to levels of environmental concern and behavior (e.g. De Groot and Steg, 2009; Dietz et al., 2002; Karp, 1996; Schultz et al., 2005; Stern and Dietz, 1994; Stern, Dietz, and Kalof, 1993). Taking these concepts and putting them together, the Gender Socialization Hypothesis suggests that women likely show more pro-environmental concern and behavior than men because they are socialized for some relevant characteristic (i.e. altruism, caring, etc.) more than men, which is in turn positively related to environmental concern and action (Blocker and Eckberg, 1997).

Some authors assert that culture and economics in North America encourages women toward more eco-friendliness, while men are inclined to be more environmentally destructive (Blocker and Eckberg, 1989, 1997). Research by Zelezny et al. (2000) on the impacts of gender socialization on environmentalism shows that women have a greater ability to imagine themselves in another’s position and show higher levels of social responsibility (in line with findings from studies in business from Chapter Two). Consistent across multiple years of study, young women more so than young men affirm a strong personal responsibility for improving the environment (Zelezny et al., 2000). Additionally, across over a dozen countries women report deeper concern for nature, living things, and the biosphere in general than men. This, Zelezny et al. (2000) argue, is a result of women’s increased ability, due to gender socialization, to put themselves in another’s position, where the biosphere can be considered an extension of this “other”. The socialization of females to be more considerate and compassionate of others can be extended out to non-human life, and thus may be a viable explanation for why women show greater concern for the environment. A decade later, McCright (2010) corroborates Zelezny et al.’s assertion with work of their own. They find that women express greater concern about climate change than men and show that no other variable (i.e. knowledge, religiosity, etc.) but Zelezny et al.’s gender socialization argument provides a viable explanation.
Similarly, a study by Stern, Dietz, and Kalof (1993) examines how gender and values influence environmental concern and behavior, dividing motivations behind environmentalism into three categories: concern for self, concern for other humans, and concern for the biosphere. They found that women believe poor environmental quality has a stronger negative effect on themselves, others, and the biosphere than men, and that having such beliefs is predictive of increased environmental behavior. Because women are more socialized to be concerned with the needs of others, they display more helping behavior and altruism in all three categories, demonstrating stronger concern for self, others and the environment than men. Moreover, since specific value factors have been argued to underpin environmentalism, some studies have decided to test directly for gender differences in values. One such study finds that women rate the importance of altruism significantly higher than men (p < 0.01), though there were no gender differences in ideas of traditionalism, self-interest, or openness to change (Dietz et al., 2002). Because so many environmental issues deal with harm to the environment, ecosystem, or species, environmental concern and behavior is strongly intertwined with altruism. Since gender socialization encourages females especially to be more altruistic, gender disparities in environmental concern and behavior can be at least partially explained by gender specific socialization that leads to differences in values, which in turn affects concern for the environment.

Research has also shown women rate higher in agreeableness (e.g. Costa, Terracciano, and McCrae, 2001; Schmitt et al. 2008; see personality section 2.3.4), and high levels of agreeableness have been shown to translate to greater levels of environmental concern (Hirsh, 2010). Agreeableness has been said to relate to altruism, as “The agreeable person is fundamentally altruistic …sympathetic to others and eager to help them, and believes that others will be equally helpful in return” (Costa and McCrae 1992, p. 15). In one study, researchers testing for a relationship between personality traits and perceptions on the importance of sustainability found that agreeableness predicts ideas concerning how important sustainability is, and further that women rank higher in measures of agreeableness (Luchs and Mooradian, 2012). Subsequently, the authors tested the idea that agreeableness mediates the relationship between gender and the importance of sustainability, finding that agreeableness is indeed a mediating factor. That is, when both agreeableness and gender are considered in a model for the importance of sustainability, the effect of agreeableness is statistically significant while the effect of gender disappears. This indicates that women attach greater importance to sustainability than men due to their increased agreeableness,
which is likely to be a result of their gender socialization (or some may argue a biological basis) for this trait.

In the same study, women were also found to be more likely than men to choose sustainability over performance when selecting a product (Luchs and Mooradian, 2012). Additionally, the probability for choosing a more sustainable alternative was shown to increase as perceptions on the importance of sustainability increase. That is, both gender and perceptions on the importance of sustainability independently appear to predict pro-environmental behavior. However, gender was also shown to predict how important an individual thinks sustainability is. Since gender and feelings toward the importance of sustainability both independently predict the likelihood of choosing a more sustainable product, and women appear to rate the importance of sustainability higher than men, it becomes important to test if the gender effect of environmentalism may be driven by a gender difference in thoughts on the importance of sustainability. Using a Sobel test of mediation\(^9\), it was indeed discovered that women seem to exhibit more pro-environmental behavior due to their greater feelings on the importance of sustainability. That is, when sustainability importance and gender are both included in a model predicting sustainable behavior choice, the effect of sustainability importance is significant, while the effect of gender becomes insignificant. This reveals that the reason women are more likely to choose more sustainable products than men is due to the greater importance they attach to sustainability, which is likely an effect of their ideas on social and environmental responsibility, which in turn may be a result of values brought about by gender socialization. Summarizing all of Luchs and Mooradian’s (2012) findings, one sees that women are socialized to show higher agreeableness, which appears to predict increased ratings for the importance of sustainability, which in turn predicts pro-environmental behavior. This research therefore disentangles the complex relationships between socialization, gender, and environmentalism, strongly supporting the idea that gender socialization for certain personality traits that are related to increased environmentalism can at least in part explain why women show greater environmental concern and behavior than men.

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\(^9\) Mediation refers to the idea that the relationship between the independent and dependent variable is influenced by the indirect effect of a third variable (the mediator). A Sobel test is essentially a specialized t test used to determine whether the effect of the mediating variable is statistically significant.
Research from just a few years ago has further reinforced socialization as an explanation. This study found that having a belief in gender traditionalism is inversely related to environmental concern in women (but not men), while having an ethic of care is positively associated with level of environmental concern in both genders (Strapko et al., 2016). Since having an ethic of care itself seems to predict environmental concern, and women are socialized to show more care and empathy than men in general, this finding further bolsters the idea that gender socialization contributes to gender disparities in environmentalism.

Overall, the arguments and research findings in support of the Gender Socialization Hypothesis provide convincing evidence that the driver behind women’s increased concern for environmental issues and engagement in many pro-environmental behaviors can be explained by socialization for “feminine” qualities stressing altruism, compassion, agreeableness, care, and other concern-based personality traits, which in turn are associated with increased environmental concern and behavior. That is to say, females show greater environmental concern and behavior than men because they are socialized differently to men for specific behavioral traits that have been demonstrated to predict environmentalism.

**An Aside on Innate Gender Differences:**

It is of interest to note here that though the predominant hypothesis to explain gender differences in environmental concern and behavior is gender socialization, teasing apart nature and nurture is no easy feat and still has not been resolved. It is likely that this difficulty combined with popular disdain for identifying innate genetic differences among individuals – because it seems to some to insinuate some level of genetic determinism and lack of individual agency – that the preferred explanation for such gendered variation in environmentalism is socialization rather than biology. The gender differences in personality traits (such as altruism) that lead to increased environmental concern and behavior could conceivably be innate or environmental, but separating these two factors proves difficult. Since socialization conveys less genetic determinism, I would argue that this is the likely reason it has been chosen as the go-to explanation while biological differences have been largely ignored. Still, briefly touching upon the possibility for some level of innate gender differences in personality measures that relate to environmentalism is worth addressing.
Some authors argue that much of the evidence for sex differences in men and women are unreliable and exaggerated, though they do note that despite this, innate differences are not necessarily nonexistent (Fine, 2010). Other scholars have made arguments that women may biologically be more empathetic due to the likely evolutionary origin of caring personality traits from the mother-child bond, which would have led to greater offspring survival (e.g. Christov-Moore et al., 2014, see also de Waal, 2010). In fact, Christov-Moore et al. (2014) argue in a recent paper, referring to research in nonhuman animals and human infants/children, that sex differences in empathy have phylogenetic\(^\text{10}\) and ontogenetic\(^\text{11}\) roots that are not the result of gender socialization. The differences in opinion on whether or not gender differences in care-related characteristics exist and to what extent they matter are further complicated by the inherent biases that accompany any human’s endeavors to shed light on this subject. The outcome is hardly neutral ground, and is therefore especially prone to unintentional researcher bias. Some investigators have a partiality that favors findings suggesting men and women are exactly the same while others seem to desire the presence of innate sex differences that may rationalize the sometimes sexist prevailing cultural trends. Even the best researcher cannot altogether escape his or her preconceived unconscious biases, which has likely contributed even more to the controversy surrounding the issue.

Nonetheless, even if one were to assume at least some level of inherent biological difference to explain some of the gender variation in empathy, altruism, agreeableness, care, or other related characteristics that may underlie environmentalism, there is little disagreement that environment and socialization also play a huge role (Ridley, 2003; Rutter, 2006), perhaps an even more important one than biology at times. Uncovering the relative power and influence of nature versus nurture has proved exceedingly difficult due to the fact that many psychological differences are influenced by both concurrently. Nonetheless, research has supported the claim that environment is of vital importance, with one author who overviewed and discussed the current available research, affirming that “…expression of heritable traits depends, often strongly, on experience…” (Collins et al., 2000, p. 228). That is to say, environment shapes what nature predisposes. With stark differences in values being apparent between cultures, many have no problem accepting the idea that socialization and environment can perhaps be more influential than biology. Although one may never know for

\(^{10}\) Referring to the evolutionary history and relationships among groups of organisms

\(^{11}\) Relating to the development of an organism from fertilization to maturity
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sure, the relative influence of nature versus nurture on gender differences in environmentalism is not necessarily as important as realizing that such a difference does exist, and it is likely due to differences in personality, values, and others of these biological and socialized differences.

Going further, these findings suggest that gender may have interesting effects in the field of conservation. If men and women have different preferences for choosing what environmental issues to focus on, use different strategies to come up with solutions, and/or show different preferences in approaches, then the gender composition of conservation leadership may have important impacts on how their group functions, what it does, how it does it, and what it accomplishes. These possibilities are the focus of this research which broadly seeks to ask, “In what way(s) does gender play a role in environmental conservation decision making?” Before continuing on to a discussion of the specifics of this research in Chapter Four, it is essential to give a thorough background on the current state of knowledge concerning women in the field of conservation.

3.2 Part II: Women in Conservation

3.2.1 Recognizing the Importance of Women for Conservation

Since before the turn of the millennium, there has been an increased focus on women’s inclusion in nearly all sectors. Major organizations began long ago to emphasize the state of women in world affairs, addressing how their inclusion may be necessary not only for increased gender equity, but also for improved success in projects across all sectors, and this was just as true in the field of conservation and environmental management. In 1992, the United Nations (UN) Convention on Biological Diversity (CBD) discussed the historic exclusion of women from environmental decision making bodies (UN, 1992b). Later that same year, Principle 20 of the Rio Declaration recognized that women’s full and active participation in environmental management is necessary for sustainable development (UN, 1992a). Eight years later, the United Nations’ Millennium Development Goals (UN, 2000) and the Plan of Implementation created two years following at the World Summit on Sustainable Development (WSSD, 2002) both described a positive relationship between women’s empowerment / gender equality and sustainable environmental management, furthering the idea that the inclusion of women is essential to the world’s environmental
sustainability. Still today, moving towards a more “gender inclusive” approach to conservation remains a point of focus for organizations (UN Women, 2018). In fact, a very recent UN Environment (2018, np) report entitled “Gender and environment statistics” identifies that “Just as women and men have different access to education, economic opportunities and free time in many parts of the world, they also relate to the environment differently.” The report also declares that “Through understanding the differences between women and men, we can design better policy interventions to address their particular challenges, and harness their particular strengths.”

As an overall trend, countries where women are more active participants in society tend to perform better in measures of environmentalism as evaluated by the Environmental Sustainability Index12 (Dulal et al., 2008). Similarly, in data from sixty-one countries over the period of 1990 to 2005, it was discovered that high densities of environmental and women’s non-governmental organizations (NGOs) are linked with lower rates of deforestation (Shandra et al., 2008). In one cross-country analysis, researchers assert that women’s equality and empowerment can have a number of wide-ranging positive impacts on land degradation neutrality (LDN) (Okpara, Stringer, and Akhtar-Schuster, 2019). Not long ago, NGOs began to recognize that deforestation results in a direct loss of income, increase in domestic labor pressure, and increase in negative health impacts on women, and began to address these issues by including forest protection in their goals. Today, unsurprisingly then, a number of organizations and individual advocates alike have recognized the vital importance of women’s inclusion for achieving sustainable development (e.g. MacGregor, 2017; UN Women, 2014).

As time has gone on, many organizations working on environmental issues have begun to add women’s involvement in various aspects of ecological projects as part of their objectives (Agarwal, 2000, 2001; Catacutan, McGaw, and Llanza, 2014; Catacutan and Naz 2015; FAO 2016a, 2016b; Manfre and Rubin, 2012; Shandra et al., 2008; Singh, 2001; The World Bank, 2009; WOCAN, 2013). Some even require certain minimum proportions of women in executive decision making committees. The Ministry of Forest and Soil Conservation (MFSC) in Nepal, which had encouraged women’s participation very early on in their

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12 This index rates levels of environmentalism by looking at twenty-one elements in the areas of global conservation contributions, environmental management effort, natural resource support, historic and current pollution levels, and capacity to improve environmentally over time
history, long ago instituted a policy that recommended at least 33 percent of the executive committee of community forest user groups (CFUGs) should be women (MPFS, 1988).

Despite strong recommendations, there remains a stark difference between rhetoric and action. For as much talk as there is about the importance of including women and truly representing their interests and desires, the realities of what many organizations do has been criticized in the past as being merely perfunctory tokenistic inclusion of women (White, 1996). Many organizations still run in a highly bureaucratic manner in which the needs and ideas of the people they are trying to help, especially women, are secondary to the pre-determined goals and ideas of the organization itself. As a result, the inclusion of a specified proportion of women ends up as little more than a checked box in a list of corporate-style objectives. Because of this, even women in more progressive projects still rarely get the chance to genuinely exercise their own ideas and philosophies in the decision making arena.

Nevertheless, just the idea of requiring women’s involvement at all is progressive. Even today, despite lacking representation, most programs have no rules to ensure women’s inclusion in decision making bodies, or even inclusion in more general aspects of projects. Despite some lovely sounding national and international agreements on goals for women’s inclusion in environmental decision making, environmental leadership today still remains heavily male dominated (Prebble, Gilligan, Clabots, 2015). According to IUCN (2015b), in six of nine (66.67%) global and national level conservation governance organizations (i.e. Government Delegates to the Rio Conventions, National Focal Points to the Global Environment Facility, etc.), women comprise less than one-third of these decision makers.

3.2.2 Prevalence of Women in Environmental Decision Making

There are numerous researchers who have recognized the habitual exclusion of women from environmental decision making bodies and have brought them to the forefront attention (Agrawal, 2001; Benjamin, 2010; Bhatta, 2002; Buffum et al., 2010, Giri and Darnhofer, 2010a, 2010b; Gupte, 2003, 2004; Mayoux, 1995; Saigal, 2000; Sunam and McCarthy, 2010). Sodhi, Davidar, and Rao (2010, p. 1035) state that “women are not well represented in the governance of natural resources at local to global scales”, and although it can be difficult to determine accurate estimates of the usual gender composition of environmental decision making bodies, a few studies have provided such information. Several quite old studies in
India and Nepal put the percentage of women in environmental decision making bodies at less than 10% (Ballabh and Singh, 1988; Guhathakurta and Bhatia, 1992; Kant, Singh, and Singh, 1991; Moffat, 1998; Narain, 1994; Roy et al., c.1992; Sharma and Sinhav, 1993; Singh and Kumar, 1993), while similar more recent studies in Thailand (Benjamin, 2010) and Ethiopia (Saguye, 2017) find women constitute 16% and less than 20% of forest management assemblies on average respectively (though 70% of groups from Ethiopia have no female committee members). Groups containing only women have been even rarer than mixed gender groups, with women-only teams appearing to make up just around 3% of all groups in Nepal and even less in India as of the late 90s (Moffatt, 1998). These all-female groups, however, still maintain an exception in that they are usually found in areas of high male outmigration or where local organizations or donors have promoted such groups.

Although representation data from more developed parts of the world is relatively scarce, available studies suggest this is a worldwide trend. A few studies from Europe make no mention of exact numbers, but also point out a lack of women’s representation in higher level environmental protection positions (Brandth and Haugen, 1998; Svarstad et al., 2006; Westberg and Powell, 2015), indicating the lack of women’s presence in environmental decision making bodies is not likely to be limited to any particular geographical area. In a personal communication with authors Kellert and Berry (1987), a United States Fish and Wildlife Services employee is quoted as having identified that women make up 80% of lower level white collar positions, 38% of white collar positions overall, and only 8% of higher level positions in their organization. Similarly, a study of New South Wales (Australia) National Parks and Wildlife in the mid-1990s found that women made up 22% of ranger positions, but only 10% of senior ranger positions, and 30% of assistant district manager positions but 0% of district manager positions (Davidson and Black, 2001).

Some may argue this information is too old for accurately informing the state of women’s representation in conservation in recent times, but more recent information suggests a lack of female environmental leadership endures to recent time. A 2013 sample of 34 resource co-management boards in Northern Canada found of 210 total members, only 34 (16%) were female, with nine boards consisting entirely of men and eighteen boards containing only one single female representative (Natcher, 2013). Only seven of the 34 resource co-management boards contained more than one female representative. A study of ten Turkish and nine UK environmental NGOs (ENGO) found much the same, observing that “while the ENGO
sectors in both countries are dominated by female employees, white, middle class men are in charge of the decision-making” (Kulcur, 2012, p. iv). In these Turkish and UK ENGOs, men comprised a majority of board members in all organizations except one, with women on average making up 29.8% of UK and 27.9% of Turkish boards. Here in New Zealand, a 2019 publication found the New Zealand Ecological Society council has averaged 70% men from the period 1951 – 2018, though women’s representation has gradually increased over time (Wehi, Beggs, and Anderson, 2019).

At more international levels, IUCN has recently collected information on women in conservation and environmental leadership. The IUCN’s National Focal Points of the Global Environmental Facility (GEF) has adopted a policy to ensure equitable participation of women in GEF projects, however women still comprise only 29% of the GEF (IUCN, 2015b). In the UN Forum on Forests (UNFF) women similarly make up only 24%. Women’s participation in the Rio Conventions as non-governmental organization (NGO) representatives is far better, being just under the 50% mark, but is far less in positions as government delegates (which range from 26-38%) and bureau members (15-45%). As heads of national environmental sector ministries, women’s representation is especially low at just 12%, and 18% for world energy council secretaries (even worse for world energy council chairs where only 4% are women: 24 males and one female). Interestingly though, 48% of nationally elected green party leaders are women (IUCN, 2015b).

Notwithstanding the aforementioned information, there is overall a lack of data on gender in environmental leadership. Although there are a number of studies of small community groups in developing countries, especially India and Nepal, and at the large international level, as the UNEP and IUCN (2018) shrewdly point out,

At national level, much progress can be made to measure women in environmental decision making at all levels, including within the national government (e.g. leadership position within environmental ministries and agencies); within sector-specific environmental management committees and working groups (e.g. water and forestry groups); within state and local governments, and within leadership boards of civil society organizations, NGOs and the private sector. (p. 41)

Given what is known about women’s low overall representation in conservation and environmental management in the studied areas, with the possible exception as NGO
representatives and green party leaders at the national and international level, it becomes extremely valuable to try to uncover if this pattern exists in other contexts and levels and what impacts this may have on environmental management more generally. What is the state of women’s representation in conservation leadership in other settings, what are the barriers and ways to enhance inclusion, and does it even matter? Does having more women in conservation and environmental management change anything anyway? It is to these questions that discussion now turns.

3.2.3 State of Women’s Inclusion in Environmental Decision Making

Women’s inclusion in environmental leadership encompasses more than merely being given a seat at the table and the title of “decision maker”. Women must not only be given representation, but they must also be afforded the same respect, consideration, and eminence as their male colleagues. Without this, one can argue that women are not truly included, as their opinions and suggestions will not carry the same weight as their male counterparts who will continue to dominate decision making, even as women become more numerous, by virtue of their greater rank and prominence. When conditions are disempowering to women, their preferences may not translate into action (Cook, Grillos, and Andersson, 2019). Thus, next, an investigation into the state of women’s inclusion in environmental decision making reveals difficulty with how women are able to function in the decision making context. This section discusses some of these findings, though most available information is unfortunately still limited to the developing world context within small community-based conservation organizations.

When it comes to forestry management in many developing regions, it seems women have very little say at all in the environmental decision making process concerning how their local forests are managed (Singh, 2001). This is particularly disturbing considering that in these lesser developed rural areas, women have been identified as the primary users of forests and forest products since they are usually the ones tasked with collecting firewood for the family. Their exclusion thus makes little sense, as decisions (by men) to close forests to collection disproportionately affects women, who must now travel further distances to find suitable fuel (Agarwal, 2000; Sarin, 1995; Singh, 2001). As the forest regenerates, the rules are relaxed, but this process can take quite some time. And since the women bear the brunt of this burden,
the men on the decision making bodies feel little pressure to prioritize quick solutions to address issues relating to forest regeneration.

When women are given control over decision making through being granted their own groups, they are often given smaller plots and poorer land than other groups (Agarwal, 2000). When comparing women-only community forest user groups (CFUGs) in Nepal, the average forest area per household of women-only CFUGs is only half of the total average (Acharya and Gentle, 2006). In a similar project, the average area of land given to women-only community forestry (CF) program groups is three times smaller than average (Gentle, 2003). Women-only CFUGs in India also generally receive smaller areas, with almost 50 percent of women-only groups controlling less than 10 hectares of poor quality land in need of artificial assistance for regeneration (Agrawal, 2001). Thus, even when women are given greater power and ultimate control (i.e. in cases of women’s only groups), they are generally disempowered in other ways, i.e. by being granted smaller and poorer quality lands.

When women are included in mixed groups, inclusion more often than not appears to be tokenistic in nature. That is, these women are afforded very little respect and decision making power, limiting their influence on the outcome of decisions (Brandth and Haugen, 1998; Cornwall, 2003; Nguyen and Dang, 2018). Although implementation activities may be somewhat gender inclusive, planning and decision making is highly still dominated by men (Saguye, 2017). Women are often relegated to lesser positions, only occupying high level seats in associations containing solely women (Hondrade and Rodriguez, 1994). This sort of in-name-only representation has been observed firsthand by researchers in the field. In one particular study in India, there was an emphasis on women comprising a certain proportion of the executive committee, but their involvement appeared to be but an empty gesture giving the illusion of inclusion, when in reality the amount of their influence was generally entirely dependent on the willingness of the men involved in the committee to listen (Mohaty, 2002, 2004). In another study, a few women were included in the general body and executive committee, but their inclusion was more as paid employees than active contributors (Singh, 2001). These women were included as a strategic way to demonstrate women’s involvement and motivate other women rather than to truly give women a voice in decision making. In this way, the involvement of women in some groups appears to satisfy organizational “gender goals”, with their involvement leaning more toward tokenistic inclusion rather than transformative structural change.
It seems then that the number of women on a decision making body can often not represent the real influence of women, and special attention must be paid to not only ensuring women are present on decision making bodies, but that they also have the political clout necessary to be a contributing component of the group. The mere inclusion of women as token members will not create any sort of improved outcomes, as the dominant group voice will remain the same and decisions will not be altered. Clearly, for women to truly be “included”, they will need to be not only members of a group in name, but in practice as well. They must make up a significant proportion of a group with the ability to speak out and be heard (Agarwal, 1997; Sarin, 1995). Women must not only be present, but also participate and be respected by other members of the group. As Cornwall (2003) states, women’s opportunities to influence decision making in forest protection committees rest not simply on getting women onto these committees, but on how and whether women represent women’s interests, whether they raise their voices and, when they do, whether anyone listens. (p. 1392)

From this comes the importance of the idea of critical mass, the idea – established in the 80s – that the inclusion of too few women in a group fails to create an environment where women feel comfortable to speak up (Oliver 1980; Oliver and Marwell 1988; Oliver, Marwell and Teixeira, 1985; Dahlerup, 1988). When women make up too small a proportion in a group, they may be treated differently and may hold back their opinions for fear that they will be ignored or penalized in some way. In a study of women in politics, Dahlerup (1988) found that once women made up more than 30 percent of seats in Parliament or local councils, there were fewer exclusionary practices and stereotyping by men, greater weight given to women’s concerns in policy formulation, less aggressive manner of debates, and more consideration of family obligations in setting meeting times. This sort of change in group environment is necessary for women to feel comfortable enough to speak up, and even more for women to be taken seriously when they provide their insights into decision making processes. If women do not feel as if their opinions will be taken seriously, the proportion of them in an executive committee becomes irrelevant, as they will not be likely to contribute much to a group in which they see themselves to be perceived as a low rank, minimized member.

The idea of critical mass has been tested directly in the field of conservation management by Agarwal (2010). In her study, Agarwal found support for the idea that the critical mass
needed for women’s effective participation in environmental decision making groups is somewhere between 25 to 33 percent. In addition, she found there are other factors that appear to be involved in women’s effective participation, including economic class. This supports the notion that there are a multitude of factors at play in the involvement of women leadership other than just their relative numbers. Numbers alone cannot influence policies. The economic class of the women involved was shown to be a significant contributor to effective participation because it has an effect on the influence of the individual, with higher economic status usually equating to more influence. It is important to recognize the subtleties involved in the power dynamics of groups that grant some members more control than others. To be effective in getting their voices heard, women will need to have self-confidence, assertiveness, influence, and solidarity as a group to truly be able to represent themselves. As in the Dahlerup (1988) example, as women become more involved, it seems to become more acceptable for women to speak up and their opinions begin to be treated with more serious attention and respect. This ties into a conceptual model image (pictured below) put forth by Acharya and Gentle (2006) that explains the process of women’s empowerment in an organization through participatory changes and education, nicely depicting the essential role of critical mass in achieving decision making that is inclusive of women and other sidelined members of society (see Figure 3.1).
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The state of women’s inclusion in environmental decision making bodies has been far less studied in Western nations. However there have been some studies which have addressed this question. In Norway, as discussed previously, despite women comprising a relatively large proportion of forest owners, they have thus far had little impact on forestry in the country (Brandth and Haugen, 1998). There, women have been entirely absent from the organization and management levels of forestry, where most decision making occurs. Even at local levels, it seems women’s involvement is limited and conservation authorities ignore policies and legislation on gender equality (Svarstad et al., 2006). The situation appears to be similar in Sweden (Westberg and Powell, 2015), Turkey and the UK (Kulcur, 2012), with women occupying lower status positions rather than the scientific expert or leadership roles generally valued in environmental organizations.

Figure 3.1 Conceptual Model of Critical Mass in Decision Making: Conceptual model showing where critical mass fits into the larger decision making framework (Acharya and Gentle, 2006, p. 12)
Of course, it is important to understand that attempting to integrate people with various values and priorities often leads to disagreement. The ideals and concerns of one group are not necessarily in line with that of another group, and this can certainly be true when it comes to the conservation desires and priorities of women compared to men. Thus, one must keep in mind that an overemphasis on consensus, even with the best of intentions, can exacerbate exclusion of marginalized groups (Agrawal et al., 2006). In situations where unanimity is highly valued, dissent is stifled and dissident groups may be further relegated and penalized for sharing their opinions. It is therefore important that decision making bodies do not put too much weight on agreement, and rather understand that the best way to move forward with ideas in groups with diverse members is to compromise.

In summary, information on the prevalence and involvement of women in environmental decision making is limited, especially by geographic region and publication date, and new research needs to be undertaken to get a more current idea of women’s predominance and nature of engagement. Nonetheless, research suggests women comprise a small component of environmental leaders across the world and furthermore that when women are included, they often possess little political clout necessary for their opinions to be heard and taken seriously.

3.2.4 Barriers to Women’s Inclusion

There are a plethora of reasons behind the exclusion of women in environmental leadership, but these reasons appear to be relatively consistent across geographic locations. The largest and most common barrier to women’s inclusion by far, no matter the geographic area, are the prevailing social and cultural norms (Agarwal, 2000, 2010a; Belsky, 2003; Coleman and Mwangi, 2013; Ghimire-Bastakoti and Bastakoti, 2006; Gurung, 2002; Gutierrez-Montes et al., 2012; Lama, and Buchy, 2002; Meola, 2013; Mogotsi et al., 2016; Sultana and Thompson, 2008; Sun et al., 2010; Watson, 2005). The overwhelming majority of cultures today, whether in more or less developed nations, are patriarchal. In these cultures, men are commonly typecast to be the “natural” leaders, with women being seen as less competent than their male counterparts (Agarwal, 2000; Coleman and Mwangi, 2013; Tiessen, 2008). Add to this the fact that men often have territorial claims on decision making (Agarwal, 2000), and actively oppose the inclusion of women on decision making bodies in many areas (Lama and Buchy, 2002), and the reasons why women are so few becomes a little clearer.
In regions with more rigid gender roles, particularly rural areas of less developed nations, women’s participation in environmental leadership is sometimes especially limited, as some of these places consider it improper for women to be a part of executive groups (Agarwal, 2000). In such areas, common ideology asserts that it is the responsibility of women to handle domestic duties such as cooking and tending to the children, rather than spend their time participating in the creation of environmental policies, an exploit generally perceived as a man’s duty. Women are seen as less capable and often times less intelligent than men, and their opinions are not well respected (Nightingale, 2002). In fact, in Agarwal’s research (2000, p. 302) one man in India went so far as to say, “Women can’t make any helpful suggestions”. Some very recent studies have demonstrated a tendency for men’s opinions to be given more weight during meetings (Saguye, 2017). The ideas concerning women’s lack of ability permeates even to forest officials in the Joint Forest Management (JFM) program in India who rarely consult with female members of management programs and who have been known to verify the veracity of women’s statements with other men before accepting their validity (Roy et al., 1993). Sometimes these ideas about women’s lack of capability even translate to rules that restrict their participation (Agarwal, 2002). Due to such strong norms against women’s involvement, many women drop out of executive groups or choose not to participate at all.

The lack of respect and recognition of women in these rural lesser developed contexts can translate into further lack of access. Men can be quite opposed to the inclusion of women, saying that women have other groups, thus groups concerning environmental decision making should be left to the men (Agarwal, 2000). Sometimes the way women are excluded is a little stealthier. Some groups in India and Nepal institute fee or donation based memberships that disproportionately affect women’s ability to participate (Coleman and Mwangi, 2013). Moreover, since men make little effort to accommodate women, perhaps through purposeful exclusion or simply a lack of consideration of women’s potential limitations, they often schedule meetings that are logistically unfavorable for women (because of their domestic responsibilities), choosing locations that are inconvenient and at poor times of day for long durations (Cornwall, 2003; Lama and Buchy, 2002, Sun et al., 2010). In addition to their domestic duties, other burdensome labor demands, such as needing to venture out for fuelwood, can restrict women’s participation (Lama and Buchy, 2002; Meola, 2013). In addition, women often do not receive communications on related events,
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further suppressing their involvement (Otsyina, 2002; Moffatt, 1998; Raju, 1997; Sun et al., 2010). Fortunately, if women are included in committees from the start, before men’s interests have taken a hold, it can be a bit easier for women to be represented as decision makers (Mansingh, 1991).

The sociocultural norms and other factors that restrict women’s inclusion in environmental leadership are present in developed nations. Living in a developed nation that places greater emphasis on gender equity is no guarantee of equality, as entrenched sexist attitudes that are the result of existing patriarchal norms still exist in nearly all countries today. Although many Western and non-Western nations have made conscious efforts to rid themselves of preconceived sexist notions against women, unconscious prejudices that have been instilled subconsciously throughout upbringing and social norms are certainly difficult to recognize, and even harder still to eliminate through sheer determination. As such, despite best efforts, there still remain vestiges of stereotypes that separate men and women’s positions in society in even the most progressive nations. For example, when it comes to environmentalism in Europe, forestry, even in these more developed nations, has been even up to recent decades perceived as a male domain (Brandth and Haugen, 1998; Gurung, 2002; Watson, 2005). Additionally, when women do make it to leadership positions, even in “gender progressive” Western nations, they are often subject to prejudice and even face social and economic penalties for behaving in ways that challenge the dominant gender hierarchy (i.e. being assertive rather than docile, etc.) (e.g. Rudman et al., 2012) (more on this later in section 5.6.3 “Gender Roles in Leadership”). This puts women in a difficult position, as leadership qualities and “appropriate” feminine qualities are often at odds with one another.

Another factor contributing to women’s lack of inclusion in environmental decision making bodies – both in more and less developed countries alike – is their relative lack of experience, skills, and confidence (Lama, and Buchy, 2002; Sun et al., 2010; Sunam and McCarthy, 2010). Since women have not often had the ability to participate in decision making, they lack the necessary skills that involvement in an executive committee can afford them and the confidence that goes with it. This can leave women feeling incapable and unable to contribute, even when opportunities present themselves. Similarly, research has shown that cultural stereotypes about gender bias women’s perception of their own competence, even controlling for ability, leading them to choose different careers and activities than men (Correll, 2001). Of course, there are also some women who just are not interested in
participation in the first place (Agrawal, 2001; Jewitt, 2000a; Resurreccion, 2006). Overall though, it seems much of women’s exclusion from environmental leadership boils down to three main factors: sociocultural norms, lack of access, and lack of confidence.

3.2.5 Enhancing Women’s Inclusion

To increase women’s participation in environmental leadership, clearly the largest and most salient point to address are issues of gender and societal norms (Nuggehalli and Prokopy, 2009). Much of women’s exclusion from executive bodies, be it in rural areas of less developed countries or in metropolitan cities of gender progressive Western nations, boils down to dominant perceptions of women’s place in society and their ability to be successful contributors to decision making and leadership. Changing deep-rooted prejudices about women will be no easy feat, but it is surely achievable. As women’s involvement becomes more commonplace, men’s opinions of them become less shaped by stereotypes, and men tend to become less exclusionary of women and more attentive to their issues (Dahlerup, 1988). In a study of floodplain management institutions in Bangladesh, as women became more involved in management groups and their contributions led to increased success, men became more willing to respect to their input (Sultana and Thompson, 2008). This in turn led to women showing increased interest in joining the groups, and men becoming more accommodating of their involvement. Similarly, increasing the amount of women in Nepal’s Forestry Department contributed to a decrease in gender bias of forestry authorities by increasing their awareness and sensitivity to the hardships of rural women (Gurung, 2002). The occurrence of such positive feedback loops show great promise for creating a future in which the prevailing social and cultural norms surrounding women change to reflect the ideal that both men and women are equally valuable and essential contributors to executive bodies of environmental management.

Another vital method for improving women’s inclusion in environmental decision making bodies is increasing access. In recent decades, as the importance of involving women in all sectors has become more and more obvious, upwards of one hundred countries have adopted quotas for women in political office (Krook, 2006). This has led to much improved gender equality in group composition in the countries in which they have been instituted, bringing rates of women in office from single digits to upwards of 50% in some places. As touched upon previously in the discussion on the importance of critical mass, this has important
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implications for women’s ability to be effective members of the group: as their numbers increase past critical mass values, women are more likely to speak up and have their opinions taken seriously, and thus are more likely to be able to fully contribute to the decision making process. Setting rules for gender composition, similar to Finland’s mandate that neither sex can be under 40% of any indirectly elected governing body (Maria Holli et al., 2006), can be a viable way to increase women’s access and involvement in executive bodies of environmental groups. The organizations that oversee environmental decision making bodies can institute gender progressive policies that specify acceptable gender minimums. Some large NGOs, like World Wildlife Fund, have instituted programs that focus on women’s education (Sodhi, Davidar, and Rao, 2010), so it would not be much of a jump to move into addressing issues of lacking representation of women in the leadership of their community-based programs. Though such mandated rules for women’s representation may at first lead to mere tokenistic inclusion, the number of studies showing positive benefits and increased engagement with women following their increased participation suggests that such policies show promise for encouraging the transition to real, meaningful involvement of women in environmental leadership.

Two other factors also appear to increase the probability of women’s participation: wealth and education (Agarwal, 2000; Baral and Heinen, 2007; Coleman and Mwangi, 2013; Gupte, 2003; Sultana and Thompson, 2008). Women from wealthier households generally are freer from many of the time-intensive labor burdens that restrict lower class women from being able to attend and participate in meetings. Similarly, attaining a higher level education appears to increase women’s confidence in their skills, resulting in increased involvement (Coleman and Mwangi, 2013). Greater educational level of the head of the household has comparable effects, possibly because increased education of men can shape attitudes about gender roles and increase acceptance of women in the civic domain (Desposato and Norrander, 2009). Although wealth of the family is not easily changed through outside intervention, education of both men and women could be a viable way to increase women’s involvement in leadership. By educating men, the dominant ideas concerning the acceptability of women working outside the domestic arena may gradually change, and men may come to think of women’s executive involvement as quite normal. Additionally, the creation of education and skills focused workshops for women aimed at cultivating the abilities needed for effective communication and negotiation would also be quite helpful. When placed in an arena with dominant existing male members, many women, especially
when they constitute the minority of a group, do not feel confident enough to speak out. Thus, addressing the lack of confidence that leads to decreased participation seems necessary, as empowerment without capacity building will not be enough (Acharya and Gentle, 2006). Overall, women’s inclusion in environmental decision making can be enhanced through the creation of rules for women’s engagement, attaining critical mass numbers, and through education and skill building.

### 3.2.6 Effects of Including Women in Environmental Leadership

The inclusion (or lack thereof) of women in environmental leadership can have important effects on the effectiveness of a conservation program. For example, when conservation projects have failed to include women as executive members in the past, they have sometimes encountered issues. In one case in Thailand, when only men were included in the executive bodies, failed communication to women about their responsibilities for seedlings caused the project to fail (Wilde and Vainio-Matilla, 1995). However, when both genders were subsequently included, this failure was reversed. In a similar case on another project, the men who received information on the plan did not know what questions to ask, as the focus of the project pertained to work that women generally handle, again causing a breakdown of the project (Gutierrez-Montes et al., 2012). Inclusion of women in decision making can reduce some of this breakdown in communication by recognizing the knowledge women have at the outset.

When making an organization designed to protect the environment, usually of primary concern is the effectiveness of said body. That is, when conservation organizations and committees are created, the people in charge of their creation usually value the effectiveness of the conservation programs above all else. Thus, it is important to understand how the inclusion of women as environmental decision makers influences the effectiveness of a conservation group or initiative. Again, due to the very limited available research, much of this information is from the rural, less developed country context, but it nonetheless provides important information that can be useful to draw from in thinking about the effect of women’s inclusion in environmental leadership more broadly. Although some of the patterns identified are specific to the local, less developed country context, others (like patterns in group functionality or group participation) can provide interesting insight on the impacts women’s involvement can have on conservation leadership more broadly. Thus, some effects
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of women’s inclusion (or lack thereof) in environmental decision making bodies are discussed here.

Group Functionality and Relations

As in other sectors, the inclusion of women in conservation leadership has been shown to improve numerous group functionality measures. Women’s participation in female-only management groups appears to be much higher than men’s participation in similar groups (Das, 2011), with women’s groups generally conducting more self-analysis and convening more often (one to two times a week versus 83.3% of men’s groups and 71.9% of mixed groups that meet at most twice a month) (Westermann et al., 2005). Additionally, Westermann et al. (2005) found that as women’s involvement increases, the ability for groups to carry out self-sustained collective action also increases. In groups with a higher presence of women, greater acceptance of management rules appears to be a consequence (Sultana and Thompson, 2008). Also, numerous studies have found that as women’s representation increases, so do measures of group solidarity (Westermann et al., 2005), collaboration (Molinas, 1998; Odame, 2002; Westermann et al., 2005), and communication (Cook, Grillos, and Andersson, 2019). According to some studies, this may be because women as a whole appear to emphasize community and social ties more so than men (Ngwenya et al., 2017). Indeed, according to this study, when asked if they always or usually help a fellow group member in the case of need or emergency, 90.7% of mixed groups and 87.5% of women’s groups, compared to only 66.7% of men’s groups said yes.

Tying into information from Chapter Two on gender differences in conflict and cooperation, most notably here is perhaps the decrease in conflict and increase in conflict resolution that follows from women’s increased membership in decision making groups. Numerous studies have pointed to decreased conflict as the presence of women increases (Agarwal, 2000; Clabots, 2013; Coleman and Mwangi, 2013; Sultana and Thompson, 2008). And while one study found that the incidence of serious conflict in men’s and women’s groups were both around 50 percent, the proportion of groups determined to have high or very high capacity to manage disagreements was just over two-fifths for mixed groups and half for women’s groups, compared to only one-third for men’s groups (Westermann et al., 2005). Thus, groups with women also appear to have better capacity for managing conflict. The reasons for these patterns are not very clear, but one author suggests that it may be a result of women’s
increased dependence on one another that has taught them to be better at handling disagreements (Agarwal, 2000). Overall though, increasing women’s involvement in conservation leadership can change group functionality and relations.

**Differential Prioritization and Rule Making**

Additionally, the way men and women differentially approach problems can affect what they decide to prioritize and how they decide to remedy these problems. Although men and women in environmental decision making groups both generally state that they come together for the common good of the community (Westermann et al., 2005), the gender composition of a group still appears to alter focus. At the community level, gendered use of resources (i.e. women are tasked with gathering / overseeing a specific agricultural product and therefore are more directly concerned with that product\(^\text{13}\)), often leads to variation in conservation approaches by gender (Agarwal, 2000, 2009a; Agrawal et al., 2006; Alangui, 2013; Burger, 2010; Dovie, 2008; Dovie, Witkowski, and Shackleton, 2005; Lado, 2004; Mogotsi et al., 2016; Resurrección, 2001; Ravera et al., 2016; Saguye, 2017; Stratford and Davidson, 2002). For example, in rural areas of India, as men generally are more concerned with timber and women with fuelwood, the prioritization of different aspects of forest management and rules created to deal with them tends to differ between the sexes. Female-dominated forestry groups collect more fuel and less timber than male-dominated or mixed groups (Sun et al., 2010), reflecting this difference in priority. Groups with more women also seem to make stricter wood harvest rules in most cases, even though this finding may seem counterintuitive (Agarwal, 2009a). Similarly, in an experimental setup, in response to a “payment for ecosystem services” (PES) system groups with a gender quota intervention conserved more trees than groups without this quota (and thus with a lower proportion of women) (Cook, Grillos, and Andersson, 2019).

In floodplain management in Bangladesh, women were shown to be concerned with a wider array of issues than men, and preferred to address these issues using more participatory processes than men (Sultana and Thompson, 2008). Moreover, while men strongly emphasize setting rules as a way to manage floodplains, women were much less likely to stress this, and

\(^{13}\) e.g., Abdelali-Martini et al., 2008; Acharya and Gentle, 2006; Adedayo et al., 2010; Arnold, 1995; Carter, 1992; Feka et al., 2011; Fortnam, et al. 2019; Gaul, 1994; Howard and Nabanoga, 2007; Hunter et al., 1990; Iqbal, 1991; Leisher et al., 2016; Pandey, 1990; Poffenberger, 1990; Rajan, 1995; Sunderland et al., 2014; Thorpe et al., 2014; Veuthey and Gerber, 2010; Villamor et al., 2017; Yang et al., 2018
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were also far less likely to be concerned with norms than men. In Kenyan conservancies, women appear to place higher values on conservancy membership and less importance on wage income than men (Keane et al., 2016). In the United States, a study of citizen’s participation in wildlife decisions found men to stress the importance of using science to inform decisions while women were found to place substantial importance on unbiased and open exchange of information and ideas (Anthony et al., 2004). Thus, there is a variety of evidence supporting the contention that gender affects conservation ideas and practices, at least in less developed countries where the decision makers are also the users of the conserved area. Perhaps then differences can also be uncovered in the more developed world context.

Ways of Operating

Women may operate somewhat differently at times, as surveys of government staff on women’s involvement in a marine protected area in the Philippines revealed that women generally were perceived to be more organized, detail-oriented, conscientious, and fastidious (Clabots, 2013). Thus, when it comes to a group’s ways of operating, gender composition appears to have an important impact. For one study in Nepal, similar to findings on women in government in Chapter Two, when women held important management positions there was improved financial management, increased allocation of money to pro-poor programs, more use of gender considerate policies and programs, amplified support for education, and decreases in forest destructive practices such as forest grazing and fodder cultivation on farms (Acharya and Gentle, 2006). Also, when involved in decision making, women become more active enforcers of rules (Agarwal, 2000; Clabots, 2013).

Predominantly female groups appear less likely to fear change, and more likely to organize on their own behalf, often operating with less outside assistance than men’s or mixed gender groups (Sun et al., 2010). But still, women-only groups generally invest less in regeneration, are less likely to create forest restrictions, and are less likely to prevent outside management groups from harvesting in their forest (Sun et al., 2010). Mixed gender groups, on the other hand, are more likely to participate in rule making processes, prevent harvesting, and invest in regeneration activities.
Additionally, reciprocity appears more likely to operate in both women’s and mixed groups. Overall, these patterns make a good case for increasing gender diversity of conservation leadership. Women do appear to affect the way groups operate, with mixed groups often outperforming male- or female-dominated groups in numerous conservation measures, perhaps because they are better able to make use of the complementary advantages of men and women alike (Mwangi et al., 2011; Sun et al., 2010).

**Rule Abidance**

Another benefit of including women in environmental decision making groups is increased rule abidance (Agarwal, 2009a; Agrawal et al., 2006; Sarin, 1995; Rohe, Schlüter, and Ferse, 2018; Saguye, 2017; Sultana and Thompson, 2008). One study in Bangladesh found that acceptance of and compliance with fishing limits was higher in cases when men advised or endorsed decisions that women made or when both men and women were able to contribute to decision making than when women had no influence in the process (Sultana and Thompson, 2008). Similarly, in a case study of a fishing community in the Solomon Islands, Rohe, Schlüter, and Ferse (2018) found that when women break local marine management rules, they tend to do so for three reasons: (1) women had not been involved in the decision-making process; (2) they had partially lost trust in the local male leadership because of a perceived money misuse; and (3) women’s fishing activities were disproportionately affected as a marine closure was located in an area of predominantly female fishing use. In non-fisheries management, this appears to hold as well. One study discovered that women’s participation in forestry management decision making increased control of illegal grazing by 14 percent, while female participation in patrols increased it by an even larger 27 percent (Agrawal et al., 2006). Additionally, women’s membership on forest protection committees led to an 11 percent increase in the control of illegal felling.

The reasons behind why female participation in decision making increases rule abidance are notable and thought-provoking. As an example, as most rule-breakers in forests (with similar parallels in fishing and other conservation arenas) tend to be women who collect firewood (or fish, etc.) for their families in no-harvest areas, their inclusion on decision making committees provides them a way to feel personally invested in the conservation rules (Agarwal, 2009a; Sarin, 1995). As a study by Bardhan and Dayton-Johnson (2006) showed, there is a positive relationship between participation in rule making and rule abidance. Thus,
when these women are finally allowed to be a member and participate in the group responsible for rule making, they feel a much stronger obligation to follow the rules that they (in part) came up with. However, it is still important to keep in mind that this is unlikely to be the only driver for this pattern, as Sultana and Thompson (2008) and Agrawal et al.’s (2006) studies demonstrate that compliance improves even in cases where women are not generally the rule breakers. In these cases, increased rule abidance may possibly be a result of greater patrol and vigilance that seems to result when women are included, providing support for the idea that the “action effect” is more important than the “representation effect” (Agrawal et al., 2006). That is, the increased conservation action among women that comes alongside greater female inclusion provides another additional layer of benefit to including women in decision making. Overall, women’s increased participation in conservation leadership may be observed to increase rule abidance.

**Information Dissemination**

Perhaps linked to more transformational approaches in leadership among women discussed in Chapter Two, including more women also can have positive effects on information dissemination. In a study by Cook, Grillos, and Andersson (2019), women were found to be responsible for a much larger share of communication in their conservation groups. Along the same line, women have been found to be better at communicating with other women on issues of the environment (Hunter et al., 1990). One recent study tested this directly: after identifying a gender bias in how environmental management information is disseminated, researchers added a female messenger who was able to reduce this bias by communicating to other women directly and by inducing males to also increase their dissemination to women as well (Kondylis et al., 2016). Thus, the inclusion of women in environmental decision making bodies may increase communication, education, and knowledge of environmental issues more generally.

**Effect on Governance and Outcomes**

Women’s involvement on environmental decision making bodies appears to improve a variety of factors, not the least of which concerns the effect of women’s participation on governance rules and conservation outcomes, a highly understudied area with a surprising scarcity of information (Agrawal et al., 2006). For example, having a higher proportion of women on agricultural management executive committees leads to significantly greater
improvements in preservation (Takayama, Horibe, and Nakatani, 2018), while in common-
resources setups, the inclusion of women leads to improvements in the management and use
of the common (Cook, Grillos, and Andersson, 2019; Hayo and Vollan, 2012). Indeed,
women appear to be better at shifting their behavior towards lower resource extraction
compared to men when regulations, sanctions, or social scolding are introduced (Revollo-
Fernández et al., 2016).

Studies that test the direct effects of women’s representation in environmental decision
making bodies on governance and outcomes do also exist, although they are few and far
between. In a recent meta-analysis by Leisher et al. (2016), there were a total of seventeen
studies identified that directly investigated how the gender composition of environmental
management groups affected resource governance and conservation outcomes. All seventeen
studies were able to point to improvements in natural resource governance as a result of
women’s participation in decision making. Only three of these, however, went the extra step
to look at how women’s participation translated to differences in conservation outcomes.
Notably, all three were able to point to improved conservation outcomes with greater
women’s inclusion.

In what is perhaps the most salient paper on this topic, entitled “Gender and forest
conservation: The impact of women's participation in community forest governance”, author
Agarwal (2009a) looks at the relationship between gender composition of environmental
decision making groups and forest regeneration in India and Nepal. Agarwal designed her
own “researcher’s index”, looking at measures of canopy cover, regeneration, species variety,
and height and girth of trees, and used this along with an assessment of health from villagers
and Gujarat Ecological Education and Research (GEER) Foundation satellite data to
determine the change in quality of communally managed forest areas over time. The
researchers organized these results in relation to the proportions of women present in the
various environmental decision making groups. Results showed that executive bodies
containing more women tended to make stricter harvesting rules (with one exception) and
demonstrated a greater improvement in forest condition over the period tested. Generally
speaking, as the proportion of women on the executive committee increased, the percentage
of degraded forest area decreased. There was a 51% higher chance of improvement in forest
canopy and a 29% higher chance of forest regeneration being very good when forestry bodies
were comprised solely of women (when compared to other groups). Furthermore, executive
committees with three or more women tended to have better overall forest condition than those with two or less. They were generally better by every indicator, showing thicker canopy cover, improved forest condition, and a smaller proportion of degraded forest area. These results vary in strength depending on geographical area, but are especially pronounced in Panchmahals region, where groups containing more than two women had a 57% higher probability of forest improvement and a 75% higher probability of the forest canopy being medium or thick as opposed to thin or patchy.

Variations in the effect of women’s participation by geographical area are a definite point of question. However the author addresses this issue directly, arguing that one of the most important reasons could be that the involvement of women in the decision making committees in Panchmahals allows the comparatively high proportion of landless women in the area who would often feel marginalized and hostile to forest governance rules to feel more represented and therefore more likely to comply with the created rules. Other studies also make the claim that landlessness makes individuals more dependent on natural resources, and therefore less likely to comply with regulations (Das, 2011, 2012), backing up Agarwal’s defense. This sounds like a perfectly plausible explanation, as previous research has demonstrated that participation in rule making positively correlates with rule abidance (Bardhan and Dayton-Johnson, 2001). Thus, with rule abidance certainly being key to the effectiveness of conservation projects in general, this explanation seems particularly convincing.

A similar study in Thailand that also investigated the effect of women’s participation in environmental decision making bodies on conservation outcomes similarly found that as women’s participation increased, so too did measures of forest regeneration (Agrawal et al., 2006). When women belonged to a forest committee, participated in meetings, and patrolled the forest, there was an increase in forest regeneration by 28 percent. Other evidence also finds women participate a great deal more in patrolling if they are on the executive committee, with non-council member women’s participation in patrolling additionally increasing if the executive committees contained three or more women (Agarwal, 2009a, 2009b). Women are also better able to apprehend rule-breaking females, as the complexities of perceptions on male aggressive behavior toward women often prevents males from physically confronting female rule-breakers (Agarwal, 2009a, 2009b). Additionally, female
committee members often provide other women with information on the policies and persuade them to follow rules and report transgressions.

Interestingly, one study finds measures of gender conflict to be positively associated with improved forest condition outcomes, which they explain by arguing that gender conflict leads to increased representation of women, which in turn leads to better forest condition (Agrawal and Chhatre, 2006). They found that conflict between men and women in three different communities led to women’s inclusion as decision makers after forests had been severely damaged. When the forests became badly deteriorated, women (since they are tasked with the collection of forest products) were disproportionately affected by the decline, and disagreements about how to resolve the issue emerged. Women were finally allowed to participate in decision making as a result, leading to improved outcomes, which is how the authors explain the relationship between gender conflict and improved forest condition. Still, it is interesting to note the authors did not propose an explanation for why women’s inclusion as decision makers may have led to increased forest regeneration, though differences in approaches to management seems a good candidate for explanation. Nonetheless, it is worth discussing and further investigating what these gender differences in conservation management choices are that lead to differences in conservation outcome are, as women’s inclusion in environmental leadership seems likely to affect governance and conservation outcomes.

3.3 Drawing it Together

These findings bring up some thought-provoking questions: Do we really know why these patterns exist? Do we actually have a good idea of why women’s participation appears to increase the effectiveness of resource governance and conservation outcomes? Is it really only because marginalized women are better represented and therefore are now more likely to follow the rules and engage in enforcement, leading to better outcomes as Agarwal suggests? Or do women perhaps take different approaches to conservation that leads to different results? Or maybe their involvement changes the functionality of the group in a way that translates to changes in practices and policies? One could doubt that the improvements in conservation that accompany the improved participation of women in environmental decision making is solely a result of increased compliance and enforcement on the part of the women:
in the Thailand study, although there was a 28 percent increase in forest regeneration when women belonged to a forest committee, participated in meetings, and patrolled the forest, just participating in meetings alone still increased forest regeneration by 11 percent (Agrawal et al., 2006). This indicates that the positive effect of women on forest regeneration is not only due to the fact that women are less likely to violate rules and catch rule breakers as they become more represented. If that were the case, when taking their participation alone, there should be no statistically significant increase in forest regeneration; the pattern of increased regeneration would be driven by the increased patrol alone. Since this is not the case, there must be other factors related to women’s participation that are responsible for improved conservation outcomes. What could these underlying factors be?

Certainly, it is understood that there are many confounding factors that also lead to improved conservation outcomes, like wealth and education of the group members (Acharya and Gentle, 2006; Baral and Heinen, 2007; Coleman and Mwangi, 2013; Das, 2011; Desposato and Norrander, 2009; Gupte, 2003) and low levels of political and economic inequality (Agarwal, 2009a; Coleman and Mwangi, 2013). But even when controlling for these variables, and taking out the enhancing effect of women on rule abidance and vigilance, women’s involvement in the decision making process still leads to improved resource governance and conservation outcomes (e.g. Agrawal et al., 2006). Why is that? In the meta-analysis by Leisher et al. (2016), researchers found that although greater compliance with rules was a large reason for increased improvement in conservation outcomes, stricter rules, greater transparency and accountability, and improved conflict resolution also all contributed in large part to the improvements in resource governance and outcomes when women were involved.

Of course, as Leisher et al. (2016) point out, these studies have all been conducted on the community-based conservation level in less developed nations. Thus, when decision makers in these executive body made decisions about resource regulations, they were directly affected by the regulations almost immediately. For example, the banning of firewood collection in certain areas affected many women’s daily lives, as they must regularly collect firewood as fuel to cook meals every day for their families. In this way, it is clear how women’s representation in environmental decision making bodies may encourage their adherence to rules and bolster their enforcement efforts, leading to improved conservation decision-making and outcomes. But, what would happen if the decisions these executive
members made did not necessarily have a strong, direct effect on them? What if the rules they made for conservation did not drastically alter how they conduct their day to day activities?

This is the case for decision makers at the government or NGO level, especially in developed nations. These decision makers are not necessarily intimately tied to the rules they are creating or enforcing. For example, a government listing of manatees as an endangered species with specific federal protections would not be likely to change what these members of environmental NGOs themselves do on a daily basis in their personal life much if at all. If government or NGO environmental decision makers are not closely affected by the rules they create, the representation of people from various backgrounds on these bodies could arguably not have much of an effect on rule abidance and enforcement. And since most people do not know the identities or characteristic of the members of their government or NGO conservationists, representation would likely not change general public compliance and enforcement either. In this case, what would happen if the gender composition of the conservation leadership were changed? Without the effect of increased rule abidance and enforcement that seems to follow with increased representation of women on smaller, more local conservation initiatives, what would then be the effect? Would varying the proportions of women in conservation organizations in more developed countries still change governance and outcomes? These are the sorts of questions I seek to address in this research.

Unlike in many of these studies in subsistence-based economies where the practitioners are directly managing resources that often affect their livelihood, very few conservation activities in New Zealand, for example, involve such direct management. Conservation in New Zealand is quite varied in comparison, having numerous aims ranging from increasing populations of individual species, pest control, improving water quality, protecting a particular area of ocean, controlling invasive species, changing public behavior, preserving wetlands, and much more. This means that conservation decisions in New Zealand rarely affect the daily habits and activities of those decision makers and New Zealand citizens in general when compared to those in less developed nations, as these conservation decisions do not center as heavily around conservation of resources that directly affect the community’s livelihood as they often do in the studies from less developed areas.

If one assumes that differences in conservation outcomes with increased female participation are due primarily to women’s increased representation causing them to feel more included
and thus more likely to comply with conservation rules, then changing the gender composition of a conservation group at a governmental or non-profit level in a developed nation should not affect outcomes, as this same dynamic is not so pertinent in such a context. However, this question has not yet been investigated. Still, one can assert that there will continue to be differences in approaches and outcomes that vary based on group gender composition even in developed countries due to gender differences in values, priorities, group dynamics, or a number of other factors. Thus, this research seeks to uncover if there are any differences in the way male and female conservationists value, prioritize, or operate in the environmental decision making context. As one WWF report says, an investigation into the current state of research on the effects of women’s involvement in conservation leaves, a sense that an awareness of gender does matter … However, we are still a long way from having a sound empirical understanding of precisely the mechanisms involved… There is therefore clearly a need for rigorous, long-term empirical research into the role of gender in conservation across the ecological domains addressed in the study. (Al-Azzawi, 2013, p. 13).

3.4 Conclusions

In summary, environmental management is highly dominated by male decision makers all around the world (Agrawal, 2001; Benjamin, 2010; Brandth and Haugen, 1998; Buffum et al., 2010, Giri and Darnhofer, 2010a, 2010b; Gupte, 2003, 2004; Mayoux, 1995; Natcher, 2013; Saigal, 2000; Sunam and McCarthy, 2010; Svarstad et al., 2006; Westberg and Powell, 2015). When women are included as environmental decision makers, especially in less developed nations, they often do not enjoy the same level of respect and power as their male counterparts, with their opinions and suggestions often being afforded far less importance than those of males (Agarwal, 2000; Brandth and Haugen, 1998; Cornwall, 2003; Mohaty, 2002, 2004; Saguye, 2017; Sarin, 1995; Singh, 2001). Whether this lack of equal respect is true or not in the developed world context is yet to be investigated more thoroughly, leaving room for this research to fill in such gaps.

Numerous barriers make it difficult for women to become environmental decision makers across all regions, not the least of which are the prevailing sociocultural norms and patriarchal social systems that dominate nearly all cultures existing today, though to varying degrees depending on country and region (Agarwal, 2000, 2010a; Belsky, 2003; Coleman
and Mwangi, 2013; Ghimire-Bastakoti and Bastakoti, 2006; Gurung, 2002; Gutierrez-Montes et al., 2012; Lama, and Buchy, 2002; Meola, 2013; Mogotsi et al., 2016; Sultana and Thompson, 2008; Sun et al., 2010; Watson, 2005). Ways to increase female inclusion – such as quotas, education, skills training and confidence building – have been suggested, though such interventions have yet to be instituted and tested for efficacy (Acharya and Gentle, 2006; Coleman and Mwangi, 2013; Desposato and Norrander, 2009).

Still, linking with many topics discussed in Chapter Two, women’s involvement in conservation and environmental management appears to produce interesting results, ranging from refining interpersonal group dynamics (Molinas, 1998; Odame, 2002; Westermann et al., 2005) and operation (Agarwal, 2000; Clabots, 2013; Mwangi et al., 2011; Sun et al. 2010), to changing prioritization and rule-making concerning environmental issues (Agarwal, 2000, 2009a; Agrawal et al., 2006; Burger, 2010; Cook, Grillos, and Andersson, 2019; Dovie, 2008; Dovie, Witkowski, and Shackleton, 2005; Lado, 2004; Resurrección, 2001; Stratford and Davidson, 2002), to increasing rule abidance (Agarwal, 2009a; Agrawal et al., 2006; Sarin, 1995; Sultana and Thompson, 2008), increasing communication and information dissemination (Cook, Grillos, and Andersson, 2019; Hunter et al., 1990; Kondylis et al., 2016), and improving governance and outcomes (Agarwal 2009a, 2009b; Agrawal et al., 2006; Agrawal and Chhatre, 2006; Leisher et al. 2016).

This research on the effect of women’s inclusion in environmental decision making is quite thought-provoking, but it leaves many gaps (as in geographical area, areas of conservation focus, and organization type) open for investigation. These gaps and how they relate to this current study of women’s place in environmental management in a developed world context will be discussed in further detail in the next chapter.
4.1 Inclusion of Gender in Environmental Research

When it comes to research on conservation and natural resource management, questions of gender are very inconsistently addressed (Asher and Varley, 2018; IUCN, 2015a; Magnus, 2003; Ogra, 2012a, 2012b; UN Environment, 2016; UNEP and IUCN, 2018; Watson, 2005). Some studies make use of highly detailed gender analyses and examinations while others go only as far as to count the number of men and women who participate in their study. Thus, one of the largest constraints seems to be the lack of consistent, effective, and systematic inclusion and analysis of gender in conservation research (Moser and Moser, 2005). For some scientists, the impact of gender may be outside the scope of the question they seek to answer, but for many others, the thought that gender might have any effect on their research question at all is rarely given due consideration in the first place. Unless gender appears to the researcher to be directly relevant to their main objectives, many studies choose not to include it as a component (Ogra, 2012b). However, until gender is systematically involved as a part of research protocol, evidence of the effect of gender on conservation will be limited to those studies which choose to focus on gender directly, or at the very least include and analyze its component effect. This is vitally important, as the way an individual NGO interprets gender mainstreaming and gender equality can affect their operational practices (Desai 2005; George 2008; Ogra, 2012b).

One reason for the deficiency of gender incorporation in environmental research is a lack of understanding of the concept of gender (Magnus, 2003; Mai et al., 2011; Ogra, 2012a, 2012b). If researchers are not aware of the culturally assigned identity ascribed to each gender and how this relates to issues of resource use, wildlife interaction, or many other relevant interplays in the conservation world, it is not surprising that they neglect to see the importance of the inclusion of this topic. Moreover, the male dominance of the conservation research sector contributes to the absence of gender in environmental management research because men do not want to work on what they perceive to be “women’s issues” and some women fear their interest in gender will cause them to be labeled as “feminist police” (Pandolfelli, 2009). The interests and backgrounds of researchers has a fundamental impact on the inclusion of gender in research, with women and social scientists being more likely to
include gender (Magnus, 2003; Mai et al., 2011). Because conservation science is often conducted from the biological perspective while gender issues are generally in the realm of social science, the intersection of conservation and gender is by definition an interdisciplinary exploit. Thus, the limited inclusion of gender by non-social scientists who focus on conservation issues may be in part explained by a lack of technical knowledge in social science research methodology and analysis (Fajber and Vernooij, 2006; Mai et al., 2011; Ogra, 2012a, 2012b). The inclusion of gender as a dimension in research requires at least moderate background knowledge of gender issues in general, and the knowledge and skills necessary to use the gender-relevant analytical frameworks in subsequent data analyses. With many of the world’s conservation researchers coming from a biological science background, it is not surprising that many lack the gender related training or other professional skills necessary to seamlessly include gender analysis as part of their conservation related research ventures. The lack of gender inclusion and analysis in research is also likely to be exacerbated by the fact that its addition adds another layer of information for researchers to collect and further analyze, increasing researcher burden.

4.2 Gaps in the Current Research

With all the barriers impeding the consistent inclusion of gender in environmental research, it is not surprising that recent meta-analyses have found consistent gaps in this area of inquiry (Leisher et al., 2016; Mai et al., 2011). Of major concern are limitations in subject matter (i.e. focus on forestry, a particular species, fisheries, a particular protected area, etc.), organizational level (i.e. local community, statewide, government, nonprofit level, etc.), and geographical distribution (i.e. continent / region, country, developmental status or nation, etc.).

4.2.1 Subject Matter and Organizational Level

The literature pertaining to women’s involvement in environmental decision making groups in general is highly skewed towards forestry, with research on other areas of environmental management being far less common. According to the meta-analysis by Leisher et al. (2016), studies that specifically look at the effect of women’s involvement in environmental decision making bodies on resource governance and conservation outcomes are even more limited, numbering a small total of just seventeen. Of these seventeen studies, three focus on fisheries issues (two freshwater, one marine) and the remaining fourteen focus on forest conservation.
Nonetheless, one of these studies (Westernmann et al., 2005) does investigate the impact of gender composition in environmental leadership in more than forestry and fisheries, with some of the groups they surveyed coming from areas as disparate as agrobiodiversity, soil management, and others. All seventeen of these studies, however, look at impacts on a local, community-based scale.

The research so far shows great promise: all seventeen studies demonstrate improvement in natural resource governance when women take part in management (Leisher et al., 2016). Of these seventeen studies, the three that went even further by also looking for changes in conservation outcomes show similarly favorable results. Clearly, this field of inquiry seems promising, and more studies in this area would be beneficial to the field of conservation. But, with research thus far coming mainly from community-based initiatives in forestry and fisheries management, one must question how much these results can be generalized. As the body of research grows, and similar results are gained in a variety of different backgrounds, the power of that research to answer broader questions grows greater.

With current subject matter being limited to forestry (and to a lesser extent fisheries), and organizational type being limited to only small, local, community-based conservation initiatives, generalizability is severely limited. This raises the question, “Do the results of these studies have applicability beyond local-level forestry and fisheries management projects?” Would women’s inclusion in environmental decision making bodies in governmental or NGO level positions and in other types of conservation, where women are not as directly affected by the rules they create, show a different effect? Would women’s involvement in environmental decision making bodies in other areas of conservation outside forestry and fisheries lead to different results? To address this gap and answer these questions, I have chosen to focus the subject of this research on not just small, local community projects, but also larger non-profit and governmental projects that deal with a variety of conservation matters unrestricted to forestry and fisheries.

4.2.2 Geographical

Also notable are the geographical limitations of the current literature. For the broader topic of gender in forest research generally, according to a review by Mai et al. (2011) of 123 total publications, 53 were focused in Asia, 40 in Africa, and 22 in Latin America, with eight
whose location was not identified. Even more, of the 28 (from the original 123) studies that focus specifically on gender in relation to participatory forestry management, 26 publications (92.9%) were focused in Asia, with 22 of these 26 either in India or Nepal (see Figure 4.1).

**Figure 4.1 Geographic Distribution of Studies that Focus on Gender in Participatory Forest Management:** Pie chart showing the geographic locations of studies on gender in participatory forestry management. Note the exceptionally high proportion of studies in Asia, most of which occur in India and Nepal (constructed from data in Mai et al., 2011).

Similarly, from Liesher et al.’s (2016) meta-analysis, of the seventeen total studies that investigate the effect of women’s participation in environmental decision making bodies on resource governance and conservation outcomes specifically, twelve are from India and Nepal, with the other five being split between the remaining areas of Southeast Asia, Latin America, and East Africa (Figure 4.2).
This evidence powerfully demonstrates that information on women’s involvement in environmental decision making groups has thus far only been carried out in developing nations, with a very strong bias for Asia, especially India and Nepal. Thus, despite the promising evidence that including women in environmental management groups can lead to improved resource governance and conservation outcomes, the generalizability of these conclusions are limited. With this, there is a strong case for further investigation of this question in areas of disparate social, economic, geographical, and ecological backgrounds. This will allow the gathering of a more robust set of data that reflects the numerous factors that may influence how women’s inclusion in environmental decision making bodies may affect conservation. Acquisition of such knowledge is thus important and necessary to help scientists fully answer this question. To contribute to addressing this gap, this research will focus on addressing women’s involvement in environmental decision making bodies in the developed Western nation of New Zealand.

4.2.3 Summary of Novelty
Overall, this study fills gaps in subject matter, organizational level, and geographic area by looking at women’s inclusion in environmental decision making bodies in a variety of conservation foci not only at the local community level but also in non-profit and government agencies in the developed Western nation of New Zealand. In addition to contributing to some very large gaps, this thesis will further seek to answer questions about the significance
of gender representation in shaping and influencing numerous aspects of environmental management in New Zealand by drawing together information covered in Chapters Two (general gender differences) and Three (gender and the environment) to further understand how these variety of gender differences might produce meaning influences on the New Zealand conservation setting.

4.3 How Other Studies Have Been Conducted

Past studies looking at the impact of women’s inclusion in environmental decision making bodies on conservation regulations and outcomes have been varied in their study design. The sort of methods used to collect data appears to be dependent on the type of information that was being sought in the study (i.e. studies that desire information on forest regeneration took measures of canopy growth, tree girth, etc.). Studies employ varied means of data collection: some had researchers directly go to the field to collect data, while others also allowed community members to collect and report information.

Of the seventeen studies in Leisher et al.’s (2016) meta-analysis on the effect of women’s inclusion in environmental decision making bodies on conservation regulations and outcomes, four were primarily qualitative and thirteen were primarily quantitative. The most common unit of analysis was the decision making group, with the average sample size being 132 groups. Qualitative studies generally included various combinations of interviews and surveys, focus groups, on-site observations, etc. while quantitative methods varied from descriptive statistics to advanced regressions. Of the primarily quantitative studies, seven use regression models with gender composition as the independent variable and governance and outcome indicators as the dependent variable. Two studies use quasi-experimental designs to compare before and after results to a control in a single site, with another study doing the same across multiple sites. An additional study compares before and after with no control, while another looks at a control versus an experimental group with no before and after. Another quantitative study does a least significant difference test of average group response in women’s, men’s, and mixed-gender groups based on frequency distributions.

Of studies employing a more quantitative approach to determine the effect of women’s participation in environmental decision making, the most common general method used is to identify groups which vary in gender composition, stratify these groups by their relative
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gender compositions, randomly sample from the stratified categories, administer surveys, control for possible confounding variables and use statistical analyses and regressions to analyze the results (e.g. Agarwal, 2009a, 2009b; Agrawal et al., 2006; Coleman and Mwangi, 2012; Das, 2011; Sun et al., 2010; Westermann et al., 2005). As an example, Agarwal (2009a, 2009b) stratifies various environmental decision making groups into three categories – all-women groups, groups with more than two women, and groups with two or fewer women – before using random sampling to identify 135 total groups for analysis: 65 in Gujarat west India and 70 in three districts around Nepal. Using questionnaires as well as key informant interviews, data was then gathered on the characteristics of the group, the forest(s) they manage, and the village and population. This information was double-checked with written records kept by the groups themselves whenever possible. Confounding variables, such as the proportion of landless individuals, were considered and controlled for, and a regression analysis with descriptive statistics and dummy variables was completed. The evidence from such analyses then provides the requisite information that is the basis of the results and discussion.

Other quantitative studies use similar though slightly different methods. Agrawal et al. (2006) randomly selected nine-hundred forest protection committees (of which 673 responded) and completed interviews with the heads of each committee that were then used to attain data to inform each of the variables considered. The study looked at three levels of participation: whether women (1) are members of the protection committee, (2) participate in meetings of forest protection committees, and (3) participate in forest patrol. To control for any possible confounding variables, data on social and political conditions, institutional arrangements, market pressures, and demography and resources were collected and assessed using a variety of questions designed to measure the presence and strength of these variables in each group (i.e. the number of cattle in the village, whether the forest contains fuel and fodder resources for villagers’ use, etc.). Finally, the relationship between the three levels of participation and various independent variables were assessed using a probit model. Without discussing the specific methodologies and idiosyncrasies of each individual quantitative study separately, it will suffice to note that each usually follows this same general design.

Qualitative studies also use a similar overall procedure as those described above, though with slight variations. The most notable variation is the differing focus and style of information gathering and the exclusion of statistical analyses. In such qualitative studies, the information
collected is generally more nuanced and less dichotomous in nature than those of quantitative studies, with the results and discussion coming from an analysis of the details and intricacies of the evidence gathered and what conclusions might be drawn from it rather than coming from statistical evaluations of the data as in many quantitative studies. For instance, in their study Acharya and Gentle (2006) selected environmental decision making groups, each with at least one woman in a key position, using exclusion criteria such as group age (over 2 years), group heterogeneity (in wealth, caste, etc.), accessibility, group interest in tracking progress, and community stability (little in or out migration) to conduct a case study of six forestry groups in Nepal. Interviews with individuals and committee members that asked about processes, outcomes, women’s participation in the decision making process, allocation of resources, and institutional / policy commitments to sustainability were used alongside secondary information such as the administrative and financial records of each group, their operational plans, and length of committee meetings and general assemblies to gather useful data on each group. They also employed the use of focus groups aimed at identifying the major challenges and successes concerning women’s representation, interventions and strategies that were instrumental in allowing women to be in key positions, and plans and strategies for the future. The researchers then discussed their findings in detail, making use of complementary research papers in the field to help elucidate any patterns and compare and contrast various trends among a number of different studies. A similar sort of study design is used by Sultana and Thompson (2008) and Clabots (2013). This sort of technique – which identifies appropriate environmental decision making groups, administers surveys and interviews, organizes the information, then proceeds to an in depth discussion of the findings – is the type of method typical of qualitative studies in this area of inquiry. Drawing from the variety of methods used in previous research on this topic, this current inquiry chooses to make use of both qualitative and quantitative methods to gain a varied and robust approach to women’s involvement in New Zealand conservation organizations.

4.4 Approaches to Knowledge

4.4.1 Quantitative and Qualitative Research Methods

Of course, there are tradeoffs between using a quantitative or qualitative approach in any research. Proponents of quantitative research find the simplification of larger issues down to numbers to be of great use, and they appreciate the statistical confidence and generalizability
that comes from observing the effect of a single variable while controlling possible confounders. However, quantitative research has been criticized as being too reductionist: being overly concerned with numbers such that it ignores meaning and fails to ask the questions that truly need to be asked (Logan, 1997). Qualitative research, on the other hand, allows further depth and detail in research and is thus especially useful in intricate situations where the influence and interactions of variables are unclear or where the issues dealt with are subjective in value or meaning (Logan, 1997). Nevertheless, qualitative research is often criticized for its limited generalizability and quantifiability. A summary of benefits and drawbacks to each approach is outlined in Table 4.1.

Table 4.1 Summary of benefits and drawbacks related to quantitative and qualitative research methods

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<th>Pros and Cons of Quantitative and Qualitative Research Approaches</th>
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<td><strong>Quantitative Research</strong></td>
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<tr>
<td>• Increased generalizability</td>
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<td>• Simplifies issues</td>
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<td><strong>Qualitative Research</strong></td>
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<td>• Allows for finer detail</td>
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<td>• Useful in addressing complex or subjectively based issues</td>
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One concern for qualitative research is that it does not control for confounding variables or test for statistically significant differences between groups. But on the other hand, quantitative research can be more insidiously affected by unknown confounders that researchers neglect to control for, perhaps because they fail to consider them as possible influencers. For example, if some groups are more concerned about forest resources than others for reasons not related to gender (e.g. some groups have stronger religious beliefs that inspire them to a more conservationist ethic) and the researchers do not consider this, the disparity will not be reflected through the use of controls and the results of the study will be unintentionally altered. Qualitative analysis allows for increased discretion and discernment, as it does not simplify data into numbers, but rather discusses each observation as an individual source of information, thus providing increased ability to recognize possibly obscure and overlooked extraneous factors. Some authors argue that qualitative methods are especially useful in complex positions where the variables responsible are unclear or the interplay between variables issues are subjective (Logan, 1997).
As an illustration, many studies reference landlessness, wealth, and education level of the head of the household as influencers of outcomes (Acharya and Gentle, 2006; Agarwal, 2009a, 2009b; Baral and Heinen, 2007; Coleman and Mwangi, 2010; Das, 2011, 2012; Desposato and Norrander, 2009; Gupte, 2003). However, to know that these variables should be included as possible confounders for quantitative analyses in the first place requires a deep understanding and knowledge of the setting in question. As a case in point, long before delving into experimental research on how women’s inclusion in environmental decision making bodies affects many variables, Agarwal (2000) noticed, from her direct experience working with forestry groups, how gender affects collective action of environmental management groups. This allowed her to have sufficient background to include such factors as landlessness as possible confounders when she undertook her subsequent studies. Without thorough background understanding of the study environment, a researcher may not even think to consider the effects of, for example, something like household educational level on the outcomes, processes, governance rules, etc. of these environmental decision making bodies. Completing in-depth personal interviews that allow open responses and detailed elaborations, rather than requesting only dichotomous (yes / no; positive / negative; etc.) or even gradient (quality = 1, 2, 3; etc. etc.) responses can open up researchers to new ideas and hypotheses that are informed by the active participants themselves rather than inferred solely by the researcher. Of course, one cannot ask what one does not know to ask, which is where detailed information from key informants and members of decision making groups becomes vital. Individuals who are directly involved in environmental decision making have a very intricate knowledge of the sphere since they are participating members, and thus are the best source to ask for hints as to what to look for and for information relating to the group itself.

Because of these intricacies, both quantitative and qualitative analyses provide valuable contributions to knowledge. Quantitative research is especially helpful for seeking to make generalizations across groups while qualitative research allows greater ability to discern patterns and variables that influence priorities, processes, participation, or outcomes which a researcher might otherwise overlook. Many authors argue that the dichotomy between quantitative and qualitative research is a false one, and that both are important and can fill in gaps the other leaves (e.g. Logan, 1997; Walsh, 2012). Although the debate can get acrimonious at times, quantitative and qualitative analyses are not opposite methods, but really two necessary methodologies in scientific investigation. Thus, in an effort to gain both
generalizability as well as fine-tuned detail and understanding, this research employs both quantitative and qualitative methods to inform and reinforce each other.

**4.4.2 Recognizing Our Biases**

A person’s background affects their perception the world around them, and research is surely no exception. After all, scientists are still only human and are thus subject to the same biases that plague everyone else. All people are subject to the unintentional distortion of reality that is the result of their culture, environment, and worldview. The effect of this on research can be quite interesting. For example, in “The Ape and the Sushi Master”, Frans de Waal (2001) discusses early observational research on chimpanzees in the wild and how worldview affected the research. While Jane Goodall, coming from an individualist Western society, remarked that chimpanzees seem to lack much in the way of enduring social ties with the exception of the mother-child bond, Japanese researchers, due to their collectivist cultural upbringing and experience with tightly organized macaque troops back home, assumed high sociality and social ties from the start. The dissimilar cultural backgrounds and life experiences between Jane Goodall and the Japanese scientists led them to enter their research and observations with different biases and prejudices, leading to dissimilar conclusions on social ties. Of course, as more observations were carried out and further research completed, a clearer and more accurate picture of the rich social lives of chimpanzees emerged. Still, examples like these serve as important reminders that even the world’s most respected and renowned researchers cannot escape the influence of not only their philosophies, but their cultural background, value systems, and past experiences, all of which have an immense impact on how they perceive the world.

Of course, as a researcher striving to remain impartial, one tries as best as possible to minimize biases that can lead to erroneous conclusions. Since eliminating biases and the influence of life experiences is impossible for even the most extraordinary of scientists, in searching for truth one must strive to recognize as best one can what his or her own personal biases are and seek to minimize its impact on research. However, previous studies demonstrate that merely knowing that all humans are biased is not enough. Among the myriad of psychological biases, there is even a bias for believing oneself to be less biased than others: the blind spot bias. In one experiment, people were asked to look at eighty paintings and rate them on artistic merit given a scale from one to ten (Hansen et al., 2014).
Half of the participants were not given artist names, while the other half were given names, purportedly of the painter responsible for the work in question (either a famous artist or a random name from the phone book). Participants who were given names were, perhaps predictably, biased in favor of the famous artists. Surprisingly though, even when the participants acknowledged the risk of bias for the evaluation, they still rated their evaluations as less biased and more objective than others’! Appropriately, the paper was entitled, “People claim objectivity after knowingly using biased strategies”.

Clearly, biases are hard to suppress, and even being aware of their existence is not necessarily enough. But this awareness coupled with the recognition of bias as much as possible in one’s own personal life can perhaps aid in its minimization. Even in cases where recognition cannot lead to minimization, though, knowledge of the pervasiveness and impact of bias can be of use in recognizing and discussing the areas of one’s research that may be especially susceptible to these influences.

Furthermore, keeping an open mind rather than seeking to confirm one’s suspicions is vital for quality research. Many great scientific findings, like the discovery of penicillin, were accidents that were only realized because these scientists kept an open mind. When mold accidentally contaminated a Staphylococcus culture, instead of discarding the petri dish, Alexander Fleming noted that there was a halo of inhibited bacterial growth surrounding the mold and imagined the possibilities. If Fleming had clung to his hypotheses and preconceived ideas and goals, he may have missed out on this serendipitous opportunity. As Louis Pasteur said, “In the fields of observation chance favors only the prepared mind.”

In my personal approach to research and the discovery of knowledge, I strive to continuously minimize bias and engage in open-minded thinking. As a scientist, recognizing the importance of bias and open-mindedness and the imperfect nature of the pursuit of knowledge is something to always keep in mind. These ideas on the importance of recognizing bias and keeping an open mind in the pursuit of knowledge has contributed to my epistemological approaches to knowing, thus it is worthwhile to discuss, briefly, the epistemological approaches to knowing to which I ascribe that have influenced and shaped this current research project.
4.4.3 A Post-Positivist Approach to Knowledge

The epistemological philosophy of positivism was espoused by Auguste Comte in the 19th century (Matthews, 2014). At its simplest, positivism states that all knowledge is based on positive, observable facts, or, defined another way, that “…all true knowledge is scientific and should be pursued by [the] scientific method” (O’Leary, 2007a, p. 203). Comte (1868, p. 27) himself said, “All good intellects have repeated, since Bacon’s time, that there can be no real knowledge but that which is based on observed facts”. Positivism asserts that the world has fixed, objective truths within the grasp of human comprehension which can be discovered through – and only through – unbiased scientific and (generally) empirical research, outright denying both metaphysics and a priori conjecture as a way to gain knowledge.

Post-positivism, on the other hand, recognizes the world as an inherently chaotic, infinitely complex, and wildly variable place whose investigation is subject to personal interpretation and bias in even the most expert scientists (O’Leary, 2007b). Post-positivism also believes in an outside reality, independent of the mind, though it goes beyond Comte’s positivism by recognizing the difficulty of trying to achieve objective and meaningful measurement and interpretation of the world considering the imperfect nature of any human inquiry due to inextricable bias colored by each and every person’s preconceptions, expectations, and experiences. This acknowledgement of the complexities that make discovering truths so exceedingly challenging may appear to some to brand the pursuit of accurate and objective knowledge as unattainable. However, post-positivists are not subjectivists and therefore do believe in a reality outside of our thinking which can be learned about through various methods (including, though not limited to as in the case of positivism, the scientific method). That is, post-positivists – although they do not believe in singular objective truths in the same way as positivists – do believe that we can know and discover the world for what it truly is, but that these realities are fundamentally imperfect constructs biased by our worldviews and perceptions (Trochim, 2006).

To assuage the effects of biases and complexities, post-positivists stress the importance of collecting information from a wide variety of methods and replicating the results of each to check for consistency. The information produced by employing numerous approaches and replicating the findings allows researchers to draw overarching conclusions, which must then be subject to a wide variety of divergent perspectives and criticisms, for which the peer
review process is integral. Over time, through the criticisms and insights of others, ideas can be shaped and altered to reflect new information, with those that withstand repeated criticisms and testing coming closer to resembling truth and reality. According to post-positivists, although our biased natures may never allow us to see the world as it truly is, this progressive process of approaching knowledge can allow us to approximate it to the best of our decidedly limited ability. As a post-positivist, my approach to research is to understand as best as possible the influence of fallibility and bias in my own work, while striving to further understand the way the world works in as objective a capacity as possible by human means.

4.4.4 A Feminist Approach to Knowledge

Additionally, I hold a feminist view of the world that is similarly influential in this approach to research on how gender affects environmental decision making. Feminist methodologies have been useful in various kinds of geographical research, especially those in which gender is a focus. Using a “feminist methodology” to address an inquiry does not mean using a feminist “method”, as there is no such explicit step-by-step method in existence for examining gender issues. Rather, feminist methodology describes an approach to knowledge that is especially sensitive to the gendered nature and social complexities of that particular topic of enquiry, while simultaneously recognizing the subjective nature of the researcher (Letherby, 2011).

Throughout Western history, science has been a largely (upper class) male endeavor, and has thus has been created and shaped by one particular way of looking at knowledge. As one researcher put it:

… the perspectives, concerns, and interests of only one sex and one class are represented as general. Only one sex, and class are directly and actively involved in producing, debating and developing its ideas, creating its art, in forming its medical and psychological conceptions, in framing its laws, its political principles, its educational values and objectives. (Smith, 1987 p. 19–20)

Feminist methodologies in geography focus on the influence of gender in various contexts through the use of a number of different methods to gain insight on the dynamics and intricacies of gendered experience (Aitken and Valentine, 2006). Concepts of positionality, an acknowledgement that one’s gender, race, class, and other “positions” in society affect
one’s understanding of the world and the knowledge he or she creates (Alcoff, 1988), and reflexivity, the practice of being cognizant of how one’s own positionality and experiences affect understandings and knowledge produced (Rose, 1997), are especially important to feminist geography. In addition, many feminist researchers insist that feminist methodologies should seek to improve women’s lives and combat sexism in society (Letherby, 2011).

Although some may think of post-positivist and feminist methodologies as dissimilar, I appreciate a great deal of overlap between the two approaches, especially in the questioning of the possibility of objectivity and in recognizing the importance and influence of the positionality and reflexivity of the researcher and its effect on the knowledge produced. More than just focus on gender issues within a field, feminist methodologies, much like post-positivist epistemologies, are highly critical of the (largely wealthy white male) positivist approach to science and the ability for objectivity in research (Haraway, 1988; Rose, 1997). Both reject the idea that knowledge can be obtained only through the use of the scientific method and critique the notion that objectivity is ever attainable by any researcher. Although I personally do not adhere strongly to philosophies of social constructivism, whereby knowledge is deemed to be inseparable from its social context, as some feminist researchers like Rose (1997) do, I am a strong believer in the importance of recognizing and, as honestly as possible, stating bias and positionality, and recognizing reflexivity, all core tenants of both feminist methodology as well as post-positivist philosophy.

Overall, much like post-positivism, feminist methodology questions the traditional masculine ways of knowing, such as the strict insistence that objectivity is attainable and the thought that quantitative applications of the scientific method are inarguably the best (or only) valid way of gaining knowledge and understanding. Post-positivist and feminist methodologies have a great deal of intersection, though their focuses are still not entirely the same. Thus, I find myself situated within the overlap of the two philosophies, taking what is shared in both and also some of what is unique to each into my approaches to knowledge. I am neither neatly post-positivist nor feminist in my philosophies and methodologies, but rather a mixture of both. With a background in biology, I tend to rely and trust science and quantitative methods a bit more than a purely feminist geographer might, but at the same time, my experiences in research and in life have convinced me of the importance of including and seriously considering the immense significance of human social factors when discussing the
etiology of knowledge. It is through this perspective that I investigate how gender relates to environmental decision making.

4.5 Research Objectives and Questions

As with all applied sciences, in conservation a primary objective is optimizing the efficiency and efficacy of practices to yield better results. The few available studies on women in conservation demonstrate that the presence of female leaders in community-based conservation leadership is very promising: data suggests improved resource governance and superior conservation outcomes, among other benefits (Westermann et al. 2005; Agarwal, 2009a; Agarwal, 2009b; Das, 2011; Coleman and Mwangi, 2013). Drawing from the diversity of data covered in Chapters Two and Three, from gender differences in risk aversion to leadership to environmental values, these studies suggest that looking at the way men and women operate in the conservation context could unearth some very interesting discoveries. Further research into this subject would be of great use to the larger conservation community, as practitioners can incorporate the lessons gained from this research to improve the effectiveness of conservation projects by using it to be more mindful of the impact that the gendered composition of leadership has on the actions taken and results achieved. They may then decide to take this information a step further and institute changes in policies regarding the inclusion of women in leadership so they too might realize some of the beneficial results of increased inclusion.

Overall, this research adds to the growing body of knowledge surrounding the effects of women’s engagement as members of conservation leadership. It addresses serious gaps in the literature (see section 4.2 “Gaps in the Current Research”) which compromise the generalizability of the many promising findings by more broadly focusing on women in decision making positions of community-level, non-profit, and government-level organizations across many types of conservation foci in the developed Western nation of New Zealand.

The overall guiding question of investigation is: In what way(s) does gender play a role in conservation / environmental decision making in a developed country context?
This overarching question is divided into three major research questions and a number of sub-questions to help focus and guide the inquiry:

**RQ1: What is the state of women’s representation and involvement in environmental decision making in New Zealand?**

1. What is the prevalence of women in the various tiers of an organization’s structure (i.e. lower level up to executive level) in conservation organizations across New Zealand?
2. Are women more represented in particular organizations, sub-fields, position types, etc.?
   - If so, why?

**RQ2: Does gender affect values, priorities, and strategies in environmental decision making? If so, how?**

1. Why do women choose to participate in conservation and environmental management? Is this different from the reasons men participate?
2. Does gender play a role in values concerning the environment?
3. Does gender play a role in priorities for conservation?
4. Does gender relate to preferred processes and strategies for achieving conservation goals?

**RQ3: Does gender affect perceptions of competence and respect, as well as group dynamics, processes, and communications in environmental decision making bodies? If so, how?**

1. Are male and female leaders and decision makers in the group perceived differently in terms of other’s views of their competence and the level of respect afforded them?
2. Does critical mass improve the effectiveness of women’s participation?
3. Does gender have an effect on the approach to leadership?
4. Do men and women place similar importance on communication, intragroup relationships, and interpersonal group dynamics?

### 4.6 General Methods

These research questions are informed using a number of different methods, both quantitative and qualitative. Overall, the three sources of information are secondary data, surveys, and interviews. Secondary data and interview data came from a sample of five large national New Zealand organizations and seven small local Dunedin organizations, chosen for their
significance nationally or locally, respectively, while survey data was sourced from respondents working in various conservation organization across the country.

The five national organizations used in this study were chosen after being identified as the top five largest and most significant conservation organizations in New Zealand. Organizational significance was determined by looking at 1) the number of people employed by the organization, 2) number and scale of projects engaged in at the time of identification in 2016, 3) public profile of the organization, and 4) political influence. The seven small local organizations were identified using the same metrics, only evaluated for their impact at a local rather than national scale. The five large national organizations were presumed to represent the largest and most influential conservation organizations in the country while the seven small local organizations were selected and assumed to represent a case study for other small local organizations in other regions across the country.

For survey respondents, selection criteria was that the participant be affiliated (as an employee, volunteer, etc.) with an environmental or conservation-related organization based in New Zealand. Organizational affiliation was not restricted to any particular organizations, nor was it restricted by the subject of conservation focus, size of organization, location in the country, or any other similar factor. These survey respondents, coming from a large variety of conservation organizations of different kinds (small, large, specialized in focus, general in focus, species specific, government, non-profit, community, etc.), are assumed to represent conservation across the country more generally, capturing the wide range of conservation foci and ideas present in New Zealand conservation. Detailed information on demographic splits of survey respondents can be found in Section 4.8 “Survey Methods” and in Appendix D – Survey Respondent Demographics.

Information on the methods used to inform each research question and point of inquiry are summarized in Tables 4.2 and 4.3.
Table 4.2 Three major overarching research questions and general methods used to answer each

<table>
<thead>
<tr>
<th>Research Question</th>
<th>Methods</th>
<th>Analysis</th>
</tr>
</thead>
</table>
| 1) What is the state of women’s representation and involvement in environmental decision making in New Zealand? | • Secondary data  
• Interviews       | • Quantitative  
• Qualitative   |
| 2) Does gender affect values, priorities, and strategies in environmental decision making? If so, how? | • Survey  
• Interviews | • Quantitative  
• Qualitative   |
| 3) Does gender affect perceptions of competence and respect, as well as group dynamics, processes, and communications in environmental decision making bodies? If so, how? | • Interviews | • Qualitative   |

Table 4.3 Summary of data collection methods and data focus of each

<table>
<thead>
<tr>
<th>Method</th>
<th>Focus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Secondary Data Collection</td>
<td>Gathering data on the gender makeup of environmental organizations in New Zealand at various levels, within different types of organizations and in different positions / job types</td>
</tr>
<tr>
<td>Survey</td>
<td>Comparing and contrasting male and female environmental / conservation values, priorities, and strategies of conservation organization employees</td>
</tr>
<tr>
<td>Interviews</td>
<td>Gathering insight and explicit detail on the effect of gender in environmental decision making bodies, ranging from the effect of gender on group dynamics to the issue focus of the conservation / environmental group, etc.</td>
</tr>
</tbody>
</table>

The general process for this research was as follows:

- **Set out selection criteria and complete ethics**
- **Identify organizations and decision making bodies**
- **Pilot survey**
- **Conduct interviews**
- **Distribute survey and gather representation data**
- **Analyze responses**

Figure 4.3 General Process for Data Collection

Due to the use of human subjects in this research, there is a responsibility to maintain the highest level of ethical consideration in dealing with participants. All University of Otago ethics procedures have been observed, and this research was approved by the Human Ethics Committee 6 March 2017 (see Appendix A – Ethics Approval). Each participant gave their
informed consent to participate (see Appendix B – Information Sheets and Informed Consents).

4.7 Secondary Data Methods

Secondary data was collected to inform RQ1 and the first two sub-questions (women’s representation). To do this, secondary data on gender diversity at various levels of the organization’s hierarchy was gathered through email contact with a sample of organizations across the country. Two main groups of organizations were chosen for study. First, a sample of five large key national organizations. Large national organizations, both government and non-profit, are a big part of conservation in New Zealand, employing thousands of people and running country-wide conservation initiatives. A sample of five such large national organizations were identified based on their significance as key players in the New Zealand conservation scene (Organizations A – E in this text). The five national organizations in this sample represent a variety of government and non-profit organizations ranging in size from around 40 paid employees to over 2000 paid employees. They all have relatively a strict hierarchy within the organization, with clear high-level executives down to lower-level employees.

The second group chosen was a sample of seven small local Dunedin-based organizations (Organizations F – L in this text). Smaller local-level community-led projects are also immensely important to conservation in New Zealand, playing a vital role alongside larger organizations, especially as funding diminishes and voluntary citizen participation in conservation becomes more imperative. Seven such organizations were identified and selected based on their significance as important conservation players in the Dunedin area. The seven local Dunedin area organizations in this sample are all small non-profit organizations and are typically comprised of only a handful of formal members who make decisions for the organization. These decision making members are generally unpaid volunteers. Some of these organizations employ a few staff who report to the board or equivalent, but none exceeds ten paid employees. Most of these organizations depend heavily on unpaid voluntary participation. In comparison to the large national organizations, these small local organizations have minimal hierarchy and generally are more equitable, with each formal member on approximately equal standing. Most of these small organizations have a board chair or equivalent, but this chair does not have autocratic control and often functions
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more as a facilitator. For privacy reasons, all of the organizations used in this study are anonymized and will remain unnamed and unidentified.

Data on the gender makeup of each organization by hierarchical tier (i.e. board level, upper management, on-the-ground workers, etc.) was provided by each organization itself upon request. Some additional detail was gathered through email correspondence and key informant interviews with select members of these organizations. Data on differences between female representation at the uppermost level in large national versus small local organizations was analyzed using Chi-squared analysis in SPSS.

4.8 Survey Methods

To gather data for RQ2 and its three sub-questions which deal with personal environmental values, priorities, and strategies of male and female environmentalists, a survey employing Likert-style questions and one final open response question was used (see Appendix C – Survey). The survey was created and disseminated using Qualtrics as the distribution platform. Inclusion criteria for survey respondents was limited only by their affiliation (whether that be as an employee, volunteer, etc.) with a New Zealand based environmental or conservation organization. Thus, survey respondents are comprised of individuals holding a variety of positions from approximately 70 environmental / conservation organizations across New Zealand. Respondents are a diverse array of people, representing many ethnicities, age groups, professional / education levels, and backgrounds. Detailed information on the various demographic splits of survey respondents is seen below, and also in Appendix D – Survey Respondent Demographics.

Demographics by gender and age category:

<table>
<thead>
<tr>
<th>Age</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 18</td>
<td>0.00%</td>
<td>0.00%</td>
</tr>
<tr>
<td>18 – 24</td>
<td>16.67%</td>
<td>83.33%</td>
</tr>
<tr>
<td>25 – 34</td>
<td>30.95%</td>
<td>69.05%</td>
</tr>
<tr>
<td>35 – 44</td>
<td>30.00%</td>
<td>70.00%</td>
</tr>
<tr>
<td>45 – 54</td>
<td>40.91%</td>
<td>59.09%</td>
</tr>
<tr>
<td>55 – 64</td>
<td>70.00%</td>
<td>30.00%</td>
</tr>
<tr>
<td>65 or over</td>
<td>64.86%</td>
<td>35.14%</td>
</tr>
</tbody>
</table>
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Demographics by gender and level of education:

![Pie charts showing gender and level of education distribution.]

<table>
<thead>
<tr>
<th>Level of Education</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>No qualification</td>
<td>23.08%</td>
<td></td>
</tr>
<tr>
<td>Completed NCEA levels 1 - 3 or equivalent</td>
<td>12.50%</td>
<td></td>
</tr>
<tr>
<td>Apprenticeship, trade certification, or similar</td>
<td>7.92%</td>
<td>5.96%</td>
</tr>
<tr>
<td>Bachelor’s degree</td>
<td>4.04%</td>
<td>3.80%</td>
</tr>
<tr>
<td>Postgraduate degree (other than Doctorate)</td>
<td>2.02%</td>
<td>0%</td>
</tr>
<tr>
<td>Doctorate</td>
<td>2.96%</td>
<td>2.02%</td>
</tr>
<tr>
<td>Other (please specify)</td>
<td>16.35%</td>
<td>16.35%</td>
</tr>
</tbody>
</table>

Respondents were gathered in a variety of ways. One major method included sending the survey link via human resources (or similar) departments to around 25 organizations across the country to be distributed throughout the organization initially. The number of groups reached increased with snowballing. For groups without an HR or similar department, the organization’s main point of public contact was asked to distribute the survey throughout the organization. Reminders were sent once. Additionally, personalized requests were sent to individuals whose contact information could be found freely online (i.e. employees of environmental organizations whose emails were listed on the organization website, in a newspaper, etc.). Further respondents were gathered from a “soapbox” announcement at the 2017 Sanctuaries of New Zealand (SONZ) workshop in which attendees of the event were informed of the research and given a link to the survey to take and further distribute. Moreover, survey responses were solicited from key informant interviewees from related parts of this research, who themselves were asked to take the survey. Lastly, additional respondents were reached through snowballing, where people who were requested to take the survey in any of the aforementioned ways were asked to further distribute the link to other colleagues and fellow environmentalists. Overall, 225 responses were recorded (104 male, 121 female). Due to the nature of the methods used to acquire survey responses, the exact
number of people who received an invitation to participate is unknown, and therefore detailed response rates are also unknown.

A survey was chosen as the primary method to gain insight on environmental values, priorities, strategies, and decision making preferences because surveys provide an easy way for participants to voice their opinions with relatively little inconvenience compared to methods such as interviews for example. The ease and speediness of a survey facilitates the gathering of data from significantly more participants and from a wider variety of organizations than some other more demanding methods, as people are more likely to agree to partake in a quick survey than in a longer, more intensive interview, as people are more likely to accept smaller requests than larger ones (Perloff, 2010). The larger sample size that can be attained through surveying is helpful for statistical analysis between groups, which helps in the drawing of overarching patterns and more generalizable conclusions.

Most survey questions for this research were given in the form of a Likert scale (5 point scale from strongly disagree to strongly agree) for two main reasons: (1) Questions of this type are easy for respondents to answer quickly and with little aggravation, and (2) These sorts of abstracted number level responses allow for clear and easy comparison between respondent groups (in this case males and females). Although Likert scale questions can be especially prone to framing and central tendency bias effects, since the main conclusions drawn from these questions are comparative in nature (i.e. comparing the responses of male and female members taking the same survey) rather than absolute, the same effect should be observed in both groups and the bias should therefore cancel out. That is to say, both men and women respondents are thought to show these same survey biases, and thus their comparative answers are affected in similar ways, causing these biasing effects to cancel when compared between the groups.

Careful steps were taken to ensure the quality of this survey for informing the research questions. Most obviously, in the design of each and every individual question, attention was given to what information the answer would provide and how it could be used to shed light on the research questions under investigation. Thus, extraneous or tangentially related questions were eschewed in favor of concise, clear-cutting, and specially targeted questions. Each particular one was created by directly referring back to the project aims and research questions to ensure it is immediately relevant and able to provide useful information.
The targeted nature of each question is important for ensuring the data produced will be helpful to advancing understanding of the topic, but avoiding only loosely related questions also helps lessen the length of the interview/survey, thus reducing survey fatigue. Survey fatigue is a widely experienced phenomenon in which respondents become bored, tired, or uninterested in the survey, leading to less thoughtful and considered answers, or abandonment of the survey altogether. Lessening the incidence of survey fatigue is particularly important, as it produces higher quality answers. Of course, thoughtful and top quality responses are the basis of effective and accurate research, while less thoughtful answers lead to lower quality and less accurate results. In fact, this has been validated by research: Backor et al. (2007) demonstrate, experimentally, that quality of participant responses decline over time, leading the authors to advise that survey and interview lengths be limited to retain accuracy and effectiveness. To address this issue, special attention was given to ensuring all questions were directly relevant and necessary while also quick and easy to answer (hence the use of Likert style questions). This was especially significant to this study, as some of the participants expressed a feeling of being “over-surveyed” even before the start of this research, as they receive a great deal of survey requests from both within and outside their organization on a regular basis each year.

Additionally, attention was given to question framing and sequencing. An executive summary of evidence from multiple studies on effective questionnaire design confirms that question wording and ordering has significant effects on the nature and quality of responses (McColl et al., 2001). The review also found evidence from numerous studies to support the assumption that specific questions should follow more general ones. Thus, attention was put into reducing the effects of framing (leading respondents toward a particular response) as much as possible while still remaining explicit about what is being asked. Likewise, attention was given to ordering the questions to make the survey easy for the respondent by organizing questions together by complexity and topic and putting emphasis on the creation of a logical flow, beginning with general demographic questions and progressing gradually to more thought-intensive questions. Of course, when it comes to wording, special care was taken to ensure that questions were as lucid and succinct as possible.

When employing questions of varying format, it is important to note that different question types have different advantages. For example, closed response questions (allowing
participants to select amongst pre-set responses) are easier and quicker for respondents to answer (reducing survey fatigue), easier to compare between groups, and simpler to analyze while open answer questions (where participants are allowed to explain their answers as much or as little as they choose) provide the possibility for greater detail and elaboration. To get both the analytical/comparative benefits of closed response questions as well as the thoroughness and detail of open response questions in tandem, this research employs both surveys using closed (and one open) answer questioning paired with semi-structured interviews using open questioning (discussed more in the following section, 4.9 “Interview Methods”). The surveys rely on closed response questions, especially Likert-style ones, while the key informant interviews make use of open questioning techniques that allow participants to fully explain and expand upon their answers, providing a great deal of detail and understanding for use in the analysis. The use of both question types allows the derivation of benefits from each style to be realized.

Additionally, it is imperative to recognize the large impact of neutrality.central tendency bias (where participants are less willing to answer with extreme responses, e.g. strongly disagree) and agreement/acquiescence bias (where respondents are more likely to agree with statements than disagree with them). By targeting employees of environmental organizations, neutrality bias is lessened: workers in environmental organizations are less likely to be neutral in their opinion concerning the environment than laymen, thus assuaging the central tendency/neutrality bias. Furthermore, acquiescence bias was minimized through the use of question flipping; that is, questions are framed in ways where the pro-environmental response is on the “agree” side for half the questions, but the “disagree” side for the other half. This means respondents must put careful thought into each question, and cannot simply “agree” with most questions to accurately portray their ideas.

Finally, a very important consideration which exists in any questioning of human participants is the social desirability bias, a tendency for respondents to reply with the answer they think is socially “correct” rather than provide answers that reflect true accuracy of their feelings or behaviors. This generally causes respondents to overestimate their good thoughts and behaviors and under-report their “bad” or less socially acceptable ones. For example, a survey respondent might overestimate the amount that he or she recycles, as recycling is the socially “correct” behavior. To lessen the effect of this bias, questions were framed as neutrally as possible, minimizing any suggestion of the socially desirable responses.
Additionally, questions without clear “right” or “wrong” answers were preferred. Through the recognition and minimization of these discussed well-known influencers, the quality and reliability of these results are improved.

Survey data was analyzed for gender differences by comparing male and female group responses using Independent Samples T-Tests in SPSS. Levene’s Test of Equality for Variances was paired with the Independent Samples T-Test to determine whether statistics for equal variances (i.e. pooled variance estimator) or unequal variances (i.e. Satterthwaite’s method) should be used in each case. Parametric tests like the t-test are more sensitive and powerful and thus generally preferred to non-parametric tests when possible. However, ordinal data, such as the data obtained in this Likert-style survey, are conventionally recommended to be analyzed with non-parametric tests such as the Mann-Whitney U test or the Wilcoxon signed ranks test. Likert-type questions generate ordinal data (meaning the responses have a meaningful order but the numbers themselves are not meaningful).

Theoretically, this means non-parametric statistics are generally used for their analysis. However, using parametric tests for ordinal data is not uncommon, provided the ordinal data meets the assumptions for the parametric test (i.e. that the sampling distribution is normally distributed) (Willett, n.d.). The Central Limit Theorem states that distributions are approximately normal when n is large ($n_1 + n_2 \geq 30$) (Park, 2003), and this sample of 225 is sufficiently large to meet this assumption. Nonetheless, Likert data is generally not normally distributed due to the nature of this type of constrained response data. Fortunately, t-test statistics have been demonstrated to be quite robust to deviations from normality (Edgell and Noon, 1984; Lumley et al., 2002; Sawilowsky and Blair, 1992). Moreover, Norman (2010) asserts that criticisms of using t-tests with small sample sizes, non-normally distributed data, and Likert data are unfounded, citing numerous studies from as far back as the 1930s that demonstrate the robustness of parametric statistics to violations of these assumptions.

Some critics are concerned with “getting the wrong answer” when using parametric statistics on non-parametric data, however both types of tests generally produce the same conclusions. Numerous empirical studies find that the level of power and rates of Type I and Type II errors for analyzing Likert questionnaires using parametric and non-parametric tests are similar and that there is no clear superiority of parametric or non-parametric tests in analyzing Likert data. For example, Gregoire and Driver (1987) conducted an experiment in which they simulated and randomly sampled a population to investigate the performance of
parametric versus non-parametric tests in analyzing Likert data. They found that Type I and Type II error rates were not consistently better in one type of test over another and observed little difference in power, suggesting that there is no clear superior statistical method. Winter and Dodou (2010) used similar methods to assess the performance of a t-test versus a Mann-Whitney-Wilcoxon (MWW) test on Likert data and also found similar power and rates of Type I and II errors, with few exceptions (e.g. some differences in power when drawing from a skewed, peaked or multimodal distribution). Meek et al. (2007) found similar error rates in symmetric data and even suggested that t-tests reject false hypotheses better and have higher power in cases of small sample sizes.

When it comes to power in situations of unequal variance, Zimmerman’s (1987) comparison of the Student’s t-test and Mann-Whitney U test found the U test is more powerful when the smaller sample size had smaller variance, but that when sample sizes were equal or when the smaller sample had larger variance the t-test was more powerful. Given that the group sample sizes in my research is roughly equal, and also that variances of my data tended to be similar or higher in the smaller sample group, the use of Independent Samples T-Tests with Levene’s Test of Equality of Variances for analysis of the survey data is justified as a practice that is robust and well supported in comparison to other possible methods of analysis. Thus, this was the statistical method that was chosen for the analysis of survey data.

**4.9 Interview Methods**

Key informant interviews were used to provide data and additional detail for illumination of a number of sub-questions embedded under all three overarching research questions. Because surveys have the limitation of providing very narrow and restricted information that only comes in a set of predefined fixed-response answers, the level of detail is understandably limited. Using surveys provides the benefit of straightforward comparison between groups and large sample sizes good for identifying patterns, but does not allow for explanation of answers and the voicing of intricacies. Thus, semi-structured interviews were used as a useful supplement to the information gained in the surveys, as they probe in far greater detail and allow for the voicing of personal experience to a far greater extent (Kajornboon, 2005) than a survey. These interviews provide the data primarily used to answer RQ3 which deals with understanding gender and group dynamics and processes, while at the same time providing
additional data and detail on gender representation in environmental organizations (RQ1) and
gender differences in environmental values, strategies, and priorities (RQ2).

Key informants chosen were all past or present members of one of the five large national or
seven small local organizations identified and used to inform RQ1 on gender representation
in environmental organizations across New Zealand (see section 4.6 “General Methods”).
These key informants were identified based on their position, with all key informants holding
leadership-level positions within their organization. Each key informant has in the past or
currently acts as part of a decision making group, where they work with others to make
environmental and conservation decisions on behalf of the organization. With the crafting of
these specific selection criteria, key informants were carefully chosen from particular
organizational positions to ensure they would have the appropriate experience to share their
understanding of the gendered involvement and group dynamics (if any) involved in working
in a leadership / decision making in a New Zealand conservation group.

For each organization, a list of people comprising the uppermost decision making levels (e.g.
board members, leadership teams, top tier executives, etc.) was created. In selecting
interviewees, an attempt was made to select at least one male and female member from the
uppermost level of each organization, to provide at least one male and female perspective on
the intersection of gender and conservation within each decision making group. After
potential participants were identified and selected, these people were emailed and invited to
participate in an interview which generally lasted from 20 to 60 minutes. Overall, 32 key
informants (15 male, 17 female) agreed to participate and were interviewed.

Interviews were semi-structured in nature and followed a guiding set of questions (see
Appendix E – Interview Questions) that were adapted in real time during the interviews (if
necessary) to gather more targeted information. These questions asked about each person’s
individual personal values, priorities, and strategies for conservation, their experiences as part
of an environmental decision making group, and patterns or dynamics they may have noticed
in relation to the conservation and environmental management space. Again, just as with the
survey, special attention was paid to creating questions and an interview atmosphere that
would minimize the well-known biasers discussed previously such as framing, sequencing,
and social desirability. These interviews were recorded and transcribed, then coded using
NVivo software.
Analysis of interview data was guided using a “coding paradigm” that relied on both inductive and deductive methods (Welsh, 2002). As with most qualitative data, interview text was first “organized” (Miller, 2000), in this case using NVivo software. In line with Côté, et al. (1993), a two step process of first coding meaningful segments of interview data, then re-grouping these segments into categories of common themes was the major way that organization and interpretation of data was completed. Qualitative thematic analysis was the primary means used to discern patterns and common themes, though some comparison of frequencies was employed. For this, interview texts were analyzed and quotes and pieces were sorted into common themes (nodes). These nodes, which organize and systematize data using categories for common themes, were identified deductively from the literature (e.g. “Lack of Women in Leadership”) as well as inductively from the data as patterns emerged through content analysis (e.g. “Boys Club”). An “interpretive” approach as defined by Mason (1996, p. 54), where the researcher attempts to make sense of the interviewee’s accounts and interpret their meaning, as opposed to a literal or reflexive approach, was used for analysis. Analysis primarily focused on drawing out recurring themes in interview data by looking at the frequency certain common themes were mentioned by different people and using quotes to delve into a deeper understanding and interpretation of the significance of these patterns. For the purposes of privacy, in the discussion of the interview data all names have been anonymized.

4.10 Conclusions

Overall, there are a number of gaps in the current available research on gender and environmental leadership and decision making, particularly in subject matter, organization level, and geographical area. Coming from a post-positivist and feminist approach to knowledge, this study seeks to fill these gaps through an investigation of gender in environmental management across various types of conservation organizations throughout New Zealand. It uses both qualitative and quantitative methods to answer the overarching question “In what way(s) does gender play a role in conservation / environmental decision making in a developed country context?”

The following sections proceed into a discussion of the results attained from the secondary data, surveys, and interviews outlined here. Immediately following here, Chapter Five begins
with a discussion of women representation in conservation in New Zealand. Next, Chapter Six continues on to a discussion of gender differences in environmental values and ways of working. Chapter Seven then addresses gender effects within the environmental decision making space in New Zealand. And finally, Chapter Eight draws these results and discussions to a final close.
Chapter Five: Gender Diversity in Conservation Organizations Across New Zealand

As discussed in Chapter Three, gender diversity in environmental decision making has been a largely understudied topic of investigation, with most studies coming from small community projects in less developed nations (especially India and Nepal) (Ballabh and Singh, 1988; Benjamin, 2010; Guhathakurta and Bhatia, 1992; Kant, Singh, and Singh, 1991; Moffat, 1998; Narain, 1994; Roy et al., c.1992; Sharma and Sinhav, 1993; Singh and Kumar, 1993), and very few from the context of more formal conservation organizations in developed nations (Davidson and Black, 2001; Kellert and Berry, 1987; Kulcur, 2012; Natcher, 2013; Wehi, Beggs, and Anderson, 2019). This chapter, then, seeks to contribute to filling this gap, and provides an answer to RQ1 and its sub-questions:

RQ1: What is the state of women’s representation and involvement in environmental decision making in New Zealand?
1. What is the prevalence of women in the various tiers of an organization’s structure (i.e. lower level up to executive level) in conservation organizations across New Zealand?
2. Are women more represented in particular organizations, sub-fields, position types, etc.? If so, why?

This chapter is based on findings from secondary data gathered from a sample of five large key national conservation organizations (Organizations A – E in this text) and seven small local Dunedin-based organizations (Organizations F – L in the text) in New Zealand (see section 4.6 “General Methods”). The following begins with a discussion of women’s representation from the lowest to uppermost organizational tiers (sections 5.1 and 5.2), then moves on to discussing how large national and small local environmental organizations differ in their levels of female representation in leadership (section 5.3). Next, data on gender representation by position and project type are presented (section 5.4), and finally a discussion of some possible drivers (sections 5.5 and 5.6) underlying these findings is offered before the final conclusion of the chapter (section 5.7).
5.1 Women in Conservation

As discussed in Chapter Four, the two main groups chosen for this study were a sample of five large key national conservation organizations (Organizations A – E) and seven small local Dunedin-based organizations (Organizations F – L). Most conservation organizations sampled exhibit a skew toward high representation of women in the overall, with women comprising more than half and oftentimes upwards of 70% of the organization in total. Despite being unrepresented in many areas of STEM (Science, Technology, Engineering, and Mathematics) (Hango, 2015), the natural and biological sciences are one STEM arena in which women enjoy equal or even greater representation (Palermo et al., 2008). According to the U.S. Bureau of Labor Statistics (2017) women comprise 54.4% of biological science jobs. Similarly, according to Statistics New Zealand (2015), women comprise 49% of those with qualifications in natural and physical sciences, and although Statistics New Zealand does not provide data on the percentage of women that make up natural sciences as a solitary category, the New Zealand Human Rights Commission (2012) notes that in the final two years of secondary education (age 17 - 18, typically), female students are overrepresented in biology and male students are overrepresented in physics and calculus, suggesting the percentage of natural science qualifications held by women in New Zealand is even higher than the 49% given by combining natural and physical sciences into one category. Indeed, looking at 2002 and 2006 data from the Ministry of Education on trends in fields of study for bachelor’s degrees in New Zealand, more than 60% of graduates in biological sciences were female (Scott, 2009).

Conservation has for a long time in Western nations been a domain in which women’s participation was seen as acceptable or even favorable. Even in strictly gendered Victorian times more than one hundred years ago, natural history (and botany in particular) was considered an appropriate occupation for young ladies, one that did not come into conflict with the dominant gender norms of the day and in fact was seen as a worthwhile feminine pursuit and activity for self-improvement (Knapp, 2005; Shteir, 1996). Today, people in the field of conservation recognize similar histories as having taken place here in New Zealand. William14, an interviewee from a large national conservation organization, recalls:

I’m even thinking about the New Zealand outdoor world: tramping and climbing community. And that's been – I certainly won't say it's been, you know, gender neutral

14 All names have been changed for anonymity
– but it’s certainly been gender aware for a long time. High female participation rates for a very long time which are probably only tending to increase. Victoria, who is involved with small local Organizations F and H, thinks this legacy of women in environmental fields may have created a place where women were able to enjoy more equality throughout the years:

I think in a way conservation work has helped women because it’s been more acceptable for women to work in conservation. Even in fieldwork-type situations and in the science-type roles. Then, they were able to work in some other places. You know. … When you think about it, there have been female rangers around for a long time in a formal sense. And it’s been more acceptable for women to tramp around in the back country in New Zealand. They could do that when they couldn’t enter board rooms. So maybe – I hadn’t thought about it before – but maybe conservation is one of the places where women were able to come in on more even footing. Later she goes on to add, “But there’s something there, I think, that conservation may be a place where women were allowed to step out.”

However, despite the fact that women have seemed to enjoy greater representation and perhaps more equal treatment in conservation organizations (relative to other fields) for a long time, the lack of women in positions of leadership still remains to this day. In the natural sciences generally, authors have noted that while women’s representation in the beginning of scientific careers is generally at least half, the ratio of women to men decreases as one progresses up the career ladder (Gillanders and Heupel, 2019; Palermo et al., 2008). Knapp (2005) notes that according to a 2003 Women in Science Working Group’s unpublished report, although 40% of the scientific staff at the Natural History Museum, London were female, only 6.2% of the top three (out of six) tiers were female. Similarly, in a recent study of the entomology profession, although women made up between 40 – 50% of doctoral graduates in the field over the past decade, they were found to hold fewer than one in four university academic entomology positions and only 27% of federal entomology positions, with the share of females declining significantly with increasing rank and higher pay grade (Walker, 2018). In Australia, although women occupy about half of lower level STEMM (science, technology, engineering, mathematics, and medicine) positions, representation declines with increasing level such that men occupy fully 80% of the uppermost STEMM positions (Gillanders and Heupel, 2019).
5.2 Gender by Tier

Of the organizations sampled for this investigation (five large national and seven small local), the nature of the large key national organizations is such that they all have multiple tiers within the organization, each with numerous employees (i.e. upper management, middle management, lower level operational positions, etc.). In contrast, the structural nature of the small local Dunedin-area organizations is such that they are all comparatively small in size with a workforce that is primarily unpaid / voluntary. The comparatively fewer people formally involved in these Dunedin organizations generally means that there is less hierarchy, and in fact most of the small Dunedin organizations do not have tiers at all. Only two of the seven Dunedin organizations can be argued to have any hierarchy / tiers, as these two organizations have more than one paid employee who reports to an executive body (i.e. a board, etc.).

In the organizations that do have tiers (all national organizations and the two Dunedin organizations), women make up a significant portion of the lower levels, holding anywhere from 42.3% to 100% of the lower positions. However, as one looks up the higher tiers, women’s representation decreases significantly. Figure 5.1 illustrates this information, making quite clear the tapering of female representation as one travels up in tier.
Interviewees notice the lack of women at leadership, with the majority of interview informants mentioning a predominance of men at the leadership level of their organization, though many small local organization members did note gender balance in their leadership (this difference by organization type will be discussed further in section 5.3). Some interviewees go a step further and recognize the tapering of female representation with increasing tier, contrasting the proportion of women in leadership with the proportion of women involved at lower levels. Rob from Organization B, a large national organization, says, “If you were to look at the entire structure of the organization, the on the ground side of things is heavily weighted towards women and the leadership side of things is heavily

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15 Organizations A – E are large national organizations while Organizations G and L are Dunedin area organizations. Dunedin organizations F, H, I, J, and K do not have multiple tiers for comparison and are thus not represented in this graphic.
weighted towards men.” Anthony, also from Organization B, adds “all our chief executives have been male”. Jeff, from small local Organization L, notes:

    So [my organization] for instance, we have had four, well five project managers working for that group since we started. So the actual person on the ground managing the work that gives us the results has been female 80% of the time. So even though the fact that the board is male-dominated, the person on the ground managing all the work for us is a female.

Both interview and the secondary data together support the observation that although women are highly represented at the lower levels and overall within a given conservation organization, leadership tends to be largely male.

In the small local Dunedin organizations that do not have tiers, one can still look at general involvement in the organization versus executive / decision making involvement to get an idea of gendered patterns of participation and representation. Although most of the small Dunedin area organizations do not have tiers, nearly all of them have informal volunteers that donate their time and skills to assist the organization. Along with the board members (or equivalent), volunteers play a vital part in the functioning of many of these small organizations.

When it comes to the gender diversity of volunteers, thirteen interviewees note a predominance of female volunteers over males, while only two said the proportion of volunteers was gender balanced, and two others (both from the heavily male Organization C) said it was mostly male. Retired women in particular were cited by numerous interviewees across organizations to comprise the single largest group of consistent volunteers (according to three volunteers, perhaps due to increased time flexibility), with nine of the ten people who referenced the age of volunteers stating that volunteers are generally retired. This female bias in volunteers may in part be explained by the interplay of age and gender, as two interviewees did note that women generally live longer than men, which means there are more retired women than men around to engage in volunteer work. “The general membership probably would be slightly female leaning, in part because if you've got a significant retired proportion, then women tend to live longer than men. So that in itself will change the proportion,” interviewee Rob says. However, given the fact that most of the organizations

16 All organizations names have all been removed for anonymity
Chapter Five: Gender Diversity in Conservation Organizations Across New Zealand

sampled tended to be heavily female throughout the organizations overall – not just at the older volunteer level but also at the younger staff level – the relative influencer of age versus other factors on gendered involvement in conservation is questioned.

Thus, women still comprise a majority of these smaller, “tier-less” organizations (as volunteers). On the boards (or equivalent) of these organizations, women hold between 33.3% to 50% of the seats, but this is still lower than the proportion of women involved generally, as women make up the majority of volunteers involved. However, the difference in women’s representation overall versus in leadership is less pronounced in these small local organizations than in the larger national organizations (this finding will be further discussed in section 5.3).

From this data, it is clear to see that within each organization, as a general rule women’s representation is highest at the lower levels and decreases as one goes up in tier. Secondary data on organizational makeup from the groups themselves as well as information from interviews agree in this regard. All organizations sampled exhibit this pattern of decreasing female representation with increasing tier, except one (Organization D), regardless of whether they were large national or small local organizations. As a general pattern, women make up the largest proportion of an organization at the lowest levels, with positions becoming increasingly male-dominated as one travels up in tier.

It is interesting to note here that even when gender parity (50-50 split of men and women) is achieved at the uppermost tiers, it often still represents a gender skew. For example, Organization L has achieved gender parity at their top level (50% female, 50% male). However, the representation of women at this level is still not representative of the organization as a whole, as women make up more than half of the organization (71.4% of the lower positions). For the upper level executive positions to not represent a gender skew in leadership, the percentage of positions at the uppermost levels held by women would need to approach closer to the 71% mark, that is, the proportion of lower level positions filled by women. Thus, although there is gender parity at the uppermost level in some organizations, it often still represents a male skew in leadership because the organization as a whole is predominantly female.
To eliminate such a gender skew, the two options are (1) increase female representation at the upper tiers until it is representative of that at the lower levels (i.e. if females make up 71% of lower level positions their representation should be increased to also make up around 71% of leadership positions) or (2) increase gender equity at all levels (i.e. increase proportion of men at lower levels while also increasing proportion of women in leadership) leading to approximately equal gender representation across all tiers. Whether an organization tries to achieve better gender equality in the organization by encouraging consistency in representation across tiers or by simply ensuring leadership is representative of the organization as a whole is somewhat of a value judgement rather than something with an apparent right or wrong answer, especially because aiming for 50:50 representation across the organization may not be feasible if more men or women choose to work in the profession overall. The complexities and arguments in favor of both of these strategies to eliminate gender skew will be touched upon in more detail later in this thesis alongside the discussion of research data gained from surveys on personal values, strategies, and priorities for environmental management (Chapter Six) and interviews on the effect of gender in environmental decision making groups (Chapter Seven). The addition of more data that is presented in the following chapters will allow for a more robust and interesting discussion of the complexities related to both of these strategies for eliminating gender bias in leadership.

### 5.2.1 Comparison with Similar Data

There is a scarcity of literature highlighting the state of gender representation at various tiers in environmental organizations. The small amount of data available is quite limited and dated, with very little information coming from comparable Western nations. Much of the available material comes from 1990s studies in India and Nepal, which put the percentage of women in environmental decision making bodies at less than 10% (Ballabh and Singh, 1988; Guhathakurta and Bhatia, 1992; Kant, Singh, and Singh, 1991; Moffat, 1998; Narain, 1994; Roy et al., 1995; Sharma and Sinhav, 1993; Singh and Kumar, 1993). The findings from this New Zealand data demonstrates considerably higher female representation at leadership than that 10%. However, the studies referenced above are quite old and possibly are no longer illustrative of current patterns of female representation in environmental decision making.

Even more, these older studies that put female decision making representation under 10% are from less developed nations in environmental decision making bodies where the practitioners are directly affected by the management decisions they make (i.e. they create rules for wood
harvest in the forest that they gather from themselves). These countries are assumed to have more prevalent gender inequality and different operating environments and thus predictably lower levels of female involvement in decision making. For these reasons, comparing these New Zealand findings with previous findings from India and Nepal may not be especially insightful. Nonetheless, one can likely fairly confidently conclude that New Zealand probably has higher representation of women in environmental decision making when compared to India and Nepal, and perhaps less developed countries more generally.

When it comes to the few studies that reference female representation in environmental leadership and decision making in comparable Western countries, more interesting comparisons can be made. Although one can question its applicability to current day due to age, in a publication by Kellert and Berry (1987), the authors referenced a conversation with a United States Fish and Wildlife Service (U.S. F&W) employee who informed them that women make up 80% of lower level white collar positions, 38% of white collar positions overall, and only 8% of higher level positions in their organization. This same general trend of higher representation of women at lower levels and decreasing representation as one goes up in tier is also present in this New Zealand data. It is perhaps interesting to note, though, that most organizations in the New Zealand sample did not exceed 71% women at the lowest levels (with Organization C being the only exception), compared to 80% women at the lowest levels in U.S. F&W. The organizations from this New Zealand sample also generally did not have less than 25% female representation (not less than 33.3% for small local organizations) at the uppermost levels (with Organization C again being the only exception), compared to 8% women at the uppermost levels in U.S. F&W. Thus, it seems that although this New Zealand data corroborates the finding of high female prevalence at lower tiers and reduced female representation with increasing tier, it appears to be less severe in nature than what Kellert and Berry found for U.S. Fish and Wildlife in 1987 (with the exception of Organization C, a heavily male organization which presents a larger skew).

The reasons for this difference in magnitude of skew in Kellert and Berry’s findings compared to this New Zealand data is open to speculation. One possibility is that the passage of time between Kellert and Berry’s data in 1987 to the sampling of this new data in 2017 – 2018 could mean that the increased women’s representation in the New Zealand data may be an effect of time / era. That is to say, perhaps the data from New Zealand represents a less severe gender skew because gender representation in the environmental sector has become
more equal with the passage of time. This likely has some degree of merit, as Wehi, Beggs, and Anderson (2019) show female New Zealand Ecological Society councilors have increased steadily from 1950s where women made up less 10% of the council to the last decade where they have averaged about half.

However, more recent data since the turn of the millennium also show skews of female representation by tier. Data from the mid-1990s in a study of New South Wales (Australia) National Parks and Wildlife employees found that women made up 22% of ranger positions, but only 10% of senior ranger positions, and 30% of assistant district manager positions but 0% of district manager positions (Davidson and Black, 2001). Similarly, even more recent data from ENGOs in UK and Turkey closely parallel these New Zealand findings, with women comprising a board majority in only one organization and averaging just 29.8% of UK and 27.9% of Turkish boards despite women’s high representation overall (Kulcur, 2012). Moreover, a 2013 sample of thirty-four resource co-management boards from Northern Canada found that only 16% of total members were female, with nine boards consisting entirely of men and eighteen boards containing only one single female representative (Natcher, 2013). At international levels, IUCN (2015b) found that women comprise only 29% of the GEF, 24% of the UN Forum on Forests (UNFF), just under 50% of non-governmental organization (NGO) representatives to the Rio Conventions, 12% of national environmental sector ministries, 18% of world energy council secretaries (4% of world energy council chairs), and 48% of nationally elected green party leaders.

This much more recent information from these relatively comparable developed nations is far more recent than Kellert and Berry’s and yet a lack of female representation in environmental decision making still persists. Thus, this refutes the idea that the passage of time and entry into a new “era” would be the only factor responsible for the more equal representation of men and women in these New Zealand findings compared to U.S. F&W in 1987. Explanations of possible factors that may drive patterns of female representation by tier and by organization will be further explored in section 5.6 “Possible Drivers”. But overall, comparing with the limited comparable research, this New Zealand data appears to corroborate previous findings of relatively low female representation at the decision making level and a decline of female representation with increasing tier. Still, in contrast, this New Zealand data represents a less severe gender skew when compared to the information from Kellert and Berry (1987) in U.S. F&W, Davidson and Black (2001) in New South Wales.
National Parks and Wildlife, and Natcher (2013) in resource co-management board in Canada, perhaps suggesting that New Zealand is doing better than some other developed nations in female representation in environmental leadership. Female representation at upper levels in environmental organizations in New Zealand appears to parallel more closely with the leadership representation observed in UK and Turkish NGOs, which showed similar percentages of women at the top (~30%) (Kulcur, 2012).

### 5.3 Large National versus Small Local Organizations: Differences in Female Representation

Although the general pattern of decreasing representation of women with increasing tier is apparent in both the large national organizations and small local organizations, there are important differences that should be noted. Within the sample of five large national organizations, the percent of females in the upper tiers / management positions did not exceed 50%, while the lowest rate of women’s representation was 0% (Table 5.1). All organizations but one (Organization D) had a majority of males at the upper tiers, while none had a female majority.

<table>
<thead>
<tr>
<th>Organization</th>
<th>Percent Females at Highest Tiers</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>26.6%</td>
</tr>
<tr>
<td>B</td>
<td>33.3%</td>
</tr>
<tr>
<td>C</td>
<td>0%</td>
</tr>
<tr>
<td>D</td>
<td>50%</td>
</tr>
<tr>
<td>E</td>
<td>25%</td>
</tr>
</tbody>
</table>

In contrast, in the seven Dunedin-based organizations, while the percent of females on the board similarly did not exceed 50% in any organization, the lowest rate of women’s representation was 33.3% (compared to 0% in large national organizations) (Table 5.2). Most of these organizations achieved perfect gender parity (50-50 split), with five of the seven organizations having exactly half women and half men on the board or equivalent.
Table 5.2 Percent of women on board (or equivalent) in a sample of seven small local Dunedin organizations:
Percent of board (or equivalent) members who are female, rounded to one decimal, from seven small local organizations in the Dunedin area.

<table>
<thead>
<tr>
<th>Organization</th>
<th>Characteristics</th>
<th>Percent Females at Highest Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>F</td>
<td>Volunteer only</td>
<td>33.3%</td>
</tr>
<tr>
<td>G</td>
<td>Employs staff</td>
<td>35.7%</td>
</tr>
<tr>
<td>H</td>
<td>Volunteer only</td>
<td>50%</td>
</tr>
<tr>
<td>I</td>
<td>Volunteer mostly</td>
<td>50%</td>
</tr>
<tr>
<td>J</td>
<td>Volunteer only</td>
<td>50%</td>
</tr>
<tr>
<td>K</td>
<td>Volunteer only</td>
<td>50%</td>
</tr>
<tr>
<td>L</td>
<td>Employs staff</td>
<td>50%</td>
</tr>
</tbody>
</table>

Large national organizations had an average of 27.38% of the uppermost positions filled by women while small local Dunedin area organizations had an average of 45.57%. Comparing the small local organizations with large national ones, there is a quite a difference in the proportion of organizations that have equal or approximately equal gender representation (i.e. no gender comprising more than 60% of the group) at the uppermost tiers. In the small local Dunedin area organizations, five of seven (71.4%) achieved gender parity at the uppermost levels. This is in stark contrast with the large national level organizations where only one of the five (20%) has. This difference in women’s representation at the highest tiers between the small local organizations and large national ones is statistically significant to 90% confidence (p-value = 0.078983, chi-square statistic = 3.0857). These findings suggest that small local organizations have significantly higher rates of gender parity at the uppermost levels than large national organizations. In other words, women are more likely to be well represented in leadership at small local conservation organizations than in large national ones. Notably, this is in line with arguments from Bradshaw, Murray, and Wolpin (1996) and Odendahl and Youmans (1994) who argue that women are more likely to be represented on the boards of smaller non-profit organizations.

5.4 Gender by Position Type and Focus

Not many organizations provided data on gender representation by position type and focus. However, interview material along with some secondary data supplied by Organizations C and D does illuminate some gender patterns.
5.4.1 Women in Administration Roles
The pattern of gender in administration positions is noteworthy. Of seven interviewees who mentioned female administration staff, three made specific note that women comprise a majority of such positions or take on a majority of the administration work in their organization. Secondary data provided by Organization C supports this claim: although heavily male overall, administration staff is 100% female, similar to findings from Kulcur (2012) in Turkish and UK environmental NGOs where all administration positions were also held by women.

In an interview with Rob, from a large national organization (LN), he observes, “The entire time I've been at [my organization]… the person who was responsible for the administration of the organization has virtually always been a woman. And the person responsible for the political direction has always been a man.” (He does note, however, that this pattern appears to be changing as time progresses, a finding that will be discussed in more detail later in this chapter). This appears common in the smaller organizations as well: Daisy (small local organization = SL) notices that as paperwork and formalities have become more and more integral over the years, it is often the case that women more than men take on much of the compliance and paperwork sorts of duties.

The finding that women make up a huge proportion of the administration staff is similar to what is seen generally across the country, as according to Statistics New Zealand (2015) women are far more likely than men to be employed in administration roles. Conservation agencies then appear to be no exception to gendered divisions of labor, with administration roles in these organizations being far more likely to be held by women than men.

5.4.2 Gender by Position
In addition to a predominance of women in administration roles, there appear to be gender patterns in other job positions as well. Virginia, from Organization C, says, “The admin staff are typically women. And then I’d say the next group is the planners or the resource management kind of office type roles. So the ones that are kind of leading the submissions and doing the technical submissions and stuff.” Overall, the percent of resource planner positions held by women in Organization C as of the time of reporting in 2017 was 37.5% (larger than the percent of women in the organization generally).
Organization D was the only other organization to provide data on gender split by position, showing females in their organization make up 66% of general support positions, 55% in technician positions, 49% research support, and 36% of scientist positions (see Figure 5.2).

![Figure 5.2 Percent of Positions Occupied by Females by Role in Organization D](image)

In Organization D, technician and research support positions seem to be quite gender balanced, though general support is somewhat dominated by women and scientist positions are somewhat dominated by men. This is similar to what is seen in the Natural History Museum, London and the European Union more generally, where men make up a majority of researcher / scientist positions and women make up a majority of technician positions (Knapp, 2005). The lower representation of women in the scientist positions and higher representation of women in general support may be of interest, however it is worth noting that this organization was the only one which presented an exception to the tapering of female representation by tier (from section 5.2), with approximate gender parity at each of the three tiers within this organization (i.e. no gender comprising more than 60% at any tier). Thus, given the exceptional gender equality of this organization in particular and the lack of data from other organizations, it seems unwise to draw conclusions from this perhaps unrepresentative single data set without additional information.

Nonetheless, the data presented here suggest some noteworthy gendered patterns in work positions that deserve to be studied in more detailed. This data, though limited, suggests a predominance of women in “paperwork” and support-type roles and a relative lack of women in scientific roles, consistent with Westberg and Powell’s (2015) findings from Sweden were
it was observed that women occupy more of the lower status positions and relatively few of the scientific expert roles that are generally valued in environmental organizations.

### 5.4.3 Men in Field, Physical, Pest, and Fisheries Positions

Seven interviewees noted men’s greater participation compared to women in field work and physically demanding positions. Larry, from a large national organization, says, “At field work, field skills, heavily biased to males. But otherwise, I think of all the sort of disciplines, functions, GIS, you know, these people in here who run processes, I don’t think so.” Similarly, Sean, from a small local organization says, “… in terms of practical, physical things, the men probably run that.” Job positions that involve field work, especially physically demanding work like those dealing with track maintenance, the use of power tools, and so on seem to be dominated by men. “We've got some projects that you have to be fit and strong, and so generally it’s more men. Like wilding pine control is usually more men who will go out and do that. And we've changed from chainsaws – which quite often it was definitely more men – to sprays,” says Brittany (LN). Still, one participant from a small local organization did state that their organization had roughly equal male and female participation in field work from both staff and volunteers, though the field work positions in her particular organization are somewhat different in nature and less physically demanding compared to others, which may be the reason for this apparent exception. Nonetheless, most interviewees who mentioned a pattern in physical or field work do note a predominance of males in this area of work, in line with findings of Black and Davidson (2001) who found women to be poorly represented in New South Wales National Park and Wildlife Service’s field officer positions.

Along the same lines, eleven interviewees noted a gender division in animal pest control involvement, observing that men are more likely than women to be involved in work related to controlling animal pests. “That tends to be the case, that the male volunteers do more of the pest control and the infrastructure work than the women,” says Lily (SL). A number of interviewees speculated the reason for this occurrence is related to preferences of women to not be involved in harming animals. Robin (LN) says, “Well a lot of the women aren't keen to go out and reset traps and do pest control”. Jeff (SL) builds on this by saying:

So where the difference probably is, is there's probably less women that want to be on the side of killing the pests. It's reasonably even with regard to going out and
monitoring chew cards and doing bird counts and those sorts of things. And there's probably more people in the community that are female that want live capture traps. And then they don't want to know what we've done with the trap after we taken it away. They're quite happy to have the pests removed from their property, but they don't want to be the one that goes out finds it dead in a kill trap as opposed to a live capture trap.

Such gender differences in views on life and killing are prominent and noteworthy, and will be explored in further detail in Chapter Six, but overall the tendency for men’s greater involvement in pest control compared to women seems to be a very common trend among conservation organizations both large and small. Also worthy of brief mention here is the predominance of men in fisheries work: two interviewees noted that in fisheries groups, involvement tends to be male biased. As this was only mentioned by two people though, further investigation into this topic is warranted to make strong conclusions.

Overall, there appears to be a predominance of women in administration positions and a predominance of men in field, physical, pest and fisheries work. The patterns here seem to fit the usual gendered labor divisions in New Zealand generally, with women more represented in administration positions and men more represented in hard labor positions (Statistics New Zealand, 2015). More research on gendered patterns of various position types (scientist, etc.) and varieties (field-based, office-based, etc.) as well as research on the underpinning drivers such patterns is of interest.

5.4.4 Gender and Project Type

Similarly, a few interviewees note that male and female conservationists generally have somewhat different preferences for involvement in projects. In particular, it was noted that men like to be a part of large projects with discrete goals while women are less inclined to express such a preference. Desiree (LN) says:

I always get that [complaint] from the guys, I said, ‘I don't have a big project at the moment. I need that one project.’ Whereas I don't get that complaint from the women. As a manager, it's something I have to be very careful about, making that those women have those sorts of projects as well. I've never reflected on that before. It's quite interesting.
Similarly, Heidi, who is involved in quite a few small local conservation organizations, recounts:

And one of the volunteers said to me, ‘Look [Heidi], I’m a male. I do not want to come and release plants. You know? That’s weeding. You know? That’s not me. Give me a project that has a start and a finish. Give me this bit of track that you want done or give me the lot of gorse that you want removed and I'll happily come and do that. But don't expect me to come every week and, you know, cage stuff or uncage it, or release it and so on.’ And I thought that was quite an interesting one and I’ve used that since when I've been asking for volunteers to do particular projects. And I try and couch some of those projects in terms of having a beginning and an end. It’s something you can feel achieved. It’s not like housework, it's not like gardening, where you never reach the end, you know, and it just gets dust again.

Thus as a broad trend, it was noted that men are more likely to prefer to engage in larger and more discrete, goal oriented projects while women did not seem to voice this same preference. “Men are more visual, I feel, men are more visual in a finite project. Exactly that. Whereas women can see the value in doing small things that long-term will have a big impact,” says Robin.

5.5 A Place for Gender?

It is perhaps interesting to note here that ten interviewees made reference to skills being more important than gender. Nearly half of the interviewees stated that the decision making and leadership of their organization is made up of people from a diverse array of backgrounds in order to meet the specific needs and necessities of the organization (i.e. accountants for financial expertise, scientists for biology expertise, etc.). Within the decision making space, some interviewees pointed out that individuals are considered in relation to their skills and expertise rather than their gender. “You respect people's contributions and what they are making rather than the gender specifically,” says Peter (SL). Anthony (LN) echoes this thought: “…when I look at the board, for instance, and who is on the board, I see them as who is there for their skills that they bring rather than whether they are male or female.” Many stressed that skills are the main concern when filling positions. “I think the Board’s feeling has been that it is the skill that is important,” says Christine (SL). Similarly, Rupert (SL) says, “I think again people are chosen to join [our organization] based on their
Chapter Five: Gender Diversity in Conservation Organizations Across New Zealand

backgrounds and think that as long as the right people are put there, it’s irrelevant whether they are male or female.” However, as touched upon in Chapters Two and Three and to be discussed more in the next section (5.6 “Possible Drivers”), gender affects how one’s skills are perceived, making this purported focus on skill a bit less straightforward than it might seem.

Some affirm that the pursuit of gender diversity should not come at the expense of skills or ability to accomplish organizational goals. William (LN) stressed the importance of diversity in decision making, but added the caveat:

But never to the point where an obsession with gender diversity takes away from your core mission. Or the professional approach. Because at the end of the day, the community tends to care about kind of results and doing stuff and not having a big ideological social identity debate.

Seeking out diversity has been discussed in some organizations, though there remains an emphasis on skills and experience over equality in representation. Anthony (LN) says:

At a board, they've often talked about having a gender balance or having a geographic balance. And there's always been a resistance to those sort of things. You really should have people on the board that are the best people to be on the board regardless of where they come from. There's only one from the South Island. And a lot of people felt, ‘Well, we should have representation.’ But I'm from here [South Island] obviously. For a while, I was the only one on the board [from the South Island]. Now there's another one other board member from the South Island. But I don't see the value of having someone from the South Island just because they're a South Islander. And I don't see the value of having someone just because they are a woman either.

Many of these sorts of sentiments came from men. Women, though they also emphasize the importance of skills, may place a little more weight on gender diversity. “So when we are talking about replacing someone on the board, we always look at the skill set, but I’ve put a bit of pressure on them to find a woman with that skill set,” says Christine a small local organization. Thus, although skill set remains the utmost concern, perhaps some women might prefer to have a little more gender diversity alongside those skill sets. Of course, not all women find this to be particularly important. Lily, from the same organization as Christine, says that even though there are more men in leadership, it is not something that particularly worries her, as she does not see it as resulting from any specific gender bias. “There were more men than women. That is still the case. I don’t think through any real bias. It wasn’t
something that particularly worried me. Although they were pretty keen to find another
woman when I was going off. And they did. It was a mixture of skills,” she says.

Similarly to Lily, William (LN) does not think gender representation itself is the problem, but
rather whether or not such a skew is exclusionary in nature. “It's not the predominance of
gender in one thing that I think causes problems, it's ‘Is this causing a problem? Is it
exclusionary? Is it a bunch of guys over here generating some nasty conspiracy?’” Thus, it
seems skills are seen as the most important factor in these conservation organizations, though
gender diversity alongside those skills is encouraged (especially by women) so long as it is
not at the expense of outcomes. Overall there appears to be support amongst both men and
women – though especially amongst women – for increased female representation in
leadership, as interviewees across the organizations expressed a desire to see more women in
positions of leadership. Even more, a few interviewees noted that their organization is already
giving more attention to the gender diversity of their leadership and making attempts to be
more inclusive and gender diverse. Rob (LN) says:

  My sense is that [our head person] is trying to move toward a more gender balance.
  So if he sees— at the moment I suspect is he sees two candidates of capability and
  one of them is female, he will probably pick a female to try and get some more
  balance on the leadership team, because it's been very unbalanced.

Some of these organizations have even gone so far as to set specific goals for increasing
women’s participation in leadership, according to a number of interviewees.

5.6 Possible Drivers

This data provides strong empirical evidence to show that women’s representation in
environmental organizations across New Zealand is high at lower levels and decreases with
increasing tier, and also provides solid evidence that female representation at the uppermost
tiers is higher in small local organizations compared to large national ones. The reasons for
these patterns, however, are less clear. Four major frameworks, identified from literature and
interview themes, which serve to explain these findings are categorized as follows: 1)
Organization History and Culture, 2) Personal Values, 3) Gender Roles in Leadership, and 4)
Women in Caretaking. The following sections will be dedicated to delving into and further
discussing these possible drivers and how they relate women’s lower representation at
leadership, especially in large national organizations, across New Zealand.
5.6.1 Organization History and Culture

First and foremost, the history, characteristics, and overall climate of an organization can have a substantial influence on the nature of gendered involvement. Despite women’s early and relatively involved participation in natural sciences and conservation, a number of interviewees pointed out that the history of certain organizations may contribute to the high prevalence of males in their uppermost positions. A portion of the organizations sampled were formed many years ago, and some of these older organizations have a reputation for having been a “boy’s club” as per the words of six interviewees. These organizations, though they may have long included women in the lower levels, have had a reputation of somewhat exclusive networks among men who remained largely the prime decision makers and leaders of the organization. Natalie, from one large national organization, says:

I think in the past we've had a very top-heavy organization where all the managers’ positions were men -- well not quite all, but most of them. And I think there was a bit of a boys club. And the boys were more comfortable talking to each other than they were involving all of us [women], because we tend to be quite assertive. … And because we have a senior leadership team, so they [the men] would kind of make decisions in that leadership team [by themselves].

This “boy’s club” excluded women from decision making in some of these organizations, leading to a perpetuated predominance of men in leadership. Today, a number of the male senior founding members still hold executive positions in some organizations (having not yet retired), leaving a portion of leadership to continue to be occupied by these males. Since a shift in gender diversity of leadership cannot occur without leader turnover, the male-dominated founding and history of such organizations contributes to the gender skew in leadership observed today. Even more, because a male-heavy founding history seems to be especially common in some of the older, larger, and more bureaucratic organizations, this may also explain, in part, one reason that women’s representation in leadership is higher in small local organizations. However, since leadership is male-dominated in almost all organizations sampled and is not restricted to only older large organizations with a heavily male founding history, women’s lack of representation in conservation leadership cannot only be a relict of a male-dominated bureaucratic past, though it can perhaps explain some of the reason for their lack of representation.
Still, there is reason for a positive outlook in considering gender equality in conservation leadership. The history of these organizations has not ended, and recently there appears to be a current trend toward greater female inclusion and representation in high-level positions. As time has gone on, changes have occurred and women have gained greater equality in these organizations, both overall and at the highest levels, a trend that is still in progress today. Nearly half of the interviewees, particularly those in organizations with a male-dominated history, have noted an organizational shift in which more women have recently become involved in leadership roles. “Like when I came back to [my organization] a couple of years ago, it was really noticeable that all the leadership was male and all the people sort of below the leadership level were female primarily. It was really noticeable. But I think that's starting to shift now,” says Rob from a large national organization. Ian, from a small local organization, recalls that a decade ago there were no women at all in the highest level of his organization. Today, even though leadership is still male-dominated, women now comprise on average more than a third of leadership positions, a marked improvement from a few years ago. Brandon (LN) notes that two decades ago, his large national organization had almost exclusively men at the leadership levels, but as early as a few years ago the representation of women in certain leadership teams has approached nearly fifty percent.

Some of this change is related to a change in the historical “boy’s club” atmosphere and male-dominated founding history. Anthony, from a large national organization, observes, “It's probably because of the way the [organization] has evolved that we're now going through a process of a lot of the generation that started in the ‘70s and ‘80s that are all retiring. So you're getting quite a changing going on at the moment.” Connor, from another large national organization, says, “But I just think it's, you know, we're trying to shift from a kind of a largely male-dominated workforce, probably came to us through our [founding history] when we were formed in [year removed for anonymity].” He adds:

And I think, you know, we've got a really low turnover as well, and an aging workforce, so we are just starting to hit a peak of these people moving out and new people coming in. And I think the leadership here is increasingly seeing the value in bringing fresh ideas into the mix of long experience and competence.

Thus, as the historically male leadership is now retiring, female leadership representation appears to be improving.
In addition to the changing makeup of organizations as the male-heavy past membership begins to retire, the change also reflects a shift in larger cultural norms of the time. Rob (LN) insightfully observes:

I just think it’s a degree of social conservatism. Not "big C" conservatism but "little c" conservative. There's a lot of inertia in some of the [parts of the organization]. Like people don't necessarily change over a long period of time. Some [parts of the organization] have a high turnover, some [parts of the organization] have one or two quite strong individuals who kind of dominate the [part of the organization]. I think when you look at the generation of people that are often on those committees, they come from a time when it would've been normal for the men to take those roles and for the women not to take on those roles. And it would be kind of, I suppose... It's almost like some things get internalized in a way that no one really even notices because it feels so normal that... Do you know what I mean?

Recently though, gender norms as to what is “acceptable” for women has shifted as feminist movements and other factors over the past several decades have altered commonly held gender beliefs. “That whole gender thing has changed I think in the last 25 years quite strongly,” Robin (LN) observes.

In summary, the histories of some organizations and the cultural times in which they originated contributes to women’s limited representation in conservation leadership today. Still, changes over the recent years provides reason to think that progress is being made in attaining greater gender diversity in leadership.

5.6.2 Personal Values

Another factor that appears likely to affect women’s involvement within conservation organizations is the fit of personal values with individual organizations and with leadership aspirations more generally. As discussed in Chapter Two, men and women on average differ systematically in certain personality traits (section 2.3.4) and values (section 2.3.5), with job and career values being one such area of divergence. When evaluating a potential workplace, men and women tend to place greater weight on different aspects of the job. Numerous studies find evidence that women commonly place more emphasis on intrinsic rewards, social and interpersonal interaction, and work-life balance, whereas men place more emphasis on extrinsic rewards such as pay and prestige (Elizur, 1994; Johnson, 2001; Johnson and
Mortimer, 2011; Konrad et al., 2000; Lechner et al., 2017, 2018; Marini et al., 1996; Ovadia, 2001; Peterson, 2004; Schwartz and Rubel, 2005; Sortheix et al., 2013, 2015; Su and Rounds, 2015; Weisgram et al., 2010). In a sample of American high school seniors, more than half of female respondents – but only about one-third of males – said that it was “very important” to have “a job that gives you an opportunity to be directly helpful to others” and “a job that is worthwhile to society” (Johnson, 2001). Female respondents also put greater emphasis on having the chance to work with people and make friends at work. Similarly, Konrad et al. (2000) found that males value pay, promotions, freedom, challenge, leadership, and power more than women, while women value good hours, an easy commute, interpersonal relationships, helping others, and a variety of intrinsic job aspects more than men. Logan (SL) hints at this when he says:

I suspect the differences in roles might have more to do with prior life experiences. You know, blokes getting involved in organizations and having roles in one sort or another, or accountants, or what have you. And women perhaps — absolutely it’s a generalization — but perhaps more likely to be involved in community processes.

Dishman (2015) argues that these differences in values is what underlies women’s greater participation in STEM fields that include more collaboration and problem solving that positively impacts people’s lives, compared to women’s lower participation in STEM generally.

Drawing on these findings, perhaps leadership positions are more in line with the sorts of rewards men tend to want from their jobs whereas such positions may not be as attractive to women. This difference in values may contribute to the lack of women in leadership overall and within environmental organizations in New Zealand, and can also help explain why the proportion of women at leadership is higher in smaller local organizations than in large national ones. That is, perhaps because of their values and desires, women may not readily seek out leadership positons, or conversely men are more likely to strive for them (or a combination). And additionally, because of their values, perhaps 1) women find the organizational climate of smaller local organizations to be a more fitting place to work and pursue governance roles (or men find them less fitting places to do so) (or a combination), or 2) men find the climate of the larger national organizations more appealing to pursue leadership (or women find them less appealing places to do so) (or a combination). Indeed, an interview with Rob, from a large national organization, echoes this sentiment: “A lot of men that are particularly interested in a dominating role are unlikely or less likely to work for an
NGO. … So maybe to some degree some of the men that get drawn to NGOs are different.” Anthony, from the same organization, agrees:

Because you tend to be pretty strong and pretty thick-skinned to survive in conservation, because you’re battling all different sides of the society, then the women that are there tend to be stronger and probably less typical of, as I said, a slice of what women would be like. Men probably are less macho than the average New Zealand male.

All in all, gender differences in work values and the degree to which these values match with organizations and positions within the organization may translate to a difference in what positions men and women choose to engage in (e.g. choosing a job that includes regular interaction with other people, has high pay, etc.) and also what tier men and women seek to attain (lower level, executive, etc.). If, according to the evidence from previous studies, men tend to desire power and higher pay more than women, it would make sense that men are more represented in leadership positions, as these positions offer more of the things they value (e.g. higher pay, influence, etc.). Indeed, Lechner et al. (2018) claim that gender differences in work values help to explain a large amount of the gender gap in leadership aspiration.

Moreover, this can help explain why women’s representation in leadership is higher in small local organizations than in large national ones. Perhaps the characteristics of these local organizations and the way they function – being smaller and more intimate groups done on a community-level – better align with women’s preference for jobs that provide a good opportunity to develop interpersonal relationships and improve community issues. Because women are more likely than men to hold interpersonal and social aspects of their job as important, smaller and more intimate local organizations perhaps provide an environment where more women feel more comfortable taking on larger, more lead roles.

Lechner et al. (2018) claim that women on average look for different things from their job, and the lower value women place on extrinsic rewards and higher value they place on security is partially responsible for their lack of aspirations for leadership, which provides higher extrinsic reward but requires more risk taking. Small local organizations, which are primarily voluntary and unpaid in nature, offer fewer extrinsic rewards than leadership in larger organizations. These organizations lack the pay, authority (since most of the
organizations do not have any employees), and status that employment at an executive level in a larger national organization affords, and thus men (who are more likely to value these things) may not be as drawn to leadership positions in small local organizations. Similarly, leadership positions in smaller local organizations – being wholly voluntary and unpaid, done exclusively for the benefit of the community – could be argued to be more in line with women’s motivation from intrinsic factors, and thus women may be more drawn to these positions.

This may explain, at least in part, the greater relative proportion of women in leadership in these smaller organizations compared to larger ones. As discussed previously, Sortheix et al. (2013) found that women place more emphasis on intrinsic rewards and less on extrinsic rewards compared to men, but further found that the degree of fit between these values and the organization they work in is positively associated with work engagement. Therefore, it may be the case that the smaller local organizations fit more with women’s values, and this good fit between the organization and what the women in them rate as important leads to increased engagement. This in turn may then increase the chance that women will engage in leadership functions within that organization. Thus, the nature of small local organizations may be such that women are attracted to take up more influential positions in them while at the same time men are less likely to do so. Together, understanding the gender dimensions of work values can help to explain the lower representation of women in leadership compared to men overall and the relatively higher representation of women in leadership in smaller local organizations compared to larger national ones.

The level of support within an organization can be important in women’s involvement too. Women tend to define a healthy workplace differently than men, emphasizing understanding, support, communication, relationships, and ethics more than men do (Peterson, 2004). However, Peterson (2004) finds that men are generally unaware of and commonly underestimate women’s work values. Exclusively male leadership may not be aware of or proactive about some gender issues: Natalie (LN) says, “…there are certainly some gender issues that can be swept under the carpet, because when you have a male leadership team they tend to sweep that under the carpet.” Having the proper work environment and support can be influential in women’s involvement. In a sample of women who have left the engineering profession, those who left had less support but not different barriers (Fouad et al., 2016), suggesting that organizational support can determine whether women engage with or
choose to leave a work environment. Singh et al. (2018) similarly found that occupational attachment and turnover is related to perceived organization support. Thus, having a supportive climate can be instrumental in encouraging female participation in leadership: “I think when you've got a CEO who is much more aware of gender bias and subconscious bias, unconscious bias, I think there is the deliberate setting out to make our organization ... have more women in management positions,” says Natalie (LN). Six additional interviewees had similar sentiments, noting that the gender awareness of leadership (whether male or female) can affect organizational dynamics and gender issues. Thus, the level of support different organizations provide may also have an effect on women’s engagement in leadership.

Drawing on the New Zealand sample, this may explain in part why small local organizations have greater women’s representation in leadership: the nature of the smaller local organizations is such that they are composed of small and intimate relatively egalitarian decision makers who know each other well. This allows increased interpersonal connection and support, and thus could be a contributor to the higher representation of women in these small local decision making bodies when compared to larger national ones. Indeed, a number of female interviewees have made specific reference to the high degree of personal support experienced as a member of these smaller organizations, and the immense value and meaning that has to them personally.

In sum, how well a particular position and organizational atmosphere matches with the somewhat different values of men and women can explain some of the reasons for lesser female representation in leadership compared to men, and also provides some possible insight as to why women are better represented at leadership in smaller local organizations compared to large national ones.

5.6.3 Gender Norms in Leadership

Another possible explanation for the lack of women in the highest levels across this sample of New Zealand environmental organizations is related to the cultural and gender norms associated with leadership more broadly. That is, perhaps there are fewer women in these environmental leadership positions due to a variety of societal factors that constrain the presence of women in leadership positions.
Social role theory states that there is an expectation for individuals to act in accordance with the social roles prescribed to them by society, roles which can be based on racial, gendered, economic, or other sociodemographic factors (Skelly and Johnson, 2011). These perceptions of appropriate social roles for people in particular demographic categories permeate numerous arenas of life, including the work environment, and affect expectations and assumptions about workers based on their sociodemographic characteristics. In particular relevance to this discussion, social role theory asserts that certain traits (e.g. assertiveness) are associated with certain roles (e.g. leadership) and that these traits are more associated with a specific sociodemographic characteristic (e.g. male). Because of this, the role of leader is generally seen as a male social role, with leadership roles traditionally being described and defined in masculine terms (Eagly, 2007; Kawakami et al., 2000; Koenig et al., 2011; Sczesny, 2003). Women are expected to be caring, friendly, and socially-oriented, while men are expected to be assertive, confident, and dominant (for seminal texts on gender socialization, see Chodorow, 1978 and Gilligan, 1982). As leadership roles are generally thought to require the more “male” characteristics of assertiveness, dominance, et cetera, women are not expected to be as suitable for leadership positions (Eagly and Karau, 2002; Garcia-Retamero and López-Zafra, 2006; Johnson et al., 2008). Rob, from a large national organization, seems quite aware of this, as he was quoted in the previous section on “Organization History and Culture” talking about how “it would've been normal for the men to take those [decision making and leadership] roles and for the women not to take on those roles” further adding “it's almost like some things get internalized in a way that no one really even notices because it feels so normal.”

Indeed, there is evidence for the popular association of leadership positions with “masculine” characteristics. In an early study by Jackson et al. (1982), 132 interviewers from companies across the U.S. and Canada were sent a cover letter and questionnaire in which they were asked to imagine a typical person employed in the occupations listed and judge how characteristic or uncharacteristic (on a nine-point scale) a series of personality traits would be for this person. Interviewers rated those in management positions as dominant, ambitious, aggressive, and persistent, traits that most people associate more closely with men more than women (e.g. Chodorow, 1978 and Gilligan, 1982). As a result, men are perceived to “match” better with leadership roles while women are “mismatched” and thought not to possess the qualities necessary for leadership (Koenig et al., 2011). Indeed, when asked to complete a questionnaire on views of leaders in general, 55.6% of participants imagined only male
leaders while 44.4% imagined both male and female leaders; not one participant envisioned leaders only as female (Sczesny, 2003). Furthermore, in a study of 60,470 men and women’s preferences for managers, although a small majority (54%) claim to have no gender preference, the remaining participants report preferring male bosses over female ones at a more than 2:1 ratio (Elsesser and Lever, 2011). As a result of gender biases and preconceived conceptualizations, men are generally considered to be more competent and status worthy than otherwise similar women (Ridgeway, 2001), and this bias increases even more with the status of the position, with high status leaders (versus moderate status ones) being associated with even stronger masculinity (Koenig et al., 2011).

These stereotypes are perpetuated even by women themselves. Ergle (2015) found that although men and women both exhibit stereotypical and gender-biased attitudes towards leadership (e.g. that it is especially important for female leaders to possess relationship oriented competencies and male leaders to possess “take-charge” traits), these gendered stereotyping attitudes were relatively more characteristic of females than males. García-Retamero and López-Zafr (2006) similarly report greater bias against female leaders amongst females themselves (as well as greater negative female leadership bias in older participants, likely reflecting a generational / time effect on gender bias). Perhaps, then, this internalization of a harsher judgement of female leaders by females suggests that women themselves may not feel it is appropriate for women to be leaders. This seems to be the case, as Bosak and Sczesny (2008) find women to judge themselves as less suitable for a leadership position than a similar male. If this is the case, part of the lack of women in leadership within the environmental organizations here (and more generally) could be explained by women not pursuing leadership positons at the same rates as men due to their own beliefs about lack of suitability for these positions.

Because of this, a few interviewees noted the importance of having women in leadership as role models for other women, which can help break some of the internalized biases against women in leadership. Virginia (LN) says:

I think the fact that there are not women in positions of authority or management, it makes it difficult to see a pathway into that in terms of career progression because there hasn’t been anyone who’s done it. There hasn’t ever been a female manager of [part of the organization] or a chairwoman, I don’t think, of [part of the organization].
So I think that’s an issue. And thinking of future women coming into the role, I think that’s something really important that that changes.

Connor (LN) echoes this:

I think role models are really important. And that leader-led behavior. So I think, you know, where we do have women in senior roles, that is really powerful. … You know, they see those symbols of “Well, she can do it. Why can’t I do it?” You know? It probably creates more of an environment that encourages that contribution.

Eagly and Karau (2002) deal with the complex relationship of women and leadership specifically in their foundational article which proposes the idea of “role congruity theory”.

Role congruity theory asserts that the perceived incongruity between female gender roles and leadership roles leads to two forms of prejudice: (1) women are perceived less favorably for leadership roles, and (2) women who demonstrate the masculine-type behaviors for leadership will be evaluated less favorably for violating their social / gender roles. As a result, the authors claim, it is more difficult for women to attain and succeed in leadership positions. Nicely summed up, Eagly and Karau (2002, p. 575) state in this pivotal text:

The potential for prejudice against female leaders that is inherent in the female gender role follows from its dissimilarity to the expectations that people typically have about leaders. Prejudice can arise when perceivers judge women as actual or potential occupants of leader roles because of inconsistency between the predominantly communal qualities that perceivers associate with women and the predominantly agentic qualities they believe are required to succeed as a leader. People thus tend to have dissimilar beliefs about leaders and women and similar beliefs about leaders and men. … Because women who are effective leaders tend to violate standards for their gender when they manifest male-stereotypical, agentic attributes and fail to manifest female-stereotypical, communal attributes, they may be unfavorably evaluated for their gender role violation, at least by those who endorse traditional gender roles.

Evidence in various studies support the notions put forth by role congruity theory, with empirical data showing women are evaluated less favorably for leadership roles and punished for exhibiting “masculine” characteristics associated with leadership. In a very early experiment investigating the role of gender in the evaluation of candidates for hypothetical managerial positions, male applicants were chosen more frequently than equally qualified
female applicants (71% versus 59%) and were evaluated less positively on all other dependent variables, including general suitability, technical potential, potential for long service, and potential for fitting in well (Rosen and Jerdee, 1974). The lowest acceptance rates and poorest evaluations for female applicants were given for managerial positions that were described as “demanding” (65% male acceptance versus 46% female), indicating evaluators were skeptical of women’s ability to be effective in challenging positions. Although one might argue that society has become far less biased against women in leadership since those days, a more recent study asserts similar findings: in a randomized double blind study, science faculty from research-intensive universities were asked to rate a student application for a laboratory manager position (Moss-Racusin et al., 2012). Both male and female faculty rated the male applicant as significantly more competent and hire-able than the (identical) female candidate. This gender differential in evaluation and ideas surrounding suitability is thought to be due to the perception that women are less apt for and competent in leadership roles, leading women to have to work harder to prove their ability rather than having it assumed. Indeed, the mediation test in the study reveals that female applicants are less likely to be hired because they are perceived as less competent than an otherwise identical male. Koenig et al. (2014) also recently found, as predicted by social role theory, that beliefs about the attributes of typical roles are strongly related to stereotypes on competence.

Overall, because women are not thought to possess the typical attributes for leadership roles – as leadership attributes are associated with “masculine” traits like assertiveness and dominance – they are thought of as less competent leaders. It makes sense, then, that this pattern for gender bias in selecting for leadership jobs is even more stark for leadership positions in stereotypically male fields (e.g. engineering, military, etc.) where women are violating not only stereotypes for leadership, but also field or profession (e.g. Boldry et al., 2001; Garcia-Retamero and López-Zafr, 2006; Moss-Racusin et al., 2012).

This gender bias creates a higher performance standard for women, in which women are evaluated more harshly than men, again in accordance with gender congruity theory. In an experiment with 243 young communication scholars who were asked to rate conference abstracts, both male and female evaluators rated publications from male authors as higher in scientific quality than (identical) female submissions, especially if the topic was male-typed (Knobloch-Westerwick, Glynn, and Hufe, 2013). These sorts of evaluations in turn affect
selection for promotion and advancement: in a sample of 489 upper-middle-level and senior-level managers from U.S. offices of a large multinational financial services corporation, women who are promoted have attained higher performance ratings than men who are promoted, suggesting women are held to stricter standards to receive a promotion (Lyness and Heilman, 2006). Rob, from a large national organization, brings this up in his interview:

I do get the sense that – and I could be wrong, and this could be quite defamatory about some of my colleagues – that there is a higher expectation of competence from women [to perform well at their job] at [my organization] and some other NGOs than there are for men. I've seen that. Across the NGO sector generally I've seen like poor-performing men tolerated in positions in a way that doesn't seem to be the case with women. And that's just not unique to [my organization]. It's quite widespread.

Similarly, a few interviewees note a problem with women not getting the recognition they deserve for their performance. For example, Brandon (LN) says: “I think you'll find there's always instances where women haven't been given, you know, the full credit they deserve.”

Within the leadership positions themselves, there is stereotyping of competencies by gender. In an examination of perceptions held by senior managers, respondents generally conceptualize leaders in gender stereotypical ways, seeing female leaders as more effective than men at caretaking leader behaviors and men more effective than women at action oriented, “take-charge” leader behaviors (Prime, Carter, Welbourne, 2009). When women are in positions of leadership, there is even still then an expectation for them to operate within gender norms by employing more communal and less agentic leadership strategies (Heilman and Okimoto, 2007; Rudman and Glick, 2001; Vinkenburg et al., 2011). When women do exhibit masculine characteristics for leadership or assert their authority, especially in arenas not characteristically stereotyped as a woman’s area (i.e. childcare, education, etc.), they are violating gender norms and can resultantly provoke negative reactions and evaluations (Ridgeway, 2001). That is, when women embody “masculine” leadership behaviors, they are penalized for violating gender norms. Indeed, in mixed-sex groups, when women present their ideas in self-directed or assertive manners, they achieve less influence and are perceived as more untrustworthy than similarly assertive men or less assertive women (Carli, 1990).

When it comes to the evaluation of women in leadership roles, Lyness and Heilman (2006) found evidence that women in higher positions are given lower performance ratings than women in lower positions and men in both upper and lower positions. Eagly et al. (1992)
found only a small tendency for female leaders to be evaluated less favorably, but noticed that this tendency is especially pronounced in fields that are stereotypically mismatched (i.e. female leaders in “male” professions), a finding later corroborated by Boldry et al. (2001) and García-Retamero and López-Zafr (2006). That is, women in leadership roles in “male” stereotyped fields suffer a double penalty for the gender “mismatch” relating to both profession and position. Further evidence of this punishment for acting outside of gender role norms, women are evaluated similarly to men when they lead in stereotypically feminine ways (i.e. democratic and interpersonally oriented) but are devalued when they lead using more autocratic styles associated with men (Eagly et al., 1992).

In summary, women are not expected to possess leadership traits, as these are often thought of as “male” traits. As a result, women themselves may not feel suitable for leadership positions and also may not be hired for leadership as often as men due to hiring bias. When women do pursue and attain leadership positions, they are sometimes punished for exhibiting “masculine” behaviors. This slew of factors combine together to create a climate in which it is more challenging for women to pursue and attain leadership positions than men, especially in already stereotypically male fields. The effects of gender roles in leadership appears across professions (though stronger in masculine fields) and is likely at play in the environmental context as well. As a result of the gender norms in society, women in conservation may be less likely to pursue leadership positions, less likely to be hired when they do pursue them, and penalized for acting in stereotypically “male” ways. Perceptions and attitudes of female leaders is a helpful piece in the puzzle to understand the lack of women in leadership as seen here.

Indeed, in the environmental management context, Davidson and Black’s (2001) study of New South Wales National Parks and Wildlife employees found evidence of typecasting for roles, where women were encouraged to take part in “interpretative” and “community liaison” roles rather than the more risk-taking or senior roles, which are thought to be more suited to men. They argue that this is creating a new feminized job – that of the interpretative and / or community liaison officer – and further argue that this is a social justice issue that is inhibiting women from achieving roles with higher status and more decision making power.

Fortunately though, according to interviewees in this New Zealand sample, such stereotypes appear to be subsiding with the passage of time. On the same note, a study by Duehr and
Bono (2006) finds sizable improvement over the past decades in male manager’s views of women, demonstrated by their greater congruence of conceptions of women and successful managers as well as greater acceptance of agentic and task-oriented leadership characteristics in women. Similarly, a more recent subgroup and meta-regression analysis shows a decline in the masculine construal of leadership over time (Koenig et al., 2011). These findings are consistent with some of the statements of interviewees who noted that though the history of some organizations has been male dominated, with the passage of time more and more women have become involved in the leadership of these organizations. Brandon (LN), who referenced issues with women not getting the recognition they deserve for their contributions in his organization, adds, “But I think – and I might be naïve – but I think it's getting a hell of a lot better than it used to be.” The current state of respect for women in these conservation organizations is discussed further in Chapter Seven. Nonetheless, if this trend continues, the hampering effect of gender role ideology on female leadership representation will decline over time and women may find it easier to attain leadership positions leading to increases in women’s leadership representation.

5.6.4 Women in Caretaking

The final factor to be discussed that may contribute to the lower representation of women at the uppermost levels of these New Zealand environmental organizations is life roles. First and foremost, motherhood and caretaking roles can have a large effect on employer perceptions. Although the percent of women choosing not to have children is rising, a large majority of women do still have children at some point (85% of age 40 – 44 women had children in 2006) (Statistics New Zealand, 2009). During this time, many women take maternity leave or stop working altogether, leaving the company to go on without them or find a replacement. This takes time and effort on the part of the employer, and as a result some employers worry about how women’s life histories affect their work participation. One interviewee, Peter (SL & SL), says:

[Our manager] is constantly searching for replacements for maternity leave because the women on the team having babies. And so they are rotating through. So at any one time he's got X number of staff. It's just what you get on with. In the old days you would have left, but now with maternity leave and women coming back to the workplace, that's just the norm. It's what goes on. You accept that. Except if you're the
manager – whether you're a man or woman – that's a pain because shit that's a lot of interviewing. They are constantly job interviewing for maternity leave replacements. Such inconveniences can thus lead to hiring biases against women, as employers may worry about hiring women who may soon leave temporarily or permanently to have or care for children.

Additionally, there are studies that suggest motherhood itself – not just the leave of absence that may come with it – is viewed unfavorably by employers who worry about the effect of the mother’s continued caretaking responsibility on her work life. In fact, when presented with fake applicants for a job in a simulated experiment, participants gave self-proclaimed “family-devoted” female applicants significantly less favorable hiring recommendations than otherwise equivalent family-devoted male applicants (Aranda and Glick, 2013). Interestingly, there was no difference in participant recommendation for hiring of a male candidate – whether the candidate claimed to be family-devoted or work devoted – demonstrating the differential treatment of men and women. This supports the idea that women suffer a “motherhood penalty” in the perceptions of employers, making it harder for mothers to compete in the job market after having children, while men do not experience a similar “fatherhood penalty”.

A study by Ridgeway and Correll (2004) found support for the notion that motherhood is a status label that negatively influences perceptions of worker performance and suitability for positions of leadership. This bias might make it difficult for mothers to re-enter the workforce, especially in positions of leadership, and although women may want to return to work after a maternity leave, they may find it difficult to do so. Statistics New Zealand (Crichton, 2008) found that 40% of those who took parental leave were working six months later and about 70% were working 13 – 18 months later (however this data is unfortunately not separated by mothers and fathers, who experience very different work repercussions from having children). According to Statistics New Zealand, many of those returning from parental leave reduce their earnings after returning to work, with about one-third earning considerably less than before, indicating they may not returning to the same status position they left or are changing to part-time.

In summary then, negative bias in the evaluation of potential employees who are mothers may lead to lesser hiring of mothers, who are generally older than new entrants to the field
and would thus perhaps represent the age group of women experienced enough to be progressing through the ranks to leadership. If new mothers find it difficult to re-enter the workforce after time away, there will be fewer women in the pipeline to advance to upper level positions. At the same time, of those mothers who do return to the workforce, they appear to restarting again at positions worse than where they left off. Thus, hiring bias against mothers and the negative effects of leaving the workforce could be contributing to the lesser representation of women in conservation leadership observed here.

In addition to issues of hiring bias against mothers and issues with re-entering the workforce, women’s caretaking responsibilities (of both children and other family members) also cause work conflict. Women assume caretaking roles of family members at rates higher than men (Cabrera, 2009; Craig, 2007; Ettner, 1995; Grandey et al., 2005; Laufer-Ukeles, 2008; Witt, 1994), and while numerous women are able to balance this with work life, others find the obstacle to be insurmountable. Historically, women have been the ones to take up the additional responsibilities that having children creates, producing a more extreme gender inequality in the amount of work between partners in households with children compared to those without (Craig, 2007). This seems to be the case across a number of Western nations: a study of gender and work across five countries (United States, Australia, Italy, France, and Denmark) found that parents have higher and more gender-unequal workloads than non-parents in all nations studied, with this difference by parenthood status being most pronounced in the U.S. and Australia (perhaps due to their fewer supports for parents, i.e. no required paid maternity leave, etc.) (Craig and Mullan, 2010). Although some organizations offer family care programs to reduce burden, such programs are not the norm. And while the new custom is for there not to be a permanent stay-at-home parent, most professions have not adapted to better accommodate the needs of dual working couples or single parents (Percheski, 2008). Because women more than men take on the duties related to caretaking, this disproportionately affects women’s participation in the workforce. As a result of caretaking duties, many women choose to work fewer hours, change professions, or even leave the workplace altogether (Cabrera, 2009; Ettner, 1995; Fouad et al., 2011; Pear, 2006; Spain and Bianchi, 1996; Williams, 1995, 2002). For instance, a qualitative study of 25 female engineers found that the inability to manage multiple life roles is an important reason for women to seek new positions in different occupations (Fouad et al., 2011).
Additionally, having children is associated with substantially lower rates of employment (Percheski, 2008; Statistics New Zealand, 2012). Mothers in New Zealand are much less likely to be working full time (defined as 30+ hours per week) than women without dependent children (57.5% and 61.4% for partnered and single mothers respectively versus 83% for women with no dependents) (Statistics New Zealand, 2012). Although the gap has decreased over the past decades, Percheski (2008) finds that employment rates of professional men are still considerably higher than those of women: age variation in employment rates of men aged 25 to 50 not enrolled in education shows little variation, while employment rates vary substantially by age for women, presumably because women take off time from work to have and care for children. Indeed this must be the case, as among women without children who are not enrolled in education, there is little age difference in rates of employment. This demonstrates that when couples have children, women are still far more likely than men to change their working habits as a result. Thus, women may be less represented in positions of leadership in New Zealand conservation organizations because women are more likely than men to decrease or leave work to raise a family. That is, women might exit the workforce as a result of caretaking responsibilities before they are able to attain upper level positions, or similarly may leave once having already attained them, thus leaving a higher proportion of men in leadership overall.

Even if women do not exit the workforce altogether, time off and reducing hours can still have a negative impact. If women take time away from work or reduce their hours after assuming caretaking roles, they may be decreasing their chances for promotion. In fact, during the key years of career advancement, two-thirds of mothers are employed less than 40 hours per week (Williams, 2002). This is quite likely to affect the ability of women to progress to positions of leadership as otherwise qualified women may be passed up for advancement into leadership positions in favor of other employees who work full time and appear more “focused” on their work.

Anne, from a large national organization, talked about her issues in balancing work and childcare and how this affected her work life:

I took the view that my work and home life had to be integrated because I was bringing up a kid and I was doing this sort of pretty demanding job and I didn't have a lot of time. … And so, in a way, I was more concerned about being able to be flexible and mix things up a bit more.
The flexibility of her workplace was paramount in allowing her to work there. Without it, she would likely have not have worked at all:

And at that stage in New Zealand's professional environment [when I took this job], part-time jobs for women with children were not available. You basically worked full-time and had a nanny or something else or you didn't work in that profession. So I wasn't prepared to farm out my childcare to a nanny.

Thus, the understanding and supportive atmosphere of her employer was vital to her involvement in the organization. Without it, Anne would not have returned to work, at least for a number of years, and would likely not be in the position of leadership she occupies today had she sacrificed those years of work experience. Within current workplace structures, childcare typically presents a huge impediment to women’s work involvement, especially in comparison to men, and in turn their involvement in leadership.

Moreover, the ways in which the conflicts between family and work affect men and women are often quite different. The number of hours spent at work is related to the level of work conflicting with family, as one might expect (Gutek, et al., 1991). However, in a study of psychologists and senior managers, even though the number of hours spent in paid work was almost identical among males and females (and thus chance for home life interference should be similar), women reported higher work interference with family than men, suggesting women might be more sensitive to the effect of work on family life. Indeed, more recent studies support this: Singh et al. (2018) found that the extent to which a woman's family life interfered with work was related to decreased attachment to the occupation and increased intentions to leave 18 months later. When work is seen as interfering with family, job satisfaction is reduced (Grandey et al., 2005). This occurrence appears to be stronger for women than for men. When a woman’s job is perceived (either by herself or her spouse) as interfering with her family role, she is less likely to like her job at that point in time and one year later, a pattern that does not exist for men (Grandey et al., 2005). That is, when work begins to interfere with family, in general working mothers but not fathers become dissatisfied with their jobs. Even more, guilt related to these sorts of conflict are gendered: mothers experience significantly higher work-family guilt and work-interfering-with-family guilt relative to fathers (Borelli et al., 2017).

Perhaps such patterns are due to the different emphasis that men and women put on their family and work roles. Cinamon and Rich (2002) find that women are more likely than men
to place emphasis and importance on their family role and less on their work role, while men are more likely to do the opposite (place high emphasis on their work role and lower emphasis on their family role). Unsurprisingly then, the way that such work-family problems are dealt with also differ by gender. In a study on the effects of work-family conflict, family interference with work led to partial absence for men (but not women) while it led to the intention to seek new employment for women (but not men) (Barrah et al., 2004). That is, when experiencing family issues that interfere with work, for men a likely solution is a temporary work absence while for women it is a change in employment. Women seek to remedy conflicts between family and work life by reducing hours, changing jobs or exiting the workforce whereas men are not as likely to do this. The increased sensitivity of women to family-work conflicts and their increased likelihood to change work or leave the workforce altogether as a result may in part contribute to the lack of women in positions of leadership in the environmental organizations studied here. That is, there may be fewer women at the uppermost levels in these organizations because women are more likely to leave their organization or the workforce altogether to deal with family issues, lessening their chance of advancing to leadership roles (or leaving these roles once having already attained them).

Overall, the gendered roles of women as caretakers can perhaps explain some of the reason for women’s lesser representation in leadership in New Zealand conservation. In summary, women’s caretaking roles affect their ability to advance to leadership positions in a variety of complex and perhaps even compounding ways, including employer bias against mothers (but not fathers), difficulty for mothers re-entering the job market after leave, penalties suffered from parental leave and time off, and decreased availability of women in the pipeline to leadership positions due to voluntary decreasing of hours and dropping out of the workforce as a result of family responsibilities.
5.7 Conclusions

In this chapter I have discussed patterns of gender representation within a sample of seven large national and five small local environmental organizations around New Zealand. As a general rule, women’s representation decreases with increasing tier. Women make up the majority of employees in most of these organizations, however they are far less represented at leadership levels. There is a dearth of similar published information relating to female leadership in environmental organizations in developed countries to compare with, though the pattern of decreasing female representation with increasing tier is corroborated by the few other available comparable studies. Also quite notably, women’s representation at the uppermost levels was found to be greater in small local organizations than large national ones. As far as job type is concerned, the limited amount of data provided does appear to fit with the gendered labor division seen in New Zealand more broadly, with administration and “people work” positions being female-biased and hard labor positions male-biased. The most promising explanations for these array of findings relate to the history and characteristics of the organizations, the role of personal values in shaping work choices, the way that gender roles factor into leadership, and the effect that life history and caretaking roles have on women’s workforce involvement.

With this, some light has been shed on quantifying and understanding women’s prevalence at various tiers, within different kinds of organizations, and across various position types in New Zealand conservation. Further discussion of the possible drivers underlying these findings provides some insight as to why this might be, and also provides some awareness as to what sorts of strategies one might take to improve women’s representation. All in all, this discussion has informed research question one, “What is the state of women’s representation and involvement in environmental decision making?” and its two sub-questions, “What is the prevalence of women in the various tiers of an organization’s structure (i.e. lower level up to executive level) in conservation organizations across New Zealand?” and “Are women more represented in particular organizations, sub-fields, position types, etc.? If so, why?”
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Chapter Five established that women’s representation in conservation leadership in New Zealand is generally quite low, especially in large national organizations – a finding that may be of significant consequence if male and female conservationists value or practice environmental management disparately in any number of meaningful ways. If male and female environmentalists conceptualize or practice conservation differently, this can lead to disparities in the way men and women approach and carry out environmental initiatives. In the past, such dissimilarities in the way men and women have approached various subjects has had real effects on what is produced: renowned entomologist William Eberhard (1990, p. 263) notes that, “Research in biology has traditionally been carried out mainly by men rather than by women, and it is possible that, as has happened in the social sciences, research may sometimes be inadvertently influenced by male-centered outlooks.” Hrdy (1999, p. 53) argues that “although male and female researchers do science the same way, they may be attracted to different problems”, and goes on to cite examples of how the dominant view of female animals in evolutionary biology has changed as more female scientists entered the field, asking different questions with different foci and seeking alternative explanations compared to their male colleagues.

If this male dominance in research has affected the sorts of questions and answers researchers uncover, the effect of gender may too affect the sorts of foci and actions taken for conservation. If male and female environmentalists are found to differ in the way they think about or manage the environment, the male-dominated leadership of many conservation organizations today would then reflect a male approach to conservation and environmental management. Thus, is of particular interest to investigate if there does indeed exist some differences in the way male and female environmentalists think or work in the conservation context. This chapter then seeks to explore whether gender is related to views and practices for environmental management, and discusses the ways such differences may lead to changes with increased female representation in environmental leadership. This chapter, in particular, focuses on a discussion of the findings related to research question two (RQ2) and its four sub-questions:
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**RQ2: Does gender affect values, priorities, and strategies in environmental decision making? If so, how?**

1. Why do women choose to participate in conservation and environmental management? Is this different from the reasons men participate?
2. Does gender play a role in values concerning the environment?
3. Does gender play a role in priorities for conservation?
4. Does gender relate to preferred processes and strategies for achieving conservation goals?

The chapter explores the ways male and female environmentalists think and work in the field of conservation, probing where they are alike, where differences are apparent, and how these may translate into disparities in how conservation is approached and practiced. Findings are sub-divided into four overall categories: general environmental attitudes (section 6.1), conservation strategies (section 6.2), biophilic ideology (section 6.3), and ways of working (section 6.4). Discussion will delve into these four arenas before moving onto a final drawing together of findings to demonstrate the specific ways in which women’s increased involvement in conservation leadership might shift environmental decision making as a whole (section 6.5).

Data for this chapter was gathered using surveys and key informant interviews, combining quantitative and qualitative data together to achieve a more robust and varied set of methods to inform this enquiry. Independent Samples T-tests in SPSS were used to analyze survey responses, while qualitative analyses of interview data were undertaken using NVivo software (see Chapter Four, sections 4.6 – 4.9 for more detail).

### 6.1 General Environmental Attitudes

It was established in Chapter Three, Part I “Gender and the Environment” that amongst the general public, women are generally more concerned for the environment than men. However, little research on gender differences in environmental concern amongst environmentalists as a distinct sub-group is available. This leads one to wonder if there are similar gender differences in environmental concern between the men and women involved in

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17 Biophilia” (coined by E.O. Wilson in his 1984 book “Biophilia”) refers to a love of life or living systems.
environmental organizations more specifically then. This is the question this chapter seeks to answer.

Data from this survey of 225 environmentalists across New Zealand suggests there is no gender difference in overall concern amongst environmentalists as a group. That is, in the survey when asked “How concerned are you for the environment” [on a 10 point scale where 0 = It is not a concern of mine, 5 = I consider the environment but do not go out of my way to do so (i.e. recycle when convenient, etc.), 10 = The environment is a major priority of mine and a large part of my identity about overall concern for the environment] male and female environmentalists reported similarly high levels of self-reported concern (males: 9.0294, females: 8.9752, p = 0.7001). This is not especially surprising, given that participants of this survey are all deeply involved with at least one environmental organization, and thus they presumably all already hold a great interest in ecological issues. That is, individuals – both male and female – working in environmental organizations are a subset of the public who are likely already deeply concerned with environmental issues. Thus, it is unsurprising that male and female members of such organizations would have a similar level of overall concern for the environment.

When it comes to more specific attitudes toward the environment, male and female environmentalists are again similar in many ways, as Table 6.1 shows. Both male and female members of environmental organizations, for example, similarly disagree with the statement “Humans are meant to rule over or have dominion over nature” (on a 7-point scale: male 1.85, female 1.85, p = 0.999).

| Table 6.1 Male and female environmentalist’s general ideas concerning the environment, on a 7-point Likert-type scale |
|---|---|---|
| General Environmental Ideas | Male | Female | p-value |
| **Thinking about your personal feelings concerning the environment, please rate how much you agree with the following statements:**  
(Responses range from 1 – 7, where 1 = strongly disagree, 4 = neither agree nor disagree, 7 = strongly agree) | | | |
| Humans are meant to rule over or have dominion over nature | 1.85 | 1.85 | 0.999 |
| Natural resources should be protected, even if that means humans have to make do with less† | 5.91 | 6.28 | 0.006*** |
| Environmental issues are greatly exaggerated | 1.74 | 1.75 | 0.944 |
| Economic growth should take priority over environmental protection | 1.91 | 1.78 | 0.336 |
Governments should create laws restricting personal freedom if it means increased environmental protection  5.09  5.29  0.349
Nature is strong enough to resist damaging impacts made by humans  2.04  2.13  0.626
Humans are abusing the environment  6.24  6.38  0.320
People should be free to use nature as they see fit  1.92  1.85  0.648
The loss of natural areas disturbs me†  6.17  6.40  0.137
Human concerns should be prioritized over environmental ones  2.31  2.18  0.422
Agriculture is damaging our environment  5.75  5.66  0.650
I consider how my daily actions affect the environment†  5.68  5.91  0.060*
Nature's balance is delicate and easily damaged  5.45  5.65  0.274
If humans continue on their current course, there will be major environmental consequences  6.44  6.44  0.953

* P ≤ 0.10  ** P ≤ 0.05  *** P ≤ 0.01
Unequal variances: † p ≤ 0.10  †† p ≤ 0.05  ††† p ≤ 0.01

Although male and female environmentalists across New Zealand appear to be similar in most general environmental views and attitudes, two statistically significant differences are those for agreement with the statement “Natural resources should be protected, even if that means humans have to make do with less” (female: 6.28, male: 5.91; p = 0.006*** ) and “I consider how my daily actions affect the environment” (female: 5.91, male: 5.68; p = 0.060*), where women more strongly agreed with these statements than men. It is important to note here that although these differences in magnitude may not seem large, the differences between men and women in environmental values amongst environmentalists as a specific sub-group are unlikely to be diametrically opposed (e.g. where men agree with a view and women disagree) since all those sampled here are environmentalists with relatively similar pro-environmental views. Thus, gender differences in these questions, rather than being diametrically opposed, are more a question of differences in how strong support or opposition to various environmental ideas is. Because the nature of 7-point Likert-style questions is that agreement or disagreement is only measured by three values on either side of neutral, magnitudes of difference will tend to be constrained and thus absolute values of differences will appear relatively small. Nonetheless, the agreement / disagreement with a statement is marked by three discrete points on either side of neutral enabling the ability of this data to compare men and women’s average responses. For example, even though male’s 5.91 average and women’s 6.28 average both round to 6, or “agree”, women must be more likely to “strongly agree” (a value of 7) with this statement that men, as their average is slightly above “agree”, while men are more likely to only “somewhat agree” (a value of 5) or lower as their average is slightly below “agree”. Also, because responses are comparative rather
than absolute in nature, this assuages central tendency bias issues in analysis (i.e. people are less likely to give more “extreme” responses such that the distance between “agree” and “strongly agree” is not the same as the distance between “agree” and “somewhat agree”). Because both male and female respondents are affected by central tendency bias, these effects can be expected to cancel upon comparison between the two groups, leaving only the comparative differences in responses as relevant.

When it comes to behavior, female environmentalists in the survey on average consider how their daily actions affect the environment more than men (female 5.91, male 5.68, p = 0.060*). These findings are also corroborated by interview information, where women were more likely to reference personal regular “green” behaviors as a part of their conservation ethos. When talking about what environmental issues are most important to her personally, Virginia (LN) said, “Other issues that I am interested in: waste reduction in terms of consumables. That’s something I’m always trying to look for ways to reduce rubbish and packaging and all that. It drives me mad.” Other women similarly reference ways that they look to modify their own behavior to be more environmentally friendly. As a general pattern, Robin (LN) claims, “so the plastics, the recycling, all those kind of environmental issues, women take a lead on.” She goes on to recognize the effect of household position on this, saying:

I think women as a whole in terms of personal responsibility, they [women] still – I was going to say hold the purse strings – but they still have the buying power. So in terms of if a household recycles or if a household purchases, you know, sustainable products or doesn't use plastic bags, I think that choice comes down to the women much more than [men].

Candace (LN) expresses similar sentiments, taking it a step further by suggesting the importance of educating women to advance sustainability goals:

In gender terms – and this is rather sad – but women garden, women manage homes, largely, and so all the consumer stuff that is an effect on our environment [is largely controlled by women]. … But if you get women involved, you will change buying patterns and a whole lot of other things in consumer land.

Robin (LN) notes this as a difference between men and women, with women being more concerned with how their personal behaviors affect the environment and men thinking about impacting the environment on a less personal level:
It's almost like you get a group of women together and you say “What are you doing to save the environment?” and they will all come up with something so they feel, as a collective, that they're doing something, even though it is just individual use, whereas men I think are more about “What can I do on a big scale?” So, “I will kill things and that will help out. I don't need to... Oh, a plastic bag every now and then won't matter.” Whereas a woman is likely to go, “No plastic bags ever again.”

Male interviewees rarely mentioned their own personal behavior or the steps they take in their daily lives to help the environment. Overall then, female environmentalists may make a more personal connection to their conservation ethos, connecting their daily behavior to environmental impacts more than men.

This is similar to findings from other studies from around the world which find that women tend to engage in more private pro-environmental behavior (e.g. recycling, etc.) than men (Ando et al., 2010; Casey and Scott, 2006; Chen et al., 2011; Delhomme, Cristea, and Paran, 2013; Hadler and Haller, 2011; Kim, Jeong, and Hwang, 2012; Lee, 2009; Luchs and Mooradian, 2012; Melgar, Mussio, and Rossi, 2013; Verdugo et al., 2006; Vicente-Molina et al., 2013; Wester and Eklund, 2011; Xiao and Hong, 2010; Xiao and McCright, 2014; Zheng, 2009). It is also similar to findings of McStay and Dunlap (1987) and Schahn and Holzer (1990) amongst environmentalists in particular, in which female environmentalists were found to engage in more private but not public pro-environmental behavior (e.g. women are more likely to recycle or buy “green” products but not more likely to be involved in publically advocating for environmental causes; see section 3.1.2). It also ties in with the findings of Tindall, Davies, and Mauboules (2003), who discovered that level of activism is the strongest predictor of ecofriendly behavior in women, but is not at all a significant predictor for men’s likelihood to engage in “green” behavior. Thus, being environmentally active does not predict a male’s engagement in ecofriendly behavior, though it is the strongest predictor for women. This suggests that women especially make connections between day to day personal activities and how these small actions relate to larger issues of environmentalism and sustainability.

Moreover, female environmentalists felt more strongly than men that “natural resources should be protected, even if that means humans have to make do with less” (female 6.28, male 5.91, p = 0.006***). Yet, women were not more likely than men in these environmental organizations to agree that “Governments should create laws restricting personal freedom if it
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means increased environmental protection” (female 5.29, male 5.09, p = 0.349). Thus, it seems that although women might be more likely than men to think people should sacrifice a bit of personal comfort for the sake of the environment, they do not appear to be more likely to want to legislate regulations on personal freedoms to achieve this end. Indeed, in Keane et al.’s (2016) study of floodplain management in Kenya mentioned earlier, they found men often emphasize the creation of rules as a strategy for management, while women were much less likely to do so. Women then, although they perhaps believe more strongly in personal sacrifice in favor of the environment, are not especially likely to use legislative processes to enforce this on individual citizens. This is in line with findings from research on leadership styles which suggest women prefer more participatory methods of leadership while men are less opposed to giving commands and employing authoritative styles. Perhaps women, on average, feel that people should sacrifice personal comfort for the environment, but only through their own individual choice (e.g. by “considering how my daily actions affect the environment”) rather than through top-down regulation of behavior. It is possible this gender difference in thinking that personal sacrifices should be made to help the environment also explains some of the reason behind the finding that female environmentalists consider how their daily actions affect the environment more than men. That is, part of the reason that female environmentalists consider the impact of their daily actions on the environment more than men could be because they feel more strongly than men that natural resources should be protected even if people have to do with less.

This gender difference can be important in its effect on approaches to conservation that deal with the public. Women may be less supportive of using legal processes for regulating the public’s personal behaviors and instead may prefer that citizens merely be educated and encouraged to make change on their own personal accord. This is in line with findings (to be discussed in Chapter Seven) which show female environmentalists to be less authoritative in dealings with others and more strongly in favor of increased public environmental education and engagement than male colleagues. Indeed, when it comes to wielding power, men have been found to be more likely to make use of their formal authority and positional power (Cebuc and Potecea, 2009; Rosener, 2011) while women are more likely to ascribe their power to interpersonal skills, charisma, personal contacts, or hard work (Rosener, 2011). Thus, women’s increased participation in conservation leadership could create a shift from formal use of power and legal mechanisms to change citizen behavior to increased use of education and engagement to achieve conservation goals. Such “buy-in” educational
strategies over legislative approaches may be effective alternative routes to increasing public environmental friendliness without creating feelings of infringement upon freedoms amongst the general public.

6.2 Conservation Strategies

When it comes to more specific strategies for conservation practice, a few gender differences in approach become apparent. The following section discusses ways in which male and female environmentalists are alike and different in thoughts on a number of approaches to conservation in New Zealand, from ideas on stakeholder involvement, to species-based conservation, to pest control attitudes, and more.

6.2.1 Ideas of Stakeholder Involvement in Conservation

When it comes to stakeholder involvement in conservation projects, both male and female environmentalists alike appear to be in favor of increasing outside participation. Within areas for stakeholder involvement, both men and women strongly agree that investing more money and time into educating the public about conservation issues is the most important place to increase stakeholder involvement. However, from there the ranking of importance differs between male and female environmentalists. Men’s average agreement with the statements on stakeholder participation, from highest agreement to lowest, are:

<table>
<thead>
<tr>
<th>Statement</th>
<th>Male average</th>
</tr>
</thead>
<tbody>
<tr>
<td>More money and time should be put into educating the public about conservation issues</td>
<td>5.95</td>
</tr>
<tr>
<td>Conservation projects should involve farmers more</td>
<td>5.76</td>
</tr>
<tr>
<td>Conservation projects should involve community stakeholders more</td>
<td>5.57</td>
</tr>
<tr>
<td>Conservation projects should involve iwi(^{18}) more</td>
<td>5.41</td>
</tr>
</tbody>
</table>

Women on the other hand, although they also agree most with the idea of putting more money and time into educating the public about conservation issues, rank increased iwi involvement second (versus last for men).

\(^{18}\) Maori (indigenous people of New Zealand) tribes
Statement | Female average
--- | ---
More money and time should be put into educating the public about conservation issues | 6.21
Conservation projects should involve iwi more | 5.74
Conservation projects should involve farmers more | 5.68
Conservation projects should involve community stakeholders more | 5.65

Women not only ranked increased iwi involvement as more important amongst these four stakeholder engagements than men, but also felt significantly more strongly than men that iwi involvement should be increased (female 5.74, male 5.41, p = 0.063*). Thus, women’s increased representation in conservation leadership then may lead to further involvement, consultation, and collaboration with iwi (see Table 6.2).

Table 6.2 Male and female environmentalist’s thoughts on the involvement of stakeholders in conservation, on a 7-point Likert-type scale

<table>
<thead>
<tr>
<th>Involvement of Stakeholders</th>
<th>Male</th>
<th>Female</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conservation projects should involve community stakeholders more</td>
<td>5.57</td>
<td>5.65</td>
<td>0.630</td>
</tr>
<tr>
<td>Conservation projects should involve farmers more</td>
<td>5.76</td>
<td>5.68</td>
<td>0.625</td>
</tr>
<tr>
<td>Conservation projects should involve iwi more ††</td>
<td>5.41</td>
<td>5.74</td>
<td>0.063*</td>
</tr>
<tr>
<td>More money and time should be put into educating the public about conservation issues</td>
<td>5.95</td>
<td>6.21</td>
<td>0.072*</td>
</tr>
</tbody>
</table>

Furthermore, even though men and women alike agree that putting more money and time into educating the public about conservation issues is the most important place to increase stakeholder engagement, the agreement with this idea is stronger for women compared to men (female 6.21, male 5.95, p = 0.072*). This finding is corroborated by a previous study amongst Australasian wildlife managers where it was discovered that female managers ranked “wildlife and environmental education” as a higher priority than male managers (Miller and Jones, 2006). Thus, women’s increased engagement in conservation leadership may lead to increased investment in public education.
Interview data supports this, with nearly half of interviewees (n = 14) noting that women are especially likely to engage in interpersonal work positions that deal with the community and stakeholders. “Women perhaps — absolutely it’s a generalization – but perhaps [are] more likely to be involved in community processes,” says Logan (SL). Larry (LN) notices similar patterns in his organization:

What I noticed the most is that because the women quotient comes more from [what we call] community work, which is working with others. You know, might be on education, or volunteering, or it might be outreach, or it might be in communications. So because there are probably more—I’m not saying they are predominantly female, but there’s probably more female presence in those than say [other positions]. Then the contributions you’ll get, if I was going to be generalized, was women would be contributing around others and men would be contributing around work, because [other positions are more concerned with that] work – this is just a huge generalization – and where the women show up strongest is in the interactive work.

Similarly, Robin (LN) says women “are more likely to want to do things which is engaging with the public and chatting with the public and what we call ‘hosting’.”

In developed nations across the globe, women are far more represented in the services sector (66%) than in industry (22%) or agriculture (12%) compared to men (45%, 41% and 14% respectively) (United Nations, 2010). In the general workforce of New Zealand in particular, women are most numerous in 1) the healthcare and social assistance sector, followed by 2) professional, scientific, technical, administrative, and support services, then 3) education and training (Statistics New Zealand, 2018). Women are especially well-represented compared to men in the sorts of professions that involve working with people (e.g. social work, education, etc.), while men are especially prevalent in fields that require more solitary work (e.g. agriculture, engineering, etc.). According to Statistics Canada, almost 80% of students majoring in healthcare, public administration, psychology, and education are women (Hango, 2015). This trend appears to continue within conservation as well, with women in the field more likely to work in positions that involve engagement with others and the public (see section 6.2.2 for more). This interpersonal work preference that women exhibit more strongly than men may be related to gender socialization or even some biological personality inclination for gregariousness / agreeableness (see section 2.3.4 “Personality” for more information on gender and personality). But whatever the underlying reason, this difference
could affect the way male and female leaders go about environmental management, with women perhaps stressing more community education and outreach as an integral part of management than a male-dominated leadership might. Robin (LN) thinks this might be the case when she says:

   I think men are more likely to look to other organizations or other ways of facilitating it [environmental management]. So legislation, statutory environment, enforcement, you know, regulatory stuff. Whereas women are more groundswell, community, let's all work together to make this happen.

William (LN) portrays a similar picture: “There probably might be a slight difference I think. I think women might be slightly more inclined to think of the community in the first instance rather than themselves.”

Even more, women appear to be especially involved in education related strategies for conservation. “I just remember one time we hosted all of the educators from these enviroschools and I think they were all women. I remember that was a number of years ago and that really struck me,” Sean (SL) says. He also refers to another specific conservation project where the education and outreach portion was similarly made up of primarily women. Rob (LN) likewise notes that in his large national organization, the children’s part of the organization is almost entirely female because it is made up of a great deal of those from the teaching profession, who tended to be female. Getting children involved in and educated about conservation appears to be an area that women are much more likely to consider than the average male. Scott (LN) says:

   I think one thing that you do notice is that women tend to be more conscious of family-related activities and children's [activities] and things. So I think they have been as likely as anyone to bring up issues of “Is [this action] fair for a family group?” or “Are conditions of use going to impact on family groups and children?” So I think they do bring that perspective more than the other [male members]. That's not to say the other [male members] are blind to those issues, but I think...

This is the case in small local groups as well, where Tom (SL) says, “Maybe the females may have more empathy with children or with the school groups or the needs of children at activities we have.”

Overall then, women appear to be more likely to consider including the broader community and stakeholders, especially in regards to education and children’s involvement. This can
have important effects for environmental management, as a leadership team with more women might be more likely to consider and involve the public and families in conservation initiatives, an important focus of conservation in New Zealand today as large conservation organizations shift toward increased reliance on the public to help meet conservation goals with ever limited funds. In interviews, eight conservationists spoke of changes in organizational strategies over the past years where focus on the public has become a greater part of conceptualizing how to achieve conservation goals. At the same time, these interviewees noted that women’s representation in leadership, though still not generally representative of the proportion of women in the organization as a whole, has greatly improved over the years. The changes to more public focused conservation strategies alongside increases in women’s leadership presence then appears to be correlated, and although one cannot say for certain whether the relationship is causal, evidence from surveys and interviews suggests it is a distinct possibility. That is, perhaps it is in part due to the increases of women in conservation leadership over the past decades that public inclusion in conservation has increased in recent years. Further increases may be seen with continued increases in female representation in conservation leadership.

6.2.2 Ideas of Conservation and the Public

When it comes to thinking about the use of conservation areas for public use, male and female environmentalists in conservation organizations across New Zealand think fairly similarly. However, women appear to feel a bit more strongly than men that an important part of conservation is to create recreational lands for use by visitors (women 4.93, men 4.59, p = 0.097*). Table 6.3 depicts the findings amongst male and female environmentalists and their views on the interplay of conservation with the public.

<table>
<thead>
<tr>
<th>Conservation and the Public</th>
<th>Male</th>
<th>Female</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thinking of the successes and failures you have seen with conservation in New Zealand and how you personally would approach issues if left in charge, please rate how much you agree with the following statements about the interaction between conservation and people.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Responses range from 1 – 7, where 1 = strongly disagree, 4 = neither agree nor disagree, 7 = strongly agree)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Question</td>
<td>Male</td>
<td>Female</td>
<td></td>
</tr>
<tr>
<td>An important part of conservation is to create recreational lands for use by visitors†††</td>
<td>4.59</td>
<td>4.93</td>
<td>0.097*</td>
</tr>
<tr>
<td>Conservation is important especially because of its benefit to the economy</td>
<td>4.84</td>
<td>4.78</td>
<td>0.795</td>
</tr>
</tbody>
</table>
Strong laws are needed to ensure individuals and companies do not damage the environment, even if that restricts their personal freedom

<table>
<thead>
<tr>
<th>Statement</th>
<th>Male</th>
<th>Female</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>There should be more protected conservation areas in which people are not permitted to visit</td>
<td>4.35</td>
<td>4.36</td>
<td>0.962</td>
</tr>
<tr>
<td>Most conservation areas should also be recreation areas for the public†</td>
<td>4.19</td>
<td>4.20</td>
<td>0.955</td>
</tr>
</tbody>
</table>

* P ≤ 0.10
** P ≤ 0.05
*** P ≤ 0.01
Unequal variances: † p ≤ 0.10
†† p ≤ 0.05
††† p ≤ 0.01

The fact that women more strongly agree that “An important part of conservation is to create recreational lands for use by visitors” seems to be in line with the finding that women are more involved with the public and perhaps more cognizant of connecting the public to conservation and nature. That is, women’s increased emphasis on public involvement (as discussed in the previous section) is in line with this finding that women feel more strongly than men that one reason conservation is important is because of its link with the public.

### 6.2.3 Ideas of Conservation-Related Business / Industry Regulation

Male and female environmentalists feel similarly that environmentally damaging agricultural practices should be more highly regulated (female 6.31, male 6.31, p = 0.947), that conservation agencies are too lenient with industry (female 5.81, male 5.74, p = 0.691), and that the tourism industry should be held to higher environmental standards (female 6.08, male 5.85, p = 0.101). Women in these environmental organizations, however, feel a bit more strongly than men that mining practices should be more highly restricted (female 6.24, male 5.96, p = 0.057*) and that farmed forestry and logging practices should be more highly restricted (female 5.49, male 5.03, p = 0.015**). Table 6.4 summarizes these findings.

<table>
<thead>
<tr>
<th>Conservation and Business / Industry</th>
<th>Male</th>
<th>Female</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmentally damaging agricultural practices should be more highly regulated</td>
<td>6.31</td>
<td>6.31</td>
<td>0.947</td>
</tr>
<tr>
<td>Mining practices should be more highly restricted</td>
<td>5.96</td>
<td>6.24</td>
<td>0.057*</td>
</tr>
<tr>
<td>Conservation agencies are too lenient with industry†</td>
<td>5.74</td>
<td>5.81</td>
<td>0.691</td>
</tr>
<tr>
<td>Farmed (e.g. pine) forestry and logging practices should be more highly restricted</td>
<td>5.03</td>
<td>5.49</td>
<td>0.015**</td>
</tr>
</tbody>
</table>

* Responses range from 1 – 7, where 1 = strongly disagree, 4 = neither agree nor disagree, 7 = strongly agree.
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The tourism industry should be held to higher environmental standards

<table>
<thead>
<tr>
<th></th>
<th>5.85</th>
<th>6.08</th>
<th>0.101</th>
</tr>
</thead>
<tbody>
<tr>
<td>* P ≤ 0.10</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unequal variances: † p ≤ 0.10</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>** P ≤ 0.05</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>†† p ≤ 0.05</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>*** P ≤ 0.01</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>††† p ≤ 0.01</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Increased female representation in conservation leadership and decision making could then conceivably lead to differences in the way conservation deals with industry, and in particular may lead to more stringent restrictions on certain industries such as mining and forestry / logging, which have negative environmental impacts. As an example, perhaps women’s increased representation would create more support and ambition for crafting stricter environmental standards for the mining industry to abide by as a way to mitigate negative environmental impact. With recent controversy on mining approvals on some public conservation lands, increasing women’s representation in conservation leadership may have notable effects in challenging allowances of mining in protected areas.

In support of this hypothesis, at the time of this writing both the current Prime Minister (Jacinda Ardern) and the Minister of Conservation (Eugenie Sage) are women. During their tenure in November 2017 an announcement was made that there would be no new mines on conservation land (Sage, 2018), and similarly new applications for mining on conservation land have been recently declined (Woods and Sage, 2018). Of course, some may argue these particular policies relate to political affiliation perhaps more strongly than gender (Labour Party and Green Party, respectively). But importantly, women are more likely to lean left politically (Edlund and Pande, 2002). A Pew Research Center (2018a) survey put the percent of women in the U.S. who identify as Democrat at 39% compared to only 26% of men (similar statistics are not available for New Zealand, as individual party affiliations are not recorded). In fact, according to Edlund and Pande (2002), in the previous two American elections prior to their research, men and women would have chosen different presidents. Thus political leanings and party affiliation are not independent of gender.

The inclusion of more women in high level positions may very well have great impacts on decision making then. Take for example the 2013 U.S. Supreme Court decision which ruled 5-4 in favor of same-sex marriage, where four men (all appointed by conservative presidents) voted against the measure while three women (appointed by liberal presidents) and two men (one appointed by liberal and one conservative) voted in favor. This gender difference in support for certain key issues transfers to the environment as well, with data showing that
female U.S. House Representatives – from both parties – favor stricter environmental policies than men (Fredriksson and Wang, 2011). Drawing from the survey results of this New Zealand study, it does appear that gender is related to stronger views for regulation of certain environmentally damaging industries. Thus, by increasing the representation of women in conservation leadership, one might see important shifts in the way industry and political issues are dealt with.

### 6.2.4 Area-Based Conservation

When it comes to area-based conservation, male and female environmentalists think similarly, with two important exceptions. Overall, men and women agree about holistic approaches to conservation, focus on individual species habitat, soil quality and degradation, water issues, and restoration / reforestation. Still, although both men and women alike think that more land and marine areas should be set aside for conservation purposes, women feel more strongly that this should be so (land: female 6.44, male 6.05, p = 0.046** and marine: female 5.71, male 5.35, p = 0.019**). Table 6.5 summarizes these findings.

<table>
<thead>
<tr>
<th>Question</th>
<th>Male</th>
<th>Female</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>More holistic approaches to conservation (e.g., less focus on individual species and more on total ecosystem health) should be implemented</td>
<td>5.85</td>
<td>5.82</td>
<td>0.813</td>
</tr>
<tr>
<td>There should be more focus on specific animal habitat conservation (e.g. tuatara habitat protection)</td>
<td>5.04</td>
<td>5.08</td>
<td>0.835</td>
</tr>
<tr>
<td>There should be more focus on soil quality and degradation</td>
<td>5.55</td>
<td>5.55</td>
<td>0.951</td>
</tr>
<tr>
<td>There should be more focus on water issues</td>
<td>6.21</td>
<td>6.18</td>
<td>0.830</td>
</tr>
<tr>
<td>Restoration and reforestation efforts should be increased</td>
<td>5.93</td>
<td>6.09</td>
<td>0.210</td>
</tr>
<tr>
<td>More land should be set aside for conservation purposes</td>
<td>6.05</td>
<td>6.44</td>
<td>0.046**</td>
</tr>
<tr>
<td>More marine areas should be set aside for conservation purposes†††</td>
<td>5.35</td>
<td>5.71</td>
<td>0.019**</td>
</tr>
</tbody>
</table>

* P ≤ 0.10                                    ** P ≤ 0.05                                   *** P ≤ 0.01
Unequal variances: † p ≤ 0.10               †† p ≤ 0.05                                   ††† p ≤ 0.01

The finding that female environmentalists are more strongly in favor of setting aside additional land and marine areas for conservation purposes suggests that increasing the
portion of women in leadership could create a shift toward the creation of more protected areas (including marine reserves). Thus, the involvement of more women in conservation leadership could mean that a higher percentage of New Zealand’s land and marine area will become legally protected spaces.

6.2.5 Species-Related Conservation

When it comes to species-specific conservation, male and female environmentalists appear to be quite similar in their thoughts and opinions. No differences were found between men and women in agreement with any of the species-related conservation ideologies specified. Table 6.6 gives a summary of these results.

<table>
<thead>
<tr>
<th>Question</th>
<th>Male</th>
<th>Female</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>There should be more focus on protecting individual endangered species††</td>
<td>4.89</td>
<td>4.99</td>
<td>0.606</td>
</tr>
<tr>
<td>Species that are not endangered still deserve protection</td>
<td>5.96</td>
<td>6.01</td>
<td>0.727</td>
</tr>
<tr>
<td>All species, endemic or not, that are native to New Zealand deserve equal consideration†† †</td>
<td>4.28</td>
<td>4.50</td>
<td>0.362</td>
</tr>
<tr>
<td>Focus should especially be on protecting New Zealand's endemic species</td>
<td>5.66</td>
<td>5.64</td>
<td>0.903</td>
</tr>
<tr>
<td>More focus should be given to non-charismatic species (plants, bugs, etc.)</td>
<td>5.69</td>
<td>5.86</td>
<td>0.269</td>
</tr>
<tr>
<td>There is too much focus on individual species protection</td>
<td>4.06</td>
<td>3.98</td>
<td>0.705</td>
</tr>
</tbody>
</table>

Overall then, changes in approaches to conservation projects dealing with specific species appears unlikely to change with increasing female leadership, as this is one area in which male and female conservationists appear quite similar in their thoughts and strategies.

6.2.6 Pest Control Attitudes

When it comes to pest control, men and women are similar in many respects. However, men appear to be more strongly in favor of putting more focus on new pest and weed control strategies (female 5.94, male 6.19, p = 0.051*). Table 6.7 illustrates this data in more detail.
Table 6.7 Male and female environmentalist’s thoughts on pest control in New Zealand, on a 7-point Likert-type scale

<table>
<thead>
<tr>
<th>Pests and Conservation</th>
<th>Male</th>
<th>Female</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thinking of the successes and failures you have seen with conservation in New Zealand</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>and how you personally would approach issues if left in charge, please rate how much</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>you agree with the following statements about pests and conservation.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Responses range from 1 – 7, where 1 = strongly disagree, 4 = neither agree nor disagree, 7 = strongly agree)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Question</td>
<td>Male</td>
<td>Female</td>
<td>p-value</td>
</tr>
<tr>
<td>The use of fencing to keep pests out has been largely worth the investment†††</td>
<td>5.25</td>
<td>5.53</td>
<td>0.151</td>
</tr>
<tr>
<td>Controlling pests and weeds should continue to be one of the major conservation</td>
<td>6.30</td>
<td>6.32</td>
<td>0.886</td>
</tr>
<tr>
<td>objectives in New Zealand</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>There should be more conservation focus on new pest and weed control strategies†</td>
<td>6.19</td>
<td>5.94</td>
<td>0.051*</td>
</tr>
<tr>
<td>There is too much emphasis on pest and weed control when it comes to conservation in</td>
<td>2.08</td>
<td>2.12</td>
<td>0.829</td>
</tr>
<tr>
<td>New Zealand</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* P ≤ 0.10                                    ** P ≤ 0.05                                   *** P ≤ 0.01
Unequal variances: † p ≤ 0.10               †† p ≤ 0.05                                 ††† p ≤ 0.01

Given the similar views of men and women concerning pest control, with the exception of men emphasizing more focus on creating new pest and weed control strategies, it seems this is one area that may not change hugely with women’s increased involvement in leadership, though lesser investment in seeking new pest and weed control strategies may be a result. Interestingly, the currently established “Predator Free NZ” goal, which focuses on eliminating possums, stoats, and rats from the country by 2050 (and mentions the need for finding new techniques to do so), might reflect the male-dominated conservation leadership of the organizations discussed here. Among the general public at least, women are less accepting of lethal pest control methods than men (Wilkinson and Fitzgerald, 1998, 2006; Fitzgerald, Fitzgerald, and Davidson, 2007; Fitzgerald, Fitzgerald, and Wilkinson, 2005; Green and Rohan, 2012; Russell, 2014; Sanborn and Schmidt, 1995), especially when it comes to poison control methods (Wilkinson and Fitzgerald, 1997, 1998; Green and Rohan, 2012; Russell, 2014; Sanborn and Schmidt, 1995). Men and women’s views on killing and the “right to life” does appear to be quite notably different, as will be discussed in greater detail in section 6.3.2.

6.3 Biophilic Ideology

In addition to some differences in conservation strategy, male and female environmentalists appear to think of and relate to the environment and conservation somewhat differently. The
following sections discuss common underlying reasons for interest in conservation and nature and differences in environmental worldview amongst men and women in the field.

6.3.1 Motivations for Engagement in Conservation

Drawing on data from key informant interviews regarding motivations for participating in environmental protection, both men and women’s most commonly cited reasons for entering conservation work were 1) personal interest, 2) ethical considerations, and (lastly) 3) for the benefit of future generations. Of the 32 total interviewees, ten men (of the total fifteen; 66.7%) and thirteen women (of the total seventeen; 76.5%) cited personal interest as a reason they became involved in conservation. Interestingly though, the underlying source of this personal interest appears to be slightly different for men and women on average: men are more likely to cite an interest in conservation as having come from an enjoyment of outdoor recreation while women are more likely to reference an interest in animals or ecology / biology more generally. As Brent (LN) says, “So tramping and white baiting and deer shooting. You know? I just grew up in nature.” William (LN), too, references his interest as coming from a passion for outdoor recreation: “I’ve always loved tramping. I’ve always loved climbing. I’ve always loved skiing.” In contrast, Virginia (LN) says, “I like natural systems and ecosystems, and that was probably what interested me.” Similarly, Natasha (LN), even though she references the outdoors, focuses on birds and animals as a point of interest:

Basically from a young age, I was always interested in the outdoors and in animals. I did a project on birds and my parent’s property when I was a school student and won a prize with the Ornithological Society and was really lucky to start going out on field trips with them from a very young age.

Drawing from this information, female environmentalists in New Zealand in general appear more likely to be interested in conservation due to an affinity for animals or ecology and men seem more likely to become interested in conservation due to a love of outdoor recreation. This is much like the findings of Kennedy (1991) which found that men’s primary motivation for entering conservation was related to wanting to engage with the geographical area while women were more likely to state a concern for the wise use of resources. He found men often used words like “work in” or “manage” to describe their relationship with conservation while women used terms such as “care for” and “love of”, with men rarely using “care” and never
“love” as descriptors. Thus, the perspectives from which men and women become interested in conservation might originate from somewhat different pathways and valuing systems.

Though ethics (i.e. a feeling of moral duty for service to the environment) was the second most commonly cited motivator (behind interest) for both men and women, the role of ethics as a driver for conservation engagement seems more common in females. That is, a higher proportion of female interviewees claimed that ethics played a role in their conservation involvement (11/17 = 64.7% of women versus 7/15 = 46.6% of men). Christine (SL) highlights this sentiment, “It is my primary motivator for doing anything. If we don’t have a planet we don’t have any home so that is my paramount thing of importance.”

Finally, four men (26.7%) and two women (11.8%) cited preserving the planet for future generations as a reason for their involvement, indicating that this sample of environmentalists do not appear especially motivated to protect the environment because of future generations, though men might be somewhat more likely than women to value environmental protection for this purpose.

Indeed, in this survey of New Zealand environmentalists, when asked their primary reason for wanting to protect the environment with 0 being “primarily for human benefit” and 10 being “primarily for nature itself” (5 representing both equally) both men and women alike cited their primary interest as more for the benefit of nature itself than for the benefit of people. However, women on average were even more motivated “primarily for nature itself” (female: 7.3884, male: 6.8515, p = 0.033**). That is, although environmentalists – both male and female – generally desire to protect the environment more for its own good rather than for human good, female environmentalists seem even more strongly motivated to protect the environment for the sake of nature itself rather than for human benefit compared to males. This is consistent with the statements from interview data noted previously where more men than women (four vs. two; 26.7% vs. 11.8%) referenced future generations as a motivator for their involvement in conservation, and is also consistent with studies that demonstrate women are less utilitarian and dominionistic than men in attitudes toward nature (Boeve-de Pauw and Van Petegem, 2011; Kellert and Berry, 1987; Oerke and Bogne, 2010; Zinn and Pierce, 2002).
On average, men’s primary motivations for valuing environmental protection, from strongest to weakest on a 10-point scale, were:

<table>
<thead>
<tr>
<th>Statement</th>
<th>Male average</th>
</tr>
</thead>
<tbody>
<tr>
<td>To protect entire ecosystems</td>
<td>8.81</td>
</tr>
<tr>
<td>To protect native fauna</td>
<td>8.29</td>
</tr>
<tr>
<td>To ensure current and future generations have a healthy planet</td>
<td>8.28</td>
</tr>
<tr>
<td>To protect all native living creatures (animals, plants, fungi, etc.)</td>
<td>7.98</td>
</tr>
</tbody>
</table>

Women, although mostly similar in ordering, place “ensuring current and future generations have a healthy planet” as the weakest motivator (third most important of four for men):

<table>
<thead>
<tr>
<th>Statement</th>
<th>Female average</th>
</tr>
</thead>
<tbody>
<tr>
<td>To protect entire ecosystems</td>
<td>9.34</td>
</tr>
<tr>
<td>To protect native fauna</td>
<td>8.93</td>
</tr>
<tr>
<td>To protect all native living creatures (animals, plants, fungi, etc.)</td>
<td>8.82</td>
</tr>
<tr>
<td>To ensure current and future generations have a healthy planet</td>
<td>8.47</td>
</tr>
</tbody>
</table>

The motivator of “ensuring current and future generations have a healthy planet” trails relatively far behind the next most important motivator for women (8.4706 versus 8.8235 for the next highest motivator), while for men this motivation is just barely behind the second highest motivator (8.2772 versus 8.2871 for the next highest). Thus, women’s engagement in conservation appears to be less concerned with benefit to mankind and resultantly can be said to be less anthropocentric and more biospheric (i.e. values emphasizing the environment and the biosphere) in orientation than men’s. This is similar to findings in over a dozen countries where women reported greater concern for nature, living things, and the biosphere amongst the general public (Zeleny et al., 2000). Table 6.8 summarizes these findings.

Table 6.8 Male and female environmentalist’s concern for the environment and reasons for wanting to protect the environment, on a 10-point scale

<table>
<thead>
<tr>
<th>Reasons for Involvement in Environmental Protection</th>
<th>Male</th>
<th>Female</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>My primary reason for wanting to protect the environment 0 = primarily for human benefit, 5 = equally both, 10 = primarily for nature itself</td>
<td>6.85</td>
<td>7.39</td>
<td>0.033**</td>
</tr>
<tr>
<td>I value environmental protection because I want to ensure current and future generations have a healthy planet</td>
<td>8.28</td>
<td>8.47</td>
<td>0.459</td>
</tr>
</tbody>
</table>
Moreover, the strength of the three motivations to protect “native fauna”, “all native living creatures”, and “entire ecosystems” are all higher for women. The difference in magnitude of responses is especially high between men and women when it comes to wanting to protect all native living creatures (female 8.8235, male 7.9802, \( p = 0.001^{***} \)), and is next highest in wanting to protect native fauna (female 8.9328, male 8.2871, \( p = 0.007^{***} \)), and lastly for the protection of entire ecosystems (female 9.3445, male 8.8119, \( p = 0.008^{***} \)). Given the differences are highest in the motivation which relates most directly to living beings (“all native living creatures”) and lowest in the one least specific to life (“entire ecosystems”), it seems that women’s motivations for conservation may be sourced especially from a stronger desire to protect life and living systems compared to men. Thus, it might be said that although male and female environmentalists both embrace biophilic ideologies, female environmentalists display stronger biophilic tendencies than male environmentalists.

Although there are only a few similar studies with which to compare these findings, they are similar in their results. Vaske et al.’s (2001) study of Colorado, USA National Forest Management found that although both men and women in their sample of environmentalists tended toward the biocentric (rather than anthropocentric) end of the spectrum, women were more likely to ascribe to preservationist beliefs and have deeper biocentric viewpoints. Similarly, Boeve-de Pauw and Van Petegem’s (2011) study of children in Flemish eco-schools found girls have more biophilic tendencies than boys.

Some authors, such as Vandana Shiva, have argued that women are closer to nature and life than men due to their reproductive functions (e.g. Mies and Shiva, 1993), while others have
similarly argued that women are potentially more environmentalist than men because of a female biospheric orientation (Diamond and Orenstein, 1990; Griffin, 1978; Merchant, 1980). Conversely, others argue that such perspective is extremely “essentialist”, oversimplifying women from a diverse group to an overly homogenized one (Biehl, 1991; Code, 1991; Eckersley, 1992). Nonetheless, without delving too far into the arguments in favor of and against the reasons for gender differences in environmental worldview, the data here does demonstrate that female environmentalists in New Zealand have, on average, stronger feelings toward the protection of living creatures than male environmentalists. Although both men and women similarly cite the desire to protect entire ecosystems as the strongest motivator that underpins their connection to environmental protection, women reported a stronger feeling of wanting to protect the environment, especially in order to protect the living beings within them, than men. These findings are not unlike research amongst the general public which shows women to have greater affinity for animals / wildlife and concern for their welfare (Arjunan et al., 2006; Czech et al., 2001; Herzog, 2015; Herzog et al., 2015; Howard and Parsons, 2006; Kellert and Berry, 1987; Martino, 2008; Peek et al., 1996, 1997; Uliczka et al., 2004; Wolch and Zhang, 2004; Yang et al. 2010).

### 6.3.2 Right to Life and Aversion to Killing

Interview data further corroborates findings of women’s greater attachment to “life” in their engagement with conservation. Of the three interviewees that made a point to emphasize that all living things have a “right to life”, all were female. “I’ve always thought that everything has an equal right to survive: humans, ants, and whatever,” says Karen (LN). Brittany (LN) echoes this sentiment: “I think the other things that are getting pressured by humans have as much right to live as we do.” Francine (SL) feels much the same, saying, “…every species has its right to exist.” Additionally, in the survey women agreed more strongly than men with the assertion that “Animals have as much right to life as people” (female: 5.74, male: 5.08, p = 0.002***).

Along the same lines, as noted briefly in section 5.4.3 “Men in Field, Physical, Pest, and Fisheries Positions”, those who were hesitant about killing and engaging in pest control tended to be women:

So where the difference probably is, is there’s probably less women that want to be on the side of killing the pests. It’s reasonably even with regard to going out and
monitoring chew cards and doing bird counts and those sorts of things. And there’s probably more people in the community that are female that want live capture traps. And then they don’t want to know what we’ve done with the trap after we taken it away. They’re quite happy to have the pests removed from their property, but they don’t want to be the one that goes out finds it dead in a kill trap as opposed to a live capture trap (Jeff, SL).

Thus, women’s feelings on wanting to protect life and living beings as conservationists sometimes appears to come into conflict with the killing that often accompanies pest management in conservation in New Zealand. Natalie (SL) claims, “I think men generally are more physical and probably in some ways happier with killing lots of animals, which is what we have to do for conservation [in New Zealand].” This is in line with findings of gender differences in Australasian wildlife managers which found women to be less in agreement than men with management and consumptive use of wildlife and more likely to believe it is morally wrong to kill wild animals to sell their fur (20.3% of males versus 48.9% of females, P = 0.002) (Miller and Jones, 2006).

Interestingly however, this did not lead to female environmentalists in the survey having significantly less favorable attitudes than men toward recreational hunting (female: 5.19, male: 5.46, p = 0.193) and fishing (female: 4.64; male: 4.97, p = 0.165). This finding is in contrast to those from other studies of the general public in which women were found to be less supportive of hunting (Kellert and Berry, 1987; Mankin et al., 1999; Martino, 2008; Thornton and Quinn, 2009). However, this contradiction could be due to the unique situation of New Zealand conservation where control of introduced species through hunting is vital to the survival of the many predator-naïve endemic and native species. In New Zealand, most recreational hunting and fishing is of non-native or invasive species that prey on or compete with native species, and hunting and fishing of such animals is encouraged as a means to protect native ecology from the devastating impact of invasive species. Because of this, the negative conception of hunting or fishing as needless killing may be reduced, and women’s bias against such activities may also be reduced as a result if they see it as a “necessary evil” to protect the survival of other New Zealand species.

Conservation in New Zealand, because of the vulnerable nature of New Zealand’s uniquely evolved isolated predator naïve species, involves a great deal of pest killing and removal as a critical component; see https://www.mfe.govt.nz/more/biodiversity/protecting-nzs-biodiversity/pest-weeds-and-diseases for more information.
One interviewee noted that women seem a little more hesitant to make decisions that accept the sure loss of certain species. In his example, Connor (LN) talked about a decision making tool that helped his organization prioritize resources toward the “best” suite of species to target for conservation efforts: a balance of various factors, like prioritizing species that were unique, rare, and had a fair chance of achieving success. He noted, however, that women more than men felt uncomfortable with the idea of “giving up” on some species and essentially resigning them to extinction.

Overall, it appears that although male and female environmentalists have similar self-reported levels of general environmental concern, female environmentalists are more likely to enter conservation out of an interest in natural ecosystems while men who are more likely to enter from interest in outdoor recreation. In addition, women display greater biophilic tendencies, and tend to take more issue with killing or “giving up” on a species. Interestingly then, gender diversity in conservation leadership may have important effects on how conservation is conceived and carried out, as female environmentalists are more likely to approach from a “life” centered view while men may moderate this by coming from a somewhat different viewpoint, and may be more likely to argue the case for making those hard utilitarian decisions around which areas and species are “worth” investing effort into.

6.3.3 Speculation on Causes

In speculating on causes for this gender difference in environmental worldview, two ideas in particular have gained empirical support: gender socialization and gendered position in society. A number of authors show that studies on gender dimensions of concern for animals and their welfare provide evidence that women have a stronger desire to protect living beings due to 1) their gendered “care” socialization (e.g. socialization for kindness, compassion, etc.) (Herzog et al., 2015; McCright, 2010; Peek et al., 1996, 1997; Zeleny et al., 2000) and 2) their structural position in society (e.g. experience of being a female in patriarchal society) (Herzog et al., 2015; Peek et al., 1996, 1997). That is, these studies find that women are more concerned than men for the welfare of living beings because of their socialized “care” ethic and experiences of oppression in society which disposes them more toward increased concern for the welfare of others and greater tendency toward egalitarian ideology, which can then be
generalized to concern for other living beings (see section 3.1.4 “Gender Socialization Hypothesis”).

6.4 Ways of Working

6.4.1 Gender and Perspective

Another gender difference mentioned by six interviewees of the total 32 (18.75%) is a different perspective amongst male and female conservationists in conceptualizing and dealing with environmental issues. In particular, interviewees claimed male environmentalists to be a bit more likely to think of issues in more discrete or practical terms while female environmentalists were seen as more likely to think of issues as part of a larger picture of inextricable and interlinked issues:

I think women are more likely to be … holistic about something. I think men are more likely to be reductionist, to divvy up a river into little bits and little reaches and, “Well this is flow, and that’s temperature, and they’re separate things and none of them connect.” You know? “We can manage that separately from this. We can drain the swamp and save it at the same time.” And that thinking is really prevalent (William, LN).

Candace (LN) describes it as a difference in thought processes: “I can’t explain that very well, but it is a way of linear thinking [for men] versus the kind of thinking that’s all over the place [for women].” Similarly, Desiree (LN) says:

I think that the women are definitely more likely to think about how this project links in with another one or how they dovetail or how we might change that decision-making, whereas the guys do tend to think about it more discretely. “This is that job.” And maybe don't think about it.

This is supported by previous research by Lauber, Anthony, and Knuth (2001) which found that in managing overabundant deer populations, women considered more criteria and were more concerned about the ancillary impacts of the management strategies. Similarly, in floodplain management in Bangladesh, women were found to be concerned with a wider array of issues than men (Sultana and Thompson, 2008). This difference in thinking about environmental issues and, as a result, how to address them may then lead to somewhat disparate ways to approach conservation and environmental management. Reductionist or practical approaches to conservation perhaps lead to more discrete and clearly defined
conservation goals while more “big picture” views might establish different goals, but also may encounter greater difficulty in setting targets and deciding how to reach them. This is especially true when dealing with the large systemic issues that might underpin some of these interconnected “big picture” environmental issues.

For example, how does one address a set of environmental issues, such as water quality concerns and the effects this has on freshwater ecosystems and species, when political decisions prioritize economics and agricultural status quos over environmental concerns, and further when citizens support these damaging agricultural practices by purchasing products from activities that contribute to these issues? Setting a discrete or “reductionist” goal, for example, such as improving water quality in one particular river to a certain defined measure by removing stock from nearby land then seems a relatively straightforward goal with a clear path for action in comparison to those that might seek to address water quality issues more generally and holistically. As William (LN) says, “But in some ways, when you are managing the environment and you're writing rules for it, it's a lot easier if you've divvied up. You say, ‘Go out there and because we love this river, protect the river, how it looks.’” But he is critical of this approach, saying that a purely reductionist view does not work. Although these big picture goals may be hard to define and difficult to plan for and work towards, these goals are vital to conservation, just as more discrete and clearly defined goals have their place.

A mix of men and women around the decision making table can then increase the variety of perspectives around how issues might relate to one another and what management actions should be taken to address them. “So I think in terms of strategies, that is something where you do need the women in there around that decision-making to make sure that you are looking beyond the discrete projects, that you are looking further afield,” says Robin (LN). Desiree (LN) thinks back to cases where the “bigger picture” thinking that women appear to be especially likely to embrace would have been helpful in past cases:

There's some really obvious places where we should have done that [thinking about how our work connects to that in other places around the country], perhaps, along the way, but the men who have been in charge of it maybe haven't thought of that broader, more holistic level. So how do we compare to other places, and this, that, and the other?
Thus, having a good mixture of men and women in environmental decision making bodies can help vary the perspectives around the table in conceptualizing and planning for environmental management, providing a more varied mix of projects with clear, discrete, achievable goals as well as goals that are perhaps loftier, more nebulous, and harder to achieve, but also more holistic and integrative. Such findings are aligned with findings from other arenas where women appear to more often seek what foundational feminist theory calls “contextualism and particularity”, being more concerned with the wider picture and less concerned with inducting a few facts to larger and more general abstract principles (Gilligan, 1982; Menkel-Meadow, 1983, 1985).

6.4.2 Gender, Caution, and Confidence
A majority of interviewees (18 of 32) noted a tendency of female environmentalists to be more cautious and considered in their approach to making decisions around environmental issues. It was noted that women seek out more information to make a decision about an issue than men on average. Relating this to the way women think about the interconnectedness of environmental issues, Sean (SL) says, “…men are sort of less bigger picture lookers, perhaps just more practical. Like if something needs doing they’ll possibly tend to do it whereas, you know, there's probably a bit more thinking and talking going on with the ladies.” This reflects a common pattern mentioned among interviewees that men think practically and act quickly, while women take longer to make decisions and prefer to discuss and gather greater and wider breadths of information. “I think they assemble more information or hold a wider view generally. And they are more likely to assemble information or to sample others,” says Larry (LN).

Heidi (SL), who is involved in numerous small local organizations, notes that women consider information and discuss with others a bit more when it comes to decision making:

> I get more communication from the women on the board prior to board meetings about issues. They will have looked at an agenda item and they’ll say, ‘Hmm, is this really… Did we get that information? Have we got enough information about that to make that decision?’ And they will then email me or other female members on the board.
Natasha (LN) notes a similar tendency of women to consider various ideas and information before forming thoughts or opinions: “If you have a situation that's complicated, I find women in the group will often respond and bring in all of the different elements after they've maybe gone away and thought about it or they felt it was too complex to bring up at the time that the meeting was taking place there.” Thus, female decision makers seem especially likely to put emphasis on carefully considering information available before making decisions, a finding in line with Graef and Uckert (2016) where it was that found female scientists are more careful than male colleagues in giving sustainability assessments of food-securing upgrading strategies.

Still, this emphasis on having lots of information and deliberation before making a decision could be related to the fact that conservation relies heavily on scientific information as the basis for many actions. Formulating empirically-backed strategies for conservation will by necessity rely on having a great deal of quality scientific information to advise management decisions. In fact, Robin (LN) sees the difference in gathering of information and hesitancy to make decisions with less evidence to be based more on the scientific underpinning of the industry rather than gender: “I think what I notice is not gender related; it's actually industry related. So in the conservation and environmental area, there's a bit more hesitancy without science, peer-reviewed. There's a lot less willingness to take a risk without secure scientific evidence behind you. And I don't think that's gender-based.” Indeed, in a study of citizen’s participation in wildlife decisions, Anthony et al. (2004) found that men stress the importance of using science to inform decisions while women placed more substantial importance on unbiased and open exchange of information and ideas.

Nonetheless, Desiree (LN), though she also considers the importance of scientific training in decision making, sees the difference as still ultimately coming down to a difference in the way men and women approach decision making: “It's quite possibly linked to the type of staff I have because the women I have on my team are really highly educated and they put a huge priority on gathering information and analyzing it. The men in my team don't so much.” But as she reflects more she says, “And saying that, they [the men] also have Master's degrees. So in fact, education doesn't explain it. There's definitely a preference for making sure we have good information to inform our decision-making from the women.” Thus, despite similar scientific education and backgrounds, Desiree (LN) still maintains that there is greater caution and more of an insistence for information among women.
Part of this gender difference in desire for more information and contemplation may be related to caution and confidence. Of the four interviewees who discussed their own personal cautious approach to environmental decision making, all were female. Virginia (LN) says:

One thing I would say is that I am very careful of giving an opinion until I have information or am really confident of my opinion. And this is not something specifically within my organization, but just within my field I notice. And again, most of the people I deal with are male so it’s hard to generalize and say whether it’s gender specific. But, I feel like men are much quicker to form their opinion and state it as fact whereas I'm very cautious of saying, like, “I think” or kind of noting the limitations where guys are very like, “This is the way it is.” That is something that I do notice a lot.

Natasha (LN) shared similar sentiments, saying, “I guess we [women] were more cautious. Definitely myself and the other two ladies, it was a sort of cautious slowdown approach. Work through things.” One interviewee even insists on going so far as to do trials of projects to increase confidence before proceeding further: “I mean one of the things I do as a person is if I’m going to do something new in a project is I pilot it first.” Still further demonstrating the characteristic hesitancy that appears especially prevalent amongst women, when asked about what the best strategies for managing major environmental issues here in New Zealand Miriam (SL) responds with, “It’s such a big question that, like, I am sort of almost a bit afraid to answer it without really having put some deliberation into, you know…”

Men notice this pattern as well. Scott (LN) asserts, “[Women] consider what they're going to say carefully and then say it,” while men are more willing to present ideas more freely and as they think of them. Similarly, interviewees noted that men tended to be far more assured of their opinions while women were less likely to think they “knew” the answer to an issue. “Male staff sometimes will come up with something and they see this as the solution to the problem,” says Heidi (SL). While Brent (LN) says, “[Women tend to be] a bit more inclusive than ‘I know the answer’,” noting though that this tendency is of course not universal. Robin (LN) says, “Reflecting on it, I think men just assume that their opinion is right whereas women are willing to offer their opinion rather than state their opinion.” Unsurprisingly then, a number of participants indicated that overconfidence tended to be more common in male than female members, a finding corroborated by other research on gender and overconfidence.
This gender difference for dealing with information perhaps comes down to a difference in strategy. As Jeff (SL) asserts:

I think there's more of a female bias towards getting the right outcome from the beginning where the males will tend to try something and if it fails try something else.

I think it's just a different approach to getting to the same outcome. … Where males will tend to just trial and error to get probably to the same outcome.

A number of interviewees characterize male members as more likely to want to go forward and take practical actions quickly, while female members are slower, more deliberative, and more cautious:

I'm aware in some that, you know, when a lot of males are employed in those organizations there’s sometimes a bit more of a “rip into it” rather than think about, you know, “Is the experiment being done properly? And what’s it going to mean? And what’s it going to tell us?” sort of thing. But, you know, that’s just a generalization (Daisy, SL).

Thus, men’s somewhat greater confidence in their opinions and willingness to try and fail and women’s greater insistence on “getting it right the first time” may lead to somewhat different strategies amongst male and female environmentalists for addressing issues. Perhaps as a result of these differences, leadership teams with more women would necessitate more information before making management decisions and perhaps would not accept as high levels of risk in pursuing new projects, wanting to be surer of obtaining satisfactory results before proceeding with a course of action. In line with this, Worley (1998) noted that brokers characterize female investors as more detail oriented, tending to want to research and understand their investments better, asking more questions, and displaying more holistic approaches to investment decisions compared to male investors.

The reasons for women’s desire for more information and greater adherence to caution may be related to gender differences in risk aversion. As discussed in Chapter Two, women are consistently shown to be more sensitive to a variety of risks than men, from health to crime to technological risks, and more (e.g. Brown et al., 1993; Charness and Gneezy, 2012; Croson and Gneezy, 2009; Drottz-Sjoberg, 1994; Duckworth et al., 2002; Fincucane, 2000; Hillman, 2008; Lundborg and Andersson, 2008; May et al., 2010; Robertson et al., 2006; Siegrist et al., 2008).
Chapter Six: Gender and Environmental Values and Ways of Working

2005; Slovic, 1999, 2001; Smith et al., 2008; Warr and Stafford, 1983; Xiao and McCright, 2012). This increased sensitivity to risk can lead women to be more hesitant and cautious in their behavior, engaging in fewer risky activities than men. As a result, women take fewer risks, and also want more information before doing so. Xie, Page, and Hardy (2017) show that men are less risk averse and display more optimism and greater overweighting of probability for success than women.

This difference in confidence and caution can have real world effects. Tying back to Chapter Two on women in business (section 2.4.2), Barber and Odean (2001) predicted that since overconfident investors trade excessively and since men are generally more overconfident than women, men should trade more excessively. Indeed this was found to be the case, as an analysis of stock investments of men and women from more than 35,000 households found that men traded 45% more than women, reducing men's net returns by 2.65% per year compared to 1.72% for women. Similarly, Huang and Kisgen (2013) compared corporate financial and investment decisions of female versus male executives and found that males undertake more acquisitions and issue debt more often than female executives, leading to lower debt issue returns and announcement returns approximately 2% lower than those made by female executive firms. Female executives also exhibited more caution by placing wider bounds on earnings estimates and were more likely to exercise stock options early. Relatedly, Eckel and Füllbrunn (2015) showed likely because of this difference in information use and overconfidence, all-male markets yield significant price bubbles while all-female markets produce prices below fundamental value. This because women are more cautious and less confident in their estimations than men.

Though much of this information is from studies in business, if these differences are assumed to represent generalizable differences in the way men and women generally approach risk and confidence, such findings should be expected to apply to a wide variety of fields. Indeed, considering the pervasive pattern of increased risk avoidance in women across a variety of areas as discussed in Chapter Two, gender differences in these findings for risk and confidence would not seem to be limited to any particular sector. The reasons underlying for these gender differences in risk, caution, and confidence has been the topic of a few papers, in which authors argue that men and women generally process and use information differently, leading to differences in decision making. According to the selectivity model (Meyers-Levy 1989; Meyers-Levy and Maheswaran 1991; Meyers-Levy and Sternthal 1991),
males tend to be selective information processors, focusing on a single cue or cues with a
single inference, while females tend to be comprehensive processors, processing all or most
of the available information to make decisions. Thus, males tend to process messages in a
way that focuses on overall message themes or schemas while females are more likely to
employ a detailed processing strategy, paying attention to a wider variety of cues.
Accordingly, males tend to use heuristics to process information and miss subtle cues,
whereas females attempt to assimilate all available information and thus respond to more
subtle cues. As a result, when information incongruity is high, females are more likely to
process the incongruent information than males. Overall, Chung and Monroe (1998) find that
males are more likely to ignore disconfirming information and seek to confirm their own
hypotheses while females pay more attention to disconfirming information and tend not to be
hypothesis confirming.

Graham et al. (2002) conjecture that such gender differences in information processing are
what underlies women’s greater risk aversion and lower confidence in making investment
decisions. Because women are more likely to attempt to process all available information,
confirmatory and contradictory alike, women have greater attentiveness to possible
downsides that men are more likely to disregard. This also causes women to be less confident
than men, as women are more aware of the information that both supports and contradicts
their ultimate decisions. Using this same ideological framework for women’s involvement in
conservation and environmental management, it would seem that the pattern for women’s
greater insistence on more information and greater consideration and caution in decision
making could similarly be explained by gender differences in risk aversion, confidence, and
processing of information. That is, women’s greater risk aversion, lower confidence, and
greater attention to disconfirming information can perhaps explain in part why women in
environmental management seem to seek more information and take longer in making
decisions. Thus, by increasing women’s representation in leadership of conservation
organizations, one shift that seems quite likely is a greater attention to the information
underlying decisions and a more cautious approach to environmental management. Given the
issues with overconfident environmental decisions in the past (e.g. introduction of cane toads
to Australia to control cane beetles, etc.), this tempering of decision making is perhaps a very
important contribution that increased gender diversity in leadership can provide.
Moreover, increased gender diversity in conservation leadership may help improve efficiency and accuracy of deliberating on and solving problems. Donnell and Johnson (2001) showed that males demonstrate greater efficiency in information processing for low-complexity tasks (analysis of information consistent with that provided by clients), while women demonstrate greater efficiency in high-complexity settings (analysis of information containing two inconsistencies with what clients provided). In accordance with the sensitivity model, females are hypothesized to use a more detailed information processing style, leading to greater processing than necessary (and therefore inefficiency) in the low complexity situation but a greater ability to efficiently process the more complex task situation, since they would be more practiced at utilizing comprehensive processing strategies than males. Males, on the other hand, are more efficient at the low complexity task likely because of their tendency to use simplifying heuristic devices, but are less efficient in high complexity task situations due to relative inexperience (compared to females) with elaborative processing, resulting in greater expended effort to employ the necessary detail-oriented strategies. Similarly, Chung and Monroe (2001) found that as task complexity increases (through increases in both the number and inconsistency of message cues), accuracy of performance of male participants decreases while that of females stays the same, supporting the idea that the male strategy of selective information processing is appropriate in low complexity tasks but not for higher complexity. In a field like environmental management, which is at its core quite multifaceted by nature of the countless factors involved in environmental issues, such gender differences in efficiency and performance are of significance. Given that each environmental issue is unique, it is worthwhile then to have both men and women well represented in environmental decision making to achieve a balance of efficient, accurate, and considered decision making in a variety of multidimensional situations.

Tying directly to conservation and environmental management, the tendency for women to insist on more information and practice more caution may lead to different outcomes as women’s inclusion in decision making increases. Indeed, as discussed previously, interview data suggests that women tend to seek greater information and consult with others more and that women’s inclusion in environmental decision making leads to lengthier but also more considered discussions and meetings. At the same time, interviewees noted there is a tendency for male-dominatated management groups to act quickly on issues and with perhaps less caution and greater confidence. Thus, there is a strong argument in favor of gender diversity in conservation and environmental leadership. As Desiree (LN) nicely summarizes:
I think female-dominated [leadership] could potentially have a tendency to try and seek as many different opinions as possible, weigh up all of the options, maybe take a bit too long to do things sometimes. Whereas male-dominated, it goes the other direction. Having worked with strategic management groups that were both – one was dominated by women in the past and one more men – that definitely happened. So that female-dominated one took a lot longer to make progress. Our meetings took longer. It was tortuous. Whereas with men it was... the team ran into a lot more problems with not bringing along staff members for the ride, not talking to volunteers for example, just doing zero consultation. And so I think both have that challenge.

Thus, there is demonstrated benefit to having gender diversity in environmental decision making leadership, where men and women can bring different but complementary approaches to the table. “Maybe some female perspective can help with conservation projects sometimes, whether it's a bit more patience or, you know, whatever,” says Natasha (LN). Women’s greater inclusion may lead to longer deliberations and perhaps slower decision making, but it will also likely increase robustness and circumspection of judgements, while men’s inclusion helps increase confidence and push timely decision making:

If you've got a male chair you usually get through your actions very quickly but maybe you don't have the discussions that you need to have to get to a robust and sound decision that you can then revisit later. Whereas with women perhaps the discussion goes on for a bit longer and, you know. So yeah. Neither way is great or bad, but I think some balance between those two is what you need (Desiree, LN).

Connor (LN) sees the benefit of diversity’s moderating effect as well, arguing:

[Women are] looking for more precision, higher confidence. But, you know, I think that's also kind of a European science paradigm in here too. So it's kind of like it feels like a lot of our monitoring and reporting and analysis on the science of the business is that we're kind of aiming for 90% precision. And actually, to deal with the volume and some management and applied complex context 60-40 is good enough. So yeah. Taking a higher risk and shooting for a quicker decision and hopefully a quicker outcome sometimes is good. Yeah. Depends of the context, but yeah.

As Daniel Kahneman (2011) asserts in his best-selling behavioral psychology and decision-making book “Thinking Fast and Slow”:

Exaggerated optimism protects individuals and organizations from the paralyzing effects of loss aversion; loss aversion protects them from the follies of overconfident optimism. The upshot is rather comfortable for the decision maker. Optimists believe
that the decisions they make are more prudent than they really are, and loss averse decision makers correctly reject marginal propositions that they might otherwise accept. There is no guarantee, of course, that the biases cancel out in every situation. An organization that could eliminate both excessive optimism and excessive loss aversion should do so. (p. 340)

Given that women are more likely to be considered, hesitant, and risk averse in thought and action and men more confident, speedy, and optimistic, the effects of gender diversity in an environmental decision making group can be notably beneficial. The processes related to group decision making may be altered to the extent that greater women’s inclusion leads to a moderation of overconfidence and greater insistence on consideration and information, with men’s inclusion moderating the lengthy discussions and hesitancy in decision making that sometimes accompanies greater caution and insistence on more information. Overall, a balance of men and women in the groups appears to create important benefits. As William (LN) says:

I think it [women in decision making positions] matters in the sense of representation and echo chambers. Gender diversity is good at stopping the formation of little bubbles and echo chambers where guys just reinforce their own opinion or women just reinforce their own opinion. I think getting a balance – and a balance doesn't mean 50-50, it could be 40-60 or could be 30-70 if, you know, you just don't have the people – but being aware of those different perspectives that are going to be there is important. And I think it does make for, it might make for longer meetings, but I think you get better decisions.

### 6.4.3 Conscientiousness and Record Keeping

Similar to cautiousness, interviewees noted gender differences in conscientiousness and meticulousness, as well as in record keeping. In line with findings from previous studies in other fields (e.g. de Pillis et al., 2015; Donnellan and Lucas, 2008; Feingold, 1994; Kling, Noftle, and Robins, 2013; Schmitt et al., 2008; Srivastava et al., 2003; Vecchione, 2012), women in conversation decision making groups were seen to be more conscientious and scrupulous:

I would say that what we talked about in terms of the information gathering and analysis is a huge influence on how to go about things, what they [women] decide to do, and what next steps they take. Especially, I think there's a lot more time taken in
terms of setting up your datasheets and so forth. Making sure you're going to get that right information and record it and put it in afterwards whereas the guys, for example, will just chuck their datasheets. I mean, one of them had a project and they just took their datasheets and put them in a box and they sat in that box for a year. So a whole lot less care. And that information is really important for helping us decide what we do next year for that particular project. But they didn't really think of that. It was just like, “Oh, we've done the job. What do we need that for?” Like very much... Yeah. Less sort of thinking about the wholer picture maybe? It was like let's just get this job done. (Desiree, LN)

Tom (SL) shares similar sentiments, noting how his female colleague is deeply involved in keeping records but that he is much less so:

But she is very good at what she does, very good at writing reports and very good at recording everything and having records. And I'm more the other way. I'm just get on with the job and don't write everything down. But I don't know if that's a male-female thing, or just a personality thing.

Making similar observations, Jeff (SL) notes:

The one thing that is probably noticeably different is there's probably more list makers in the female gender than there are in the male gender. We are lazy and we don't want to write things out or those things. So they tend to structure their arguments differently based on a regime of points that they've pre-thought about. I'm not saying that the males don't do that, but they tend to do it off-the-cuff or out of their head rather than on something that's written down. But there are both sides of the genders that do that. But, you know, I think it's more a female trait is list writing.

In today’s conservation scene, where paperwork and compliance has become a larger part of the job description, women’s involvement can be helpful in this arena:

Well I do think that in these days, process, and health and safety, and a lot of those things have sort of descended on groups like this. So previously, you know, you just got on and did it, and you did your job properly, and you were careful and safe. And now we need all this documentation, and I think that's the difference I’ve seen, is that it tends to be women who are more aware of “let get the paperwork sorted, let's get… you know”. Even though we know we’re doing it all properly, we do need to have it written down to say we’re doing it all properly. So I'd say that's where the women's value is, is in putting on paper some of that stuff that we’re already doing, but it’s that compliance stuff, I guess. It's the documenting the compliance stuff, whereas I think
the guys are more like, “Let’s just get out there and do the job.” We’re like, “This has to be done, so let’s knuckle down and write it.” So when it comes to that writing stuff, yeah, that would be a difference. Sort of like dotting the I’s and crossing the T’s.

(Daisy, SL)

With proper record keeping and tracking of approaches and results as well as compliance and submission to government being so instrumental to the success of many conservation projects, women provide great benefit to conservation leadership with their greater conscientiousness and increased attention to record keeping, documentation, and compliance. As Desiree (LN) notes:

The outcomes differ because if minutes aren't taken correctly, you don't know what actions you've got going forward. So women taking minutes are much, much better. You know what's been said. Whereas I find that if men are taking minutes, they will usually want to be part of the decision and be a bigger part of the meeting. And it's less effective.

This judgement of conscientiousness generally being higher amongst women is supported by a number of studies (e.g. de Pillis et al., 2015; Donnellan and Lucas, 2008; Feingold, 1994; Kling, Noftle, and Robins, 2013; Schmitt et al., 2008; Srivastava et al., 2003; Vecchione, 2012). Overall then, women’s greater conscientiousness and more systematic and organized approaches may mean that increasing women in conservation leadership leads to changes in the organizational and structural nature of these organizations as well as changes in logistical processes and how environmental management projects are monitored. However, with the predominance of women in administration and “paperwork” roles as discussed in the previous chapter, it is important to remain cognizant so that women not be pigeonholed into these types of roles.

6.5 Conclusions

Since leadership of environmental organizations continues to be highly male-dominated (see Chapter Five), differences in the way male and female environmentalists think or operate is of great interest. If males favor different conservation views or methods compared to their female counterparts, this gender skew in leadership could further indicate an accompanying skew in environmental management ideology and practice. The fact that men are making the majority of decisions for environmental protection means that choices made for the environment are skewed toward men’s inclinations.
From these findings, male and female environmentalists are similar in their thinking on most fronts. However, there are a few key areas of difference that are of great interest due to their possible consequences. First of all, female environmentalists claim to consider how their daily actions affect the environment more than men and feel more strongly than men that natural resources should be protected, even if it means people have to make do with less. Still, women are not more likely than men to express a desire to legally regulate such behavior. Taken together, these results suggest that women may be more likely to think individuals should take on personal responsibility – though not be legally forced – to moderate the effect of their behavior on the planet. This may affect women’s preferred strategy for environmental management because women may be more likely to think about ways in which the individual can damage or improve the environment through their own personal action. With this ideology, women may be especially likely to put more investment into educating the public about ways that they can, as an individual, positively contribute to the environment (e.g. waste less, participate in a local conservation project, etc.). Indeed, this is in line with another survey finding which shows women in environmental organizations feel more strongly than men that additional time and money should be put into educating the public on conservation issues. However, the reason for this could also be related to women’s greater inclinations for working with people, which may dispose them toward increased inclusivity of others (e.g. the public) in order to increase engagement and assuage negative perceptions that might come about with strict environmental regulation. As a whole though, it does appear that female conservationists are more strongly in favor of increased public environmental education and perhaps more likely encourage individual, personal pro-environmental action.

Additionally, women feel more strongly than men that iwi involvement in conservation should be increased, and are especially likely compared to men to consider children or families when thinking about conservation. As a result, women’s increased involvement in conservation leadership might lead to increased engagement with iwi for conservation, and an increased emphasis on bringing children and families into conservation.

When it comes to regulating industry, women appear to feel more strongly that mining and logging / forestry practices should be more strictly regulated. Thus, if more women were in positions of leadership, perhaps increased pushes for regulation of such practices would be
more likely. The case of new leadership under Jacinda Ardern and Eugenie Sage advancing stricter anti-mining policies supports this idea. Similarly, additional protected land and marine reserves might be a result of increased female leadership, as female environmentalists felt more strongly than men that more land and marine areas need to be set aside for conservation purposes.

Moreover, general conservation ideology may change with increased female leadership, as the thoughts and underlying drivers behind engagement in conservation are somewhat different for male and female environmentalists. In particular, women were more likely to enter conservation as a result of an interest in animals or ecology while men are more likely to enter as a result of an interest in outdoor recreation. Women on average appear driven by a somewhat stronger desire to protect the environment for nature itself, and were more likely to cite ethics as a factor driving their involvement in conservation. Additionally, female environmentalists cite a desire to protect the environment in order to protect native fauna, all native living creatures, and whole ecosystems more strongly than men on average, with this gender difference being especially high in wanting to protect the environment in order to protect all the native living creatures within it. Likewise, women feel more strongly than men that animals have as much right to life as people. Taken together, these results suggest stronger biophilic ideologies amongst female environmentalists compared to males. This gender difference in biophilic tendency can affect environmental management. For example, women have a lower threshold for determining if something is worth protecting. In doing a cost-benefit analysis then, women might on average weight the benefit of protecting living beings higher than men, tilting the scales in such a way that women might consider a greater number of conservation efforts worthwhile compared to their male counterparts. Thus, female environmentalists might consider more creatures and systems as worthy of protection. This is in line with the survey data which shows that female environmentalists feel more strongly than males that there should be more land and marine areas set aside for conservation. It is also consistent with interview information from Connor (LN) where he notes a reluctance of women to “resign” certain species to extinction. Thus, overall women might have a somewhat wider and more inclusive protective view of conservation, wishing to extend efforts somewhat further afield than men.

When it comes to gender and its effects on ways of working within the environmental decision making space, women were found to view issues from a broader perspective, while
men were more likely to simplify issues into smaller and more manageable bits. These dissimilar ways of conceptualizing and managing the environment suggests men and women offer somewhat different perspectives that can be useful in a management context. While men appear more likely to suggest concrete and clearly achievable targets with discrete goals (think Predator Free 2050\(^{20}\)), women contribute to decision making robustness by contributing additional fields of view that look more broadly at the interconnections between issues and how these might be addressed holistically. By combining these two perspectives, conservationists can work toward addressing issues at a variety of synergistic levels, from small discrete goal-oriented projects to larger, more imprecise but also greatly important “big picture” conservation aims. Moreover, in doing conservation work, women prefer having more information for decision-making, tend to be more risk-averse, and exhibit lower confidence. This can lead to more cautious and thoughtful decision making, but a major drawback to this is increased time and hesitancy in that decision making. In contrast, men, through their different style of information processing, often make speedier decisions with greater confidence, though they are not as likely to consider the same depth and range of information to make decisions and are less likely to notice disconfirming hypotheses.

Additionally, female environmental leaders were found to be more conscientious and meticulous, as well as more likely to keep records or complete paperwork or compliance work. Thus, by having gender diversity in environmental decision making, there can be an improved balance between long, deep consideration of information to make decisions and timeliness of action, along with improved attention to detail and record keeping / paperwork formalities. The somewhat different ways that men and women work in environmental management, generally speaking, can moderate and synergize, creating far better management than having a predominance of any one gender in leadership. Including more women in leadership decision making seems likely to have the effect of producing more thoughtful and lengthy discussion, while men’s inclusion helpfully increases the timeliness of decisions and confidence to proceed with actions. Furthermore, a more equitable mixture of men and women in environmental decision making leadership helps to reflect the wider diversity of both men and women’s various views, thoughts, strategies, and approaches to conservation and environmental management.

\(^{20}\) An ambitious goal by Department of Conservation, Predator Free 2050 Ltd, and Predator Free NZ Trust to wholly eliminate the most damaging introduced animal pests by 2050
Overall, although male and female environmentalists are similar for a myriad of environmental values and ways of working, there appear to be a number of differences between men and women in these organizations that can translate into important effects on conservation practice. In particular, greater gender parity in leadership could lead to a greater emphasis on individual action and public education, increased iwi involvement and children / family in conservation, increased regulation of forestry / logging and mining industry, an increase on the focus of “life” in conservation, a lower threshold for “worthiness” of protection, increased allocation of protected land and marine areas, wider perspective taking, more holistic thinking, more cautious and considered decision making, improved record keeping, and an overall better representation of the variety of viewpoints that both men and women hold. Additionally, because nothing is to say these tendencies are innate or fixed gender characteristics, women’s representation may further influence men to think differently for the future as well.
Chapter Seven: Environmental Decision Making Group Dynamics

In addition to the role gender plays in environmental values, priorities, and strategies for management, the role of gender for environmental group decision making dynamics is equally worthy of discussion to advance understanding of why the “who” in conservation matters. Many important conservation decisions are made by groups who work together to make conservation decisions on behalf of their organization (e.g. setting out organizational goals, species recovery plans, etc.), thus discussing how gender factors into the group dynamics of this critical working space is the primary objective of this chapter. It will address research question three (RQ3) and its four component sub-questions:

RQ3: Does gender affect perceptions of competence and respect, as well as group dynamics, processes, and communications in environmental decision making bodies? If so, how?

1. Are male and female leaders and decision makers in the group perceived differently in terms of other’s views of their competence and the level of respect afforded them?
2. Does critical mass improve the effectiveness of women’s participation?
3. Does gender have an effect on the approach to leadership?
4. Do men and women place similar importance on communication, intragroup relationships, and interpersonal group dynamics?

This chapter draws upon information compiled from interviews with 32 (15 male, 17 female) leadership members of New Zealand conservation organizations who are each involved in at least one environmental decision making group (from the sample of five large national and seven small local organizations discussed previously). The chapter explores the various ways in which gender factors into and affects the conservation decision making space. The following section is a discussion on perceptions of competence and respect to frame an understanding of the way women are perceived and treated in these conservation organizations. Subsequent sections move onto discussions of gender differences in styles of leadership, engagement with others, and women’s impacts on group relations. These factors will each be discussed for their potential to affect decisions and decision making processes for conservation and environmental management.
7.1 Competence and Respect

Of major interest in exploring the way gender factors into any leadership context is an investigation of gendered perceptions of competence and respect. With men traditionally holding many positions of leadership across a variety of fields – conservation being no exception – women have often been assumed to be less competent and / or less worthy of respect. Indeed, women are regularly seen as less capable leaders than men, as established in section 5.6 “Gender Roles in Leadership”. Recall from section 5.6 that women are often rated lower than identical male counterparts in evaluations of their competency and hire-ability (Moss-Racusin et al., 2012). This is the case in high visibility positions as well: when a political candidate’s competence is in doubt, female candidates tend to be evaluated less favorably than male candidates (Ditonto, 2017). As discussed previously, women are often seen as less capable and qualified leaders (Eagly and Karau, 2002; Garcia-Retamero and López-Zafra, 2006; Johnson et al., 2008), and resultantly may not be afforded the same level of respect as men of similar standing. Research suggests that women and minorities are often given a special status that permits them to lower minimum standards (perhaps to encourage diversity), but conversely holds them to higher ability standards, thus forcing them to work harder in order to be perceived of as equally competent and worthy of respect (Biernat and Kobrynowicz, 1997). Unsurprisingly then, Wolfram, Mohr, and Schyns (2007) demonstrate that female leaders are in fact at risk for receiving less professional respect from their followers than males. When it comes to leadership then, attitudes and perceptions towards women’s competence and respectability are of major interest. Thus, this section begins by discussing relevant data from interviews to uncover current attitudes and perceptions toward women in New Zealand conservation.

Interestingly, in contrast to literature and previous research discussed in section 3.2.3. “State of Women’s Inclusion in Environmental Decision Making”, not one interviewee in this study felt they were currently in a work environment where they personally were less respected as a result of their gender (however some did note historic issues with the way women were respected and / or disparate standards for women more generally). This stands in distinction to previous research in Australian National Park and Wildlife Services which found that female members are relegated to lower status and given less influence and weight in decision making (Davidson and Black, 2001).
Chapter Seven: Environmental Decision Making Group Dynamics

The vast majority of interviewees (26/32, 81.25%) stated that they have not at any time, past nor present, encountered any issues with respect to gender in the conservation organizations they have been involved with. That is to say, no one felt as if they were currently the subject of any ongoing gender discrimination, and more than 80% said they have never seen any case where an individual was given less respect or viewed differently because of her (or his) gender at any point in their time at the organization. Robin (LN) says, “It's really interesting. I've never had a situation where I felt, ‘Oh my god, you're talking to me like that because I'm a woman.’” Heidi, who is involved in a number of small local organizations, says, “Everyone was equal there. And there was effort within the Constitution to make sure that everybody's voice was equal. Gender was not an issue.” Overall, when asked if there were any differences in the level of respect awarded to male and female members within their organization, the great majority of interviewees responded similarly to Natalie (LN), asserting, “Not in terms of respect. No, I don't think so. It's pretty equal.” Natasha, from a large national organization, is particularly emphatic, stating, “Like I really do feel that it's all equal and that's why I don't even really consider it [gender] as difference.”

A number of interviewees (6/32), however, did note historic issues in relation to how women were respected, though they asserted that these issues do not exist – in their experience – to present day. “Well the one woman that’s on that board now is the chair. She is very powerful. I think she gets a lot of respect. But the females that were on previously definitely didn't get as much respect I would say,” says Desiree (LN). Anthony (LN) also references some problems his organization had with how women were respected in the past that have similarly improved to now: “A couple of our previous managers had a problem with strong women. And so they really struggled, those women really struggled, to get respect because they were women.” Speaking from personal experience, Virginia (LN) says, “I would say five years ago—I mean that was when I just started, I felt that it was—I found it more difficult. I felt less respected. … Yeah, and today I would feel like it’s pretty much quite [an] even playing field.”

Although some issues with the way women were respected was felt in the past in some organizations, the sentiment in interviews was that these issues have improved greatly over time. These improvements in how women are respected have come alongside the overall improvements in women’s representation in leadership more generally discussed in section
5.6 “Organization History and Culture”, suggesting a general trend over recent time toward more inclusive, respectful, and equitable treatment of women within the New Zealand conservation arena. As Brandon (LN) was quoted saying previously, “But I think – and I might be naïve – but I think it's getting a hell of a lot better than it used to be.”

The vast majority of interviewees (27/32, 84.38%) insist that respect in their organization today is accorded based on competence, ability, skills, and / or knowledge (the five remaining interviewees made no reference either way; i.e. they did not say competence was not a factor for respect, but rather did not discuss it at all). “I think a lot of it is competency. If people are competent at what they're doing and, you know, out there, do it, and provide good results, then I think that probably there's respect. Definitely,” says Natasha (LN). “I think their professional background, I mean what they bring to the table: experience and professional background. I think that’s probably the main thing that sort of underpins your respect for one another,” says Ian (SL). “I would think in all the groups that I've been involved in, gender doesn't form part of any of the decision-making process. I guess because most of them come in as an expert in their own field to start with, we take that on board as opposed to what their gender is. So I don't think it affects decision-making,” says Jeff (SL).

It appears to be a commonly held idea that personal effectiveness and aptitude, rather than gender, is the major attribute for gaining respect in these conservation organizations. For example, Larry (LN) says, “Putting aside gender, depending on who you are, if you have technical knowledge, if you have degrees, or you have recognition as a technical expert, then in [our organization] that means a lot. And if you don’t have any of it, it means a lot.” Likewise, Peter (LN & SL) suggests, “People who have ideas, contribute, work hard, they are the ones who, of whatever gender, are the ones who get respect and will hopefully prosper.”

Comparatively few interviewees noted that respect is based on other characteristics: five people referenced force of character or a charismatic personality and three people claimed seniority played a role in gaining respect. By far then, respect was perceived to be chiefly influenced by individual aptitude more than anything else. This meritocracy was widely perceived as a means to be fair and impartial: a way for everyone to be afforded respect based, above all, on ability.
Nevertheless, a small number of interviewees did suggest that some much more subtle issues with the level of respect given to women are present in certain contexts. Even though instances of grossly obvious disrespect towards women based on gender appears to be largely absent, Connor, from a large national organization, asserts, “I think there's unconscious bias in there that, you know, we won't all be aware of. So that will be playing out.” Robin (LN) says:

I think there's huge differences in respect. …women have to work a lot harder to gain respect. They are potentially seen as – if they are the CE [chief executive] or the GM [general manager] – a figurehead and they are pushed very much into being the public face of the organization and, you know, good at doing that whereas the decision-making is often gently deferred towards the male side. So I do see that there is a perception there of a gender skew. Women are better this, and men are better at making the hard decisions.

Thus, although men and women alike may be judged and afforded respect based on their competency and other more concrete aptitudes, the way men and women are judged in these regards is not always equal, with women having to fight harder to prove their ability. Much in line with the findings of Biernat and Kobrynowicz (1997), it could be argued that in the situation Robin references, women are being held to lower minimum standards so they can be put into “figurehead” positions that reflect positively on the diversity of the organization, while simultaneously being judged more harshly and thus viewed as less suitable leaders, leading the “hard decisions” to be deferred to men. Such ideas have led to the typecasting of women in conservation into particular roles that are thought to fit more with women’s “inherent” skills (e.g. communication and education roles) (Davidson and Black, 2001).

There is a bit more complexity to the story though, as Robin (LN) goes on to say:

I think at some of the other levels there are women who are very highly respected. And here's the crunch of that: people say they're really highly respected in their area. So, you know, they are very firmly placed within a box. ‘Oh, they are the seabird specialist.’ But they are not actually given credit for also being particularly good administrators and decision-makers.

She contrasts this with the experience of men in the same context, who she views as being less restricted in the way they are viewed: “So they [men] might be a specialist in a certain area but will also be given credit for potentially being okay at organizing a meeting or event or something else [while women are not].” Brandon, from another large national
organization, echoes this sentiment, saying, “I think you'll find there's always instances where women haven't been given, you know, the full credit they deserve.” Thus, although the large majority of interviewees do not find any glaring issues with respect for women and assert that it is afforded based primarily on aptitude, it appears that there are some spaces and instances in which women’s competency is not evaluated by the same standards as men’s. As Rob (LN) said earlier in section 5.6.3 “Gender Role in Leadership”, there appears to be a higher expectation of competency from women while poor-performing men are sometimes tolerated in a way that does not hold for women.

Such insights from interviewees suggest that women then might, at least in some cases, be held to higher standards than men, a finding in accordance with a variety of literature that suggests men and women are perceived differently in ability and competency (e.g. Biernat and Kobrynowicz, 1997; Lyness and Heilman, 2006; Moss-Racusin et al., 2012). Thus, although outright issues in lack of respect for women do not appear to be an issue in this sample of New Zealand conservation organizations in present day, some more subtle issues with women being held to higher standards and / or judged more harshly may be lingering, though issues with respect appear to be improving with the passage of time much like the representation of women in leadership overall.

7.1.1 Respect for Women in Male-Heavy Environments

One area in which the respect for women appears to present a larger challenge is in male-heavy environments. Eleven interviewees noted that male-heavy environments were more likely to have an “old boys club”, and historical legacies present in some organizations caused issues for women in receiving equal treatment and respect. Connor says:

…I if the context is, you know, hugely hierarchical or in that middle space [of management] that I talked about before, you have a whole bunch of old-timers dealing with issues of the day, or in the fabric in the culture of the organization then it might be that blokes are authorized more to engage than women are.

Karen (LN), speaking from her own experience, recalls, when:

I came into an organization [it] was very male biased and had a hierarchy from the highest echelons down, of men, right to me. … And there was a low tolerance to me. And I didn’t want to call it a gender thing. But the feedback that I got from a middle
manager who became my friend indicated that it really was. It was really difficult for me to cope as this young, feisty, smart woman who wanted to change everything. Heidi, who has been and is still currently involved with a number of different small local environmental organizations, also recalls having had some difficulties in male-dominated groups in the past, saying:

And so we became trustees on the [one organization], and that's where I really met the whole gender thing. I think… They were all men. They regularly put me down, but they probably also put down the other bloke who was on there as well. There was just no allowance of an alternative view. They so believed they were right.

The presence of such “old boys clubs” in which groups of men formed common and hard-to-interrupt ties appears to have made it difficult for women entering into the organization to “break through” and gain respect. As Robin (LN) observes, “There isn't that willingness to include others [when there’s not as many women]. So there's a very much the... I'll use the phrase boys club, so ‘We're the boys club, so the decisions we make are final. We don't need to talk with anyone else.’”

Some of the men have recognized this themselves. As William (LN) says:

I think they [women] may feel, they may very well feel that it would be too hard to break through that old boys club. They might feel that. The women I know, I mean we do have a couple of females on the [decision making level of our organization], they've probably struggled.

Fortunately, incidences like these tended to be in reference to past times, and interviewees generally did not feel that such issues remained today. This is perhaps in part due to the fact that leadership has come to include more women and has also become more gender aware over time. Having more women in leadership breaks up the existence of these “boys clubs” and encourages greater participation and engagement. Additionally, male leaders within these organizations have become more attuned to and considerate of gender fairness issues, in some cases even making specific attempts to include or give consideration and respect to female colleagues. As William says, “I know the guys in that case actually, in that case of the female [leader] – the only one – put her in as acting chair for a year just to try to get her voice heard. So I saw those guys bend over backwards to try and resolve that situation [of feeling less included].”
In general, as women’s involvement becomes more commonplace, men’s opinions of them become less shaped by stereotypes, and men tend to become less exclusionary of women and more attentive to their issues (Dahlerup, 1988). Take for instance a case of floodplain management in Bangladesh where, as women became more involved in management groups and their contributions led to increased success, men became more willing to respect to their input (Sultana and Thompson, 2008). This in turn led to women showing increased interest in joining the groups, and men becoming even more accommodating of their involvement. Similarly, in Nepal’s Forestry Department increasing women’s involvement contributed to a decrease in gender bias of male members by increasing awareness and sensitivity to the hardships of rural women (Gurung, 2002). The occurrence of these sorts of positive feedback loops may have been involved in this New Zealand context, leading to changes in the prevailing social and cultural norms surrounding women, changing today to reflect the ideal that both men and women are equally valuable and essential contributors to executive bodies of environmental management.

In summary then, male-heavy environments seem to create an atmosphere in which respect for women can be a more common issue, although with time, as organizations have increased gender diversity in leadership and become more gender aware, these problems have realized clear improvements and do not appear to be an especially prevalent issue in New Zealand conservation organizations today.

### 7.1.2 Effect of Female Leaders and Gender Awareness of Leadership

A great deal of these changes in the levels of respect afforded to women seem to relate to changes in leadership. Leadership has a very important role to play in shaping the gender environment of an organization. Who holds positions of leadership affects an organization’s gender dynamics, as the proclivities and sensitivities of those in management shape the overall organizational working atmosphere through the core values that leadership chooses to emphasize. Accordingly, the gender and / or gender awareness of the leaders in these New Zealand environmental organizations has been mentioned by a number of interviewees (7/32) as a significant influencer on the levels respect and standing women are afforded. Gender diversity and awareness of leadership, then, is imperative to creating environments in which men and women are afforded representation and equal respect.
The presence of female leaders itself is important in creating an environment where women are given due respect and viewed more fairly and equitably. Having women in certain positions increases women’s representation more generally, as Sardelis and Drew (2016) find that the number of women speaking at conservation conference symposiums is positively related to the number of women organizing the symposium such that for each additional female organizer over the period from 1999 to 2015, there was an average 95% increase of female speakers in Society for Conservation Biology conferences and 70% for American Society of Ichthyologists and Herpetologists conferences. This increased attention to women’s inclusion and voice can go a long way in furthering respect for women and giving them a platform to be heard.

Ian, from a small local organization, asserts that there have never been issues with women not feeling empowered to participate in discussion and decision making in his organization and conjectures that the fact that their upper management position is held by a woman may contribute, suggesting that she may be more sensitive to certain cues or more willing to promote particular discussions than a male manager might be.

Additionally, female leaders can be important role models, inspiring other women to aspire to high level positions. Virginia (LN) sees female leadership as quite vital to the advancement and success of women, saying:

I think the fact that there aren’t women in positions of authority or management, it makes it difficult to see a pathway into that in terms of career progression because there hasn’t been anyone who’s done it. There hasn’t ever been a female manager of a [decision making body], or a chairwoman – I don’t think – of a [decision making body]. So I think that’s an issue. And thinking of future women coming into the role, I think that’s something really important that that changes.

Similarly, Connor (LN) says:

I think role models are really important. And that leader-led behavior. So I think, you know, where we do have women in senior roles, that is really powerful. … They see those symbols of ‘Well, she can do it, why can't I do it?’ You know? It probably creates more of an environment that encourages that contribution.

The inclusion of female leaders can be impactful for effective participation of women more generally as they encourage and inspire other women’s participation. Thus, female leaders
can serve as significant and empowering models for other women, and may encourage greater participation both in the organization generally as well as in roles of leadership.

Gender awareness and consideration of possible gender inequities is also important in shaping the gendered climate of an organization. Without consideration of the way men and women are commonly perceived and treated differently, it becomes difficult to recognize and address gender equality issues that arise. William (LN) does not believe gender is an issue in his organization but still recognizes the importance of gender awareness, saying, “I really don't think it [gender] does [matter in our organization], but I think you should be aware of it. Because the minute that you say gender doesn't matter, it's reinforcing [issues].” Gender awareness of leadership is important as it not only creates an environment where people are more cognizant of possible issues, but it can also lead to the creation of concrete ways to enhance gender equality. For example, perhaps because of this recognition, William has specific goals to include women in leadership: “Even as president of [my organization], well I make sure I've got a female vice president who are basically, you know, treated as a co-president, because I think that's an important leadership model.” Recognition of the potential for gender inequities to occur encourages an environment in which there is more respectful and equitable treatment of women, as cognizant leaders are more likely to emphasize the importance of diversity, inclusion, and respect.

Conversely, having leaders who are not gender aware can create problems. “I mean other people in the organization, there are certainly some gender issues that can be swept under the carpet, because when you have a male leadership team they tend to sweep that under the carpet,” Natalie (LN) claims. One organization in particular had a number of past issues with a lack of respect for women due to leadership being not only gender unaware, but in fact gender biased. As Anthony (LN) was quoted saying previously, “I mentioned that a couple of our previous managers had a problem with strong women. And so they really struggled, those women really struggled, to get respect because they were women.” With new, more gender aware leaders in place, this problem has improved drastically to present day, with the current management actively seeking to encourage greater gender diversity:

My sense is that [our new manager] is trying to move toward a more gender balance. So if he sees— at the moment I suspect if he sees two candidates of capability and one of them is female, he will probably pick a female to try and get some more balance on the leadership team, because it's been very unbalanced.
Thus, the gender awareness of leadership can go a long way in improving gender diversity. As Natalie (LN) asserts, “But certainly, I think when you've got a [leader] who is much more aware of gender bias and subconscious bias, unconscious bias, and I think there is the deliberate setting out to make our organization, yeah, much... have more women in management positions.”

All in all, the gender diversity and awareness of leadership is of critical importance to affecting overall organizational gender diversity and dynamics for respect. Having gender diverse and gender aware leadership appears to be quite important for improving women’s participation, representation, and esteem within these conservation organizations, while on the other hand lack of gender awareness and consideration can lead to higher incidences of gender issues and lack of female representation and engagement.

**7.1.3 Respect for Women in Dealings with Outside Organizations**

Another finding worthy of special discussion is the respect female environmentalists are accorded when working with outside organizations. Five interviewees noted that issues with levels of respect for women come about when dealing with outside organizations as part of environmental and conservation work. As Anthony, from a large national organization, observes:

> Gender... It's more of an issue when people within the [organization] are dealing with people outside of the [organization]. Because a lot of the groups that we deal with tend to be quite macho male. Whether it's Federated Farmers or the fishing industry or everything else. That's when the shit hits the fan. And they really do look down on women.

Peter, who is involved in a small local organization, also discussed the way working with outside organizations can present a challenging gender atmosphere:

> Because I mean we talk about when we are dealing with other organizations that do have a kind of a male feel, like some of our sponsors or the business people we deal with. And it's interesting looking at their structure and how they operate and you kind of feel: Shit, it feels a bit different.

He later continues by saying:

> I do think though when you go to an organization, like you go along to a city council hearing, and you'll often see it quite dominated by male counselors. I'm not sure what
the split is. But sometimes you can see a bit of a cultural thing. Male mayor, deputy mayor, probably the head of the finance committee, they are all men. So there's kind of probably a different flavor to that kind of interaction in that kind of organization, just looking at it from the outside.

These male-heavy outside environments, where women are not as prevalent in roles of leadership, can present challenges for women coming from conservation, where women do appear to enjoy higher representation and greater respect according to interviewees. Natalie (LN) has personal experience in dealing with such male-dominated councils:

I went to present a submission to Council the other day and there was one woman councilor and all the others are men. … It's the first time I've been in that situation for a long time. … I mean, men still dominate in decision-makings in conservation positions out in the community, but there's usually more women than that. But in this case it was just one woman. And you do kind of wonder because the men all bond with [each other], especially in those sorts of situations. But it's hard to know because I mean the men will bond with the farmers and most of them are farmers anyway, which is a very male, pretty much pretty male world. So there's potential for gender bias there because, yeah, I mean conservation is often dominated by women.

Dealing with these male-heavy outside organizations can then present a challenging issue, as Natalie brings up:

And we're trying to influence the primary sector which is dominated by men. So that's probably more of an interesting... To see whether our ability to be able to advocate and to influence and change male-dominated councils, and farmer-dominated councils, and development councils is in any way related to gender or is it more related to world belief systems? And I don't know the answer to that.

Thus, in order to gain respect and deal effectively with some of these more gendered outside environments, a few interviewees even claim that their organization specifically alters its behavior and strategy in response to the fact that female leaders are often given less respect in these outside contexts. For example, Jeff, from a small local organization, says:

I think there's a public perception out there that we understand and use when we are putting together a group to promote the work that we're doing. We look at who the audience is and what their gender values are and we will put the right gender out to those right audiences. Just to make sure it's more acceptable. Not that we think it's required but perception is probably more than what's actual reality. Or who is going to accept the idea or the concept from which particular gender.
Anne (LN) discusses some of the more concrete workings of a similar strategy used in her organization:

Well [Steve] is kind of our token man you see. He is valuable because he can have a whiskey with the other old white men who run things in New Zealand. And you know, I couldn't really do that. So I think there is that old men's club in New Zealand that head the companies, and head the politically influential organizations. And so I think it's far easier for [Steve] to resonate with that group. And we're quite intelligent about this. If we are going to someone to try to either get them to give us money or do something that we want them to do, we'll kind of suss that out. If we think they'd be more favorable to women, then I will front the meeting. And if we think, ‘Oh, no. They're old white men’ [Steve] needs to go along. Because I have been to some meetings— actually I remember going to one – and this is fairly unusual – but I've been to one where the guy refused to talk to me. You know. Never looked at me right through the whole thing. And then if I asked a question, he'd answer it to [Steve]. So I have struck that, but that's pretty infrequent I have to say. But certainly, people resonate. So I think old white men feel comfortable with old white men. And also if you're dealing with women, I think they tend to resonate with women. So I would then front that kind of meeting, because we think we get what we want more likely if a women fronts the [discussion]. So we just kind of play that by ear, that different people resonate with different people. So that's how we run it.

It is interesting to consider that although gender issues within these New Zealand environmental organizations themselves do not appear to be problematic today according to interviewees (with the exception of perhaps some differencing competency and evaluation standards), when women from these organizations must deal with outside agencies, this can present a context in which they may experience problems with respect and must be creative in the ways they deal with this.

7.1.4 Summary

In sum, according to interviewees, in the context of New Zealand conservation organizations today, it appears there are few blatant issues with respect for women in leadership. Nonetheless, in the past, there were some issues with less respect for women, especially in
male-dominant contexts. Furthermore some more subtle forms of gender discrimination by way of perceptions of lesser competency may still remain.

Increases in the number of female leaders and better gender awareness of leadership over time have been very helpful in improving gender issues, and the vast majority of interviewees agree that respect today is largely based on individual ability, with gender not presenting a noticeable factor in attaining respect except in very male-dominated contexts or in dealings with outside organizations. Based on this evidence, it does not appear that gender would influence the level of respect and consideration given to an individual’s contributions or ideas in a group decision making context, and it would appear that both men and women’s contributions to environmental decision making discussions are well respected. This is in contrast to the exclusion or tokenistic inclusion of women that has been observed in a number of environmental management contexts elsewhere, where women have been excluded from participation, or where their representation in decision making bodies has not translated to equal standing and respect for women’s views and ideas (e.g. Brandth and Haugen, 1998; Cornwall, 2003; Hondrade and Rodriguez, 1994, Mohaty, 2002, 2004).

7.2 Engagement with Others

Now that an understanding of some of the complexities surrounding gendered views of respect and competence of women in these New Zealand environmental organizations has been examined, discussion can move on to exploring some relevant axes of difference in how male and female decision makers operate in the decision making space of these organizations and what impacts this may have on environmental management in New Zealand overall.

7.2.1 Speaking and Critical Mass Effects

One topic that has been of interest in understanding women’s inclusion in group contexts is how men and women differ in their spoken contribution in groups, and also how critical mass effects (where a certain number or percentage of women are needed for effective female participation) might play a role in women’s engagement (Dahlerup, 1988; Oliver, 1980; Oliver and Marwell, 1988; Oliver, Marwell and Teixeira, 1985). In this sample of New Zealand conservation organizations, seven of the thirty-two interviewees observed that men tended to speak more often than women on average. This is perhaps due in part to differences in cautiousness and confidence such as those discussed in section 6.4.2 “Gender, Caution,
and Confidence”. As Robin (LN) says, “Men speak a lot more than women. I’ve noticed that. But it … depends which framework it’s in. Men will speak more in a general setting.”

Still, the majority of participants (19/32) did not see a noticeable gender difference in how often men or women spoke or participated in the group context. “These women are quite strong and want to speak up,” claims Brent (LN). “I think there are some very stroppy women in that group,” says Peter (LN & SL). Being in a goal-oriented environmental organization means that most members, male or female, feel strongly about actively contributing to improving conservation in New Zealand, and this can encourage lots of participation amongst all members, male and female alike.

When it comes to critical mass effects, six interviewees said they could imagine how such dynamics could be present, but only three claimed that they saw any evidence at all for the occurrence of critical mass effects, where women’s participation was less when there were fewer women, in their group personally. Even in these three mentions, these interviewees merely remarked that critical mass issues can sometimes be possible when women might feel intimidated in male-dominated contexts. As Virginia (LN) says, “So you can really, really be outnumbered, and that can be a little bit intimidating.” However such critical mass effects were not observed to be an obvious or common occurrence on the whole, and thus critical mass effects do not seem to play a noticeable role in environmental decision making in these New Zealand organizations. Women’s engagement and participation in conservation decision making seems to come about whether or not there are many other women around, and women generally feel empowered to engage in the conservation decision making space in New Zealand organizations. Most people also feel that participation and voice amongst male and female members is similar, though some (7) did say that men in their group tend to speak more.

### 7.2.2 Styles of Leadership

In section 2.4.1 “Leadership Style”, general differences in leadership styles of men and women were discussed, drawing from research across a variety of contexts. These studies suggest that women generally use transformational (participatory) styles of leadership more than men, while men use transactional and laissez-faire styles of leadership more than women (e.g. Aldoory and Toth, 2004; Appelbaum et al., 2003; Carless, 1998; Cebuc and Potecea,
That is, when it comes to leadership, women were found to be particularly inclined toward participatory styles while men were more likely than women to use more authoritative or “hands-off” leadership methods.

Interestingly, within the New Zealand environmental decision making context, the vast majority of both male and female interviewees claim that they personally prefer to employ consensus-based, participatory approaches to leadership (28/32 or 87.5% total; 12/15 or 80% of men, 16/17 or 94.1% of women). In these organizations then, both men and women alike strongly prefer to employ transformational approaches. Though still in line with previous research, there does appear to be a higher proportion of women who favor such participatory approaches to leadership (94.1% versus 80%). As Brent (LN) nicely summarizes, “Everybody is participatory. Yeah, yeah. But just [the women are] probably a bit more focused on how we take the group with us than some of the male members. Yeah. But it's not universal.”

Of the six participants who expressed sentiments more in line with authoritative styles of leadership, five (5/6 or 83.3%) were male. For example, Brent (LN) asserts, “Consensus will never get you there. You've always got to have a team leader. You've got to have a person that's got single-point accountability.” Even so, he does still recognize the importance of participation, adding, “But they've got to use the team to get the right decision.” Larry (LN) is similar, saying, “I’m given authorities and I hold capabilities, and I use those to make decisions. But I am required to involve team leaders.” Virginia (LN) shares her experience of working with some male leaders who are less collaborative, saying:

Well I guess I've seen some of the management from the men I work with as being more of a, ‘I'm in charge. My job is to make sure you're not stepping out of line.' You know? So kind of a top-down approach rather than a bottom-up maybe. So I would like to think myself, if I was in that role that I would be really... I would see my job as supporting, helping people to do their job, facilitating, addressing issues as needed, but really not so much as it being about myself.

Peter (LN & SL) shares a similar experience, saying, “A classic case is one of the old [leaders], who had his strengths and weaknesses, and he was very much a ‘you could pitch something and then it was yes or no’. And then if it was a no, don't bring it back. You give up.” He contrasts this to the leadership strategies of the women he has worked with, asserting...
that they are generally more participatory and less likely to use authoritarian approaches, adding, “So people have the opportunity to contribute [with female leaders more], to feel as though their ideas could be recognized and, you know, could be taken up. You can put a case; you're not shut down.” Even Brent (LN), who prefers somewhat more authoritative styles for leadership, recognizes the difference between the men and women he works with, saying, “[Women tend to be] a bit more inclusive than ‘I know the answer’.”

Of relevance to this discussion is the fact that most of those who were more approving of these somewhat less participatory or more authoritative leadership styles also tended to be from large national organizations (5/6, 83.3%) rather than small local ones. This highlights the interplay between not only gender but also the organization itself in shaping the working environment that is created (and in appealing to people who hold certain values). This relationship between organization size and approach to leadership was specifically referenced by a few interviewees, as both men and women from one organization in particular noted that while participatory, consensus-based decision making works well for smaller groups and organizations, it tends to be less effective in larger ones. Peter (LN & SL) says:

It's small enough that you can get around [using participatory approaches] there. It's not like a Pew21 where it's like the American government trying to deal with the American government. They are so big and they have so many different empires and all that kind of stuff and projects all around the world. Yeah, we can talk to each other.

Heidi (SL) recalls that as her organization grew, they found that highly participatory decision making with no clear leader became a less viable option. Miriam (SL), from the same group, claims that the restructuring of the organization from a more egalitarian to a more hierarchical structure meant there is now less shared decision making, but improved organizational operations, asserting that since the restructuring the organization functions more effectively: “I think now it works much better in that way”.

That larger organizations are more likely to engage with more authoritative methods is not especially surprising, given that group regulation based more on intimate acquaintance and less on formal means presents challenges as group size increases. Research on the maximum group size that can be maintained through more informal and personal means has been

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21 Pew Research Center is a nonpartisan American fact tank
calculated to top out at around 150 individuals (e.g. Dunbar and Shultz, 2007; Hill and Dunbar, 2003). Overall though, it seems that most men and women in these New Zealand conservation organizations similarly prefer participatory, transformative leadership, and the few who are somewhat less participatory do tend to be male and tend to be working with larger organizations where heavily participatory methods are perhaps less feasible.

The somewhat greater inclination of women to employ participatory, transformational styles of leadership has been hypothesized to be in part a result of gender norms, where women are expected to be more communal and less assertive, agentic, or directive, and are punished for acting outside these norms (e.g. Eagly and Karau, 2002). As discussed in Chapter Five, the commonly held qualities that women and leaders are expected to hold are in conflict, as women are expected to be kind and nurturing while leaders are expected to be assertive and strong (see section 5.6.3 “Gender Roles in Leadership”). Studies demonstrate the presence of a hiring bias discrimination against agentic females that exists because agentic (versus communal) women are “perceived as insufficiently nice” (Rudman and Glick, 2012, p.743). This “backlash”, as it is termed, appears to come from the fact that more agentic, assertive women violate the gender hierarchy (Rudman et al., 2012). Prejudice against agentic female leaders is mediated by perceived violation of the status quo, threats to the system, and dominance penalty. In fact, Heilman and Okimoto (2007) find that less favorable ratings of successful female managers in terms of likability, interpersonal hostility, and boss desirability are mitigated when there is an indication that they are communal, providing support for the idea that women are expected to operate under more inclusive and “gender approved” ways as leaders.

In the conservation context then, the percentage of women who prefer participatory leadership methods is high (94.1%), which may be at least in part due to the pressure they face to use more participatory, communal methods, lest they be punished for acting outside gender norms. This penalty can have very real implications. Johnson et al. (2008) found that for female leaders to be perceived as effective, they must demonstrate both sensitivity and strength while male leaders need only demonstrate strength. Women are expected to blend both communal and agentic aspects of leadership (Eagly and Carli, 2007), and are expected to give extra focus (compared to males) to “individualized consideration” of employees in order to advance to management (Vinkenburg et al., 2010). Thus, women may perhaps be more
likely than men to engage in participatory, transformational leadership in part because of the societal expectations that pressure them into doing so.

Nevertheless, women and men alike in these conservation organizations both appear to prefer participatory, transformational approaches to leadership. Sentiments from men and women across these environmental organizations were overall quite similar in nature and content.

Ian, a male from a small local organization, says:

Well I chair the board, so my role is just a facilitator really. … I’ve always been more of a team player rather than ‘follow me’. That's just my style. So what I would tend to do was try and encourage. … And sort of more of a consensus decision-making. I can’t remember when we had a vote that wasn’t unanimous. But you tend to discuss things to a point where the people that perhaps have some doubt – I might be one – you sort of think, ‘Hmm, yeah. I sort of can hear what that person is saying.’ And you sort of fall into a bit of a general agreement sort of thing.

Anthony (LN) views it similarly, saying, “I'm a president, but I see myself as chairperson. I'm there to facilitate. I'm there to get everyone involved. I see myself as a facilitator to do that.”

These views are quite similar to those of female colleagues in these upper level decision making groups. Brittany (LN) for instance, says:

I'm not someone who thinks they have all the answers. So I'd rather, you know, a topic comes up and discuss it between the whole lot of us and use the group sort of knowledge to work out what we're going to do. And there's some people that have been in the committee for ages or have been in [the organization] and so they have more of an idea of how [the organization] does things, and other people are newer but they still have ideas but it's more. So it's a collaborative sort of thing.

Robin (LN), emphasizes:

I think being a leader for me is about supporting others. It's about helping others to do their job well. That's how I see leadership or management say. … I would see my job as supporting, helping people to do their job, facilitating, addressing issues as needed, but really not so much as it being about myself.

Similarly, Miriam (SL) says:

I am there to facilitate. I am not there to dictate. And I’d like to think that that person has implemented a particular a decision having really considered what the options are.
And therefore at the end of the day, I would support them because they will have sold that to me. Even if my first reaction is I don’t agree with it.

Overall, the sentiments of men and women across these New Zealand environmental organizations were strikingly similar in both tone and approach, with men and women alike preferring to employ participatory, transformational sorts of leadership approaches.

In comparison to men from studies on leadership styles in other fields of work (e.g. Aldoory and Toth, 2004; Appelbaum et al., 2003; Carless, 1998; Cebuc and Poteceoa, 2009; Eagly et al., 2003; Rosener, 2011; Trinidad and Normore, 2005), it would appear then that men in New Zealand conservation organizations are highly participatory and transformational in their leadership style, with 80% from this sample favoring such an approach. Delving into possible explanations as to why this may be, two likely explanations are self-selection and the influence of the organization itself. First, self-selection is where people with certain characteristics are drawn to some particular kind of work (e.g. certain work values affecting job choice as discussed in Chapter Two, dominant people in leadership roles as discussed in Chapter Five, nurturing people in care / teaching jobs, etc.). In this context, one explanation for the reason that men engage in more participatory and transformative leadership in these New Zealand conservation agencies relative to other jobs is that the type of men who are drawn to this field represent a select subset of men who are more embracing of participatory leadership. As Rob (LN) has been quoted saying before in the discussion on personal values: A lot of men that are particularly interested in a dominating role are unlikely or less likely to work for an NGO. You know? They may be more likely to work for a company. If someone fits that, has those traditional gender expectations of their life, then they are more likely to want to work for a commercial company or the civil service or something like that and get the status and the income and all of the things that goes with that. So maybe to some degree some of the men that get drawn to NGOs are different.

“I think those involved in conservation are probably not a representative slice of both men or women,” Anthony (LN) says. Women also self-select into organizations and positions. William (LN) says that in a recent application for a leadership position in his organization, of the 30 applicants, not one female had applied for the position, perhaps due to such self-sorting (though other factors likely also contribute). Daisy (SL) discusses her process for deciding where to work, saying, “I wouldn't have gone on a group where I felt there was a really bad male-female dynamic going on. Do you know what I mean? So I went and sat in
on two or three of these committee meetings and went and I knew a couple of the people when I went on it." Thus, one reason for the finding that men and women in these New Zealand environmental organizations are both emphatic about transformational leadership could be due to self-selection, in which men and women with particular participatory inclinations self-select into vocations like conservation. Individuals with more authoritative tendencies may be less attracted to conservation or similar government or NGO work and more attracted to other fields. Such self-selection was also discussed in Chapter Five to help to explain, in part, why there are more women in leadership in small local organizations compared to large national ones.

Likewise, just as people are drawn to certain roles, organizations and positions themselves also shape the people within them. In the New Zealand conservation context, participatory leadership is valued, and people within these organizations are encouraged to be engaging and transformational leaders. When asked about what kinds of leaders get the most respect from colleagues, Connor (LN) responded, “People who are participatory, people who are collaborative, you know, people who have a history of success and making the right decisions or successful decisions, getting results,” highlighting the notion that participatory approaches are favored within these conservation spaces. People in New Zealand conservation organizations are encouraged to employ participatory transformational leadership approaches. Further underlining how individuals with certain qualities are not only drawn to particular areas but also in turn shaped by them, Connor goes on to say:

I think it depends a lot on the context. Yeah. So I think, you know, I've been in senior ministers meetings where there's no difference [between men and women’s approaches] and it's a very kind of hierarchical, highly politicized, power driven environment and it doesn't seem to matter what gender you are in there. You're that sort of animal if you're there. Yeah. So depends a lot on the context I think. If you're following a truly kind of human centered design approach and, you know, and a genuine co-creation, co-design, co-develop, co-deliver kind of approach then I would like to think, I mean I think I have observed little difference [between men and women], again, in the context [of environmental management].

In other words, according to Connor, regardless of gender, people in particular environments operate in ways that are amenable to that environment. People might select themselves into those environments, but then in turn the organization and position itself also shapes how
people function. Adding another layer, in their hiring process, organizations themselves also select for people who will operate in particular favored ways. As Daisy (SL) says:

Some of the guys are equally concerned over group dynamics and that everybody is getting on with each other. But you see trustees have been picked, if you know what I mean, so you’re looking at a biased group anyway because the trustees that are there then get one that fits in.

Accordingly, the fact that men and women across these New Zealand conservation agencies both strongly emphasize participatory approaches to leadership is likely to be a result of the types of people that conservation attracts and also vice versa, the way the organizations and positions themselves encourage a certain style of leadership.

In summary, although the vast majority of both men and women in these New Zealand conservation organizations favor participatory, transformational leadership approaches, an even higher proportion of women favor them (94.1% versus 80%), perhaps in part due to gender norms for women to be more communal. In contrast, those who embrace more authoritarian forms of leadership do tend to be male (5/6, 83.3%), but also tend to be from large national organizations (5/6, 83.3%), where authoritative leadership may be more amenable.

The reasons for these findings may be explained by self-selection of people with certain tendencies into conservation, and also by the organization and positions themselves shaping and encouraging certain styles of operating and leading. Drawing from these findings, because many of these organizations appear to operate in a largely participatory manner already, increased female leadership may not bring about huge change, though it could still encourage further use of more transformational styles of leadership. In large national organizations, where women’s representation is lower (and thus has more room to increase) and where authoritative forms of leadership are more common (and thus leaves more room for change), women’s increased participation in leadership has room to bring about larger changes in the way these organizations are run. This could provide a myriad of concrete benefits, as a number of studies have demonstrated measured improvements in performance, empowerment, and other measures resulting from the use these transformational, participatory styles of leadership (e.g. Avolio, 2004; Barling, Weber, and Kelloway, 1996; Bass et al., 2003; Dvir et al., 2002; Jung, Chow, and Wu, 2003). Indeed, over the years, as these larger organizations have come to slowly include more women in positions of
leadership, they have also begun to recognize more of the importance of using participatory, transformational approaches, both within the organization and in dealing with the public. Whether these two occurrences are merely coincidental or whether there is some causal relationship is unclear, however it is an interesting relationship to consider.

7.2.3 Inclusion and Openness

Similar to preferences for participatory approaches to leadership is a gender difference in inclusivity and openness in the group decision making context, with 22 interviewees (68.75%) noting that female colleagues are on average more inclusive and open. A common sentiment is that the women in these organizations are generally particularly attentive to ensuring others in their decision making groups have the chance to be heard, are more open to considering the ideas of others, and are less forceful with their own personal opinions and viewpoints.

A number of interviewees state that female leaders in their environmental decision making groups are particularly concerned with ensuring that every member of the group is given the chance to voice opinions and are more likely to assign greater weight to considering others’ viewpoints. As Candace (LN) says, “I think that most women … will want to make sure that everyone's on board, and that all the disagreements have been heard and explored. Okay. And to get a sound decision that lasts longer and isn’t pushed through.” Rupert (SL) feels that in his experience, female leaders especially have a way of encouraging open exchange and contribution, saying, “But I guess with relationships, some of the women can be quite good at making everyone feel as equal as each other. And again, not that the men don't, but the women probably just do a better job of it.” He goes on to later add, “I guess again the only difference may be that the females may be a bit more open to listen in the first place. And again, not that the males don't listen. It may just seem that the way they [women] communicate seems to facilitate that a bit more openly.”

A majority of interviewees (20/32; 62.5%) also noted the tendency of male colleagues to be a bit more forceful or unyielding in their opinions, sometimes making it difficult for everyone’s viewpoint to be given equal consideration. “So some male members on the board might be quite forceful at presenting their views,” says Rob (LN). “I suppose men tend to be more – and I'm not just talking about our group but I'm talking about the wider organization I guess –
men are more pushy at getting their views on the table. And demand a bit more time, speaking time, and airtime,” adds Natalie (LN). As discussed in section 6.4.2 “Gender, Caution, and Confidence”, males are also generally more confident and assured of the “correctness” of their viewpoints, which can further engender an increased tendency to be unyielding to the opinions of others. This has important consequences in group decision making contexts: a decision making body that includes a greater proportion of women will then, on average, put more emphasis on engaging with and considering the viewpoints of all participants. “So the women are very much more about finding out what the viewpoints were and why those people had the viewpoints. Whereas other [male] managers are just ‘No, you're wrong,’” says Desiree (LN). Thus, greater inclusion of women leads to greater inclusion of all through an increase in the desire to hear and engage with the views of others. Scott (LN) says:

“Well if you think of the [decision makers] we do have, or the [leaders] we have, you have some people who are perhaps less interested in communicating and more determined about their own opinions and others who are much more consensus seeking. And so I don't think that the women we'd have on the [management body] have been outside that range. Where would they fit? I guess they do tend to be more considered than the average [executive].

Indeed, women on average appear to be more concerned with issues of fairness and equity. A meta-analysis of dictator games\footnote{Experimental instrument “game” where a “dictator” unilaterally determines how to split an endowment (such as a cash prize) between themselves and a second player} finds that, controlling for confounding factors, women tend to be more averse to inequality than men (Engel, 2011). Indeed, when it comes to the sharing of payments for ecosystem services in a shared-commons resource, conservation groups with more women shared more equally amongst members (Cook, Grillos, and Andersson, 2019). Given this aversion to inequality and greater attention to fairness, it seems reasonable that women might put more emphasis on inclusion and openness, seeking to ensure that everyone is treated fairly, respectfully, and with equal consideration.

This can be argued to produce different methods of management, with men using their positions of power to advance their own ideas somewhat more, while women may be more inclusive of the ideas of others. In fact, as discussed previously, in positions of power, studies find that men are more likely to make use of the formal authority and power given to them by...
their position (Cebuc and Potecea, 2009; Rosener, 2011), while women are more likely to attribute their power to charisma, interpersonal skills, hard work, or personal contacts (Rosener, 2011). Heidi (SL) recalls an experience of this kind explicitly:

> And they [the men on the committee] would use the formality of process as well to put you down. You know, they would say, “Oh, well let’s take a vote on that. Right. No. Your opinion is not part of that.” So it was totally different from [the less male-heavy organizations] which was where everybody participated, and you argued it through until you came to an agreement that you could all be comfortable with.

Elabass and Rahman (2018) find much the same: in the formal governmental environmental management bodies they studied, where men dominate senior positions the institution applies a more top-down approach to policy formulation. Thus women’s greater involvement in conservation leadership can help shift away from heavy top-down “I know best” approaches and toward increased engagement with various ideas and perspectives to address environmental issues. Women’s increased emphasis on listening to the views of others encourages greater exchange and consideration of additional viewpoints, allowing reflection and critical analysis of fresh, novel, and varied ideas that otherwise may not have been given fair consideration.

Though this tendency for intractability may be more common in men, it is a quality of individual personality, which can be biological or socialized, rather than merely gender. As Carrie (LN) says:

> So if you are a person where you are firm in your belief around those sorts of things, you can be a more combative person. I think that's an individual personality type. … I tend to see that [as] being more commonly a male-dominant type of characteristic just in my sort of personal experience. But I think it very much depends on the individuals. I mean around that team we've also got males who would be the most… Like probably the person on that team who is the best person at taking everybody else's views and really listening hard and trying to work to the team and so on is one of the male members.

Thus, it is important to recognize that although these patterns have been oft referenced by a number of interviewees as well as outside studies, these generalizations of course do not hold to every case and instead merely mark an average pattern. Nonetheless, they are consistent with personality data which finds women to be more agreeable, on average, than men.
This generalized difference in how male and female decision makers operate in these environmental groups can be very important in its effects on how these organizations function. As time has progressed, changes in the ideology concerning engagement with others have occurred in a number of these environmental organizations, perhaps to some degree owing to the increased inclusion of women in leadership, as suggested previously. Greater self-assuredness and rigidity in viewpoints can create an environment in which engaging with others and hearing alternative perspectives is less of a priority, which can have significant effects on the way a group functions and makes decisions. “Some of the old-school males tend to be more confrontational. And so we achieved less because of that. People spend a lot of energy on fighting each other and not looking beyond personality clashes and the outcomes we're trying to achieve,” says Anthony (LN). Thus, the inclusion of women in leadership of these conservation organizations can have important effects on encouraging the consideration and discussion of alternate viewpoints, as well as perhaps creating better group relations. As discussed in section 6.4.2 “Gender, Caution, and Confidence”, this emphasis on considering different viewpoints and various sorts of information often leads to lengthier deliberations, but it can also lead to more robust and considered decisions and perhaps also better group relationships in which members feel more respected and valued for their contributions. Heidi (SL) talks about the importance of having a facilitator who is attentive to such issues, asserting:

That is your facilitator who recognizes that some people haven't perhaps had the chance to say something. And in both of these groups [that I am a part of], there’s a strong feeling that everybody should have a chance to have input on something before it ever goes to the vote. If it’s going to go to the vote. And often things won’t go to the vote; they’re just agreed on within the group after the discussion. And if you’ve got a good facilitator, they recognize that you just have to let that discussion keep on going. You sometimes get a facilitator who gets irritated by the fact that there’s discussion and it takes a while. And they want to just get a decision. You know, “Can we put this to the vote?” Well no, let’s talk about it a bit more.

Drawing on this wealth of interview data, it seems that greater female involvement in the decision making space can be helpful in encouraging a more open exchange of opinions and information to be drawn upon to help inform decision making on a range of environmental...
issues. Still, as discussed in section 6.4.2 “Gender, Caution, and Confidence”, a gender balance rather than a female dominated leadership is perhaps favorable, as the presence of male leaders helps to moderate the lengthy deliberations that may come about with overemphasis on hearing others and discussing issues in huge detail.

7.2.4 Communication

Much related to the inclusiveness and openness of male and female leaders in these environmental organizations is the degree of communication that these leaders engage in. A large proportion of interviewees (22/32; 68.75%) made mention of greater communication coming from female leaders. “I think women are probably better at communicating and allowing others to communicate and being a bit more neutral,” Rupert (SL) says. Desiree similarly (LN) observes:

So if I look at our managers, our female managers on my level are very inclusive definitely in their decision-making. The male managers are not and they communicate a whole lot less. So there's less team meetings, there's less emails, there's less across the board. Less showing up to other group's meetings, just less.

Similarly, Daisy (SL) says:

I think the women on the group more would communicate by email more. You know, like letting other people know what's happening more. Like just keeping people up with what might’ve happened between meetings. I think the women probably tend to email a bit more about that.

Other studies on environmental management also support this greater level of engagement and communication from female members: women’s participation in their management groups appears to be much higher than men’s participation in similar conservation groups (Das, 2011), and an increase of women in the executive committees appears to lead to increases in the number of meetings around certain topics (Takayama, Horibe, and Nakatani, 2018). Additionally, women’s conservation groups convene more often than men’s (one to two times a week versus 83.3% of men’s groups and 71.9% of mixed groups that meet at most twice a month) (Westermann et al., 2005).

This difference is important, as communication is a key aspect of what enables individuals to function as part of a larger organizational whole. Individuals must work together collectively to achieve goals, with communication being crucial to the dissemination of these goals, the
methods that will be used to achieve them, and other specifics for working processes that individuals must be aware of in order to work effectively. It is also important for keeping others in the organization apprised of progress and shortcomings, a process that is vital for critical evaluation and improvement of methods. As Natalie (LN) says:

The importance of communication and keeping people in the loop and reporting back and being accountable is much more… the women are much stronger on that. The men tend to think they can just go off and do what they like and they don't necessarily come back and report back to the group unless we put pressure on them. Not all of the men. But some of them. And yeah. So they tend to be not so… yeah, not such good team players I think. I think women often are better team players than men.

Tom (SL) notes his own personal struggle with keeping others involved and in the loop and how his (female) colleague helps him to be more communicative, saying:

I know my secretary [on the board], [Miriam], she's better at reminding me that, you know, we've got to communicate with our staff and things like that. … But she is very good at what she does, very good at writing reports and very good at recording everything and having records. And I'm more the other way. I'm just get on with the job and don't write everything down.

In line with these findings, a recent study of conservation groups discovered that women are responsible for a much larger share of the communication that happens in these groups (Cook, Grillos, and Andersson, 2019). In fisheries governance in Canada, not unlike what may be occurring in many of these New Zealand conservation organizations, it was discovered that indigenous women play an important role in facilitating the flow of information in the conservation groups of which they are a part (Harper et al., 2018). Thus, women appear to play instrumental communication roles in conservation decision making groups, facilitating communication in the group itself and also facilitating the transmission of information.

For an organization to be effective, its stakeholders must receive clear and cogent communication concerning what has already been completed, what remains to be done, and what their role is in the process. Failure to communicate can lead to difficulty in achieving goals, due to duplicates and / or gaps in work duties, lack of feedback for improvement, lack of clear direction, etc. It can also have the negative consequence of creating a less welcoming and cohesive work environment in which colleagues could feel connected and part of a greater whole. Indeed, inclusive, communicative transformational leadership approaches
result in greater job satisfaction through creating feelings of empowerment (Choi et al., 2016). Conversely, insufficient communication can be detrimental to work relationships. As Rob (LN) recalls:

I remember it took me a few months to build – when I got on the role of [removed for anonymity] – it took me a few months for her [one of my colleagues] to have confidence in me because she was so used to these Wellington-based males going off and having all of these meetings, including meetings with people who were very relevant to her work area, and not communicating and not seeking her advice, sometimes saying the wrong things or doing the wrong things or even agreeing to things that was not really their place to agree to, so that she would then discover these situations down the track. And I imagine it makes it very difficult to do your job when, you know, you sort of go off to meet someone and you discover that there's already some agreement that you know nothing about. And particularly if that agreement undermines what you're trying to achieve, it's very difficult.

Another problem with this lack of communication is the lack of consultation more generally. Much like the lesser proclivity to engage with the viewpoints of others, there were references to a few issues with male leaders taking action without appropriate consultation. In his organization, Rob (LN) says, “The senior [title removed for anonymity] is male and gets pulled into things and doesn't always communicate. And a lot of it is around communication and people not communicating what is going on and not involving people in decision-making.” Heidi (SL) shares her personal experience as well, saying, “I worked on another project with a couple of those [male] people just recently and once again I found that they make decisions without consulting. And that they would just go off and do their own thing. They were just so sure they were right. And I just found that really annoying,” adding later, “That's what I feel with women: that they listen more and they're willing to allow other people to join in on their schemes.” Desiree (LN) too notes that in her organization, acknowledgement of the importance of discussion and inclusion as well as the effort to consult and engage with others is “much stronger from the female members of the team,” later adding, “Consultation is quite important in this sort of forum and both our other managers, the male managers, have both run into trouble with not doing enough consultation when making decisions.”
With greater female involvement in leadership then, a stronger ethos of engagement and consultation could be a very important outcome. This is especially important in a field like conservation, where communication and inclusion of other organizations and the public is imperative for getting buy-in. Indeed, increased female representation in leadership may lead to improved engagement with outside organizations and the wider community as well, as Desiree (LN) and Robin (LN) contend that female managers have a greater tendency to try to connect with other environmental organizations to share information and / or work together, and a greater tendency for communication, collaboration, and engagement with the public.

It is possible that the existence of these sorts of patterns are a result of women’s greater agreeableness, contentiousness, extraversion, and tender-mindedness (see section 2.3.4 “Personality”). That is, greater emphasis on inclusion, communication, and openness might be expected from people who are more agreeable, conscientious, extraverted, and tender-minded, and because women generally average higher than men on these personality traits, this may be why women are especially likely to bring these sorts of elements to the decision making space. Interviewees presented their own ideas for how increased female representation in leadership might affect interpersonal processes. “[If there were more women in leadership] the level of cooperation between branches might change. The communication between the board and the membership might change. The communication within branch committees may change,” conjectures Rob (LN). “I think if there were more women involved in that [leadership], there would a lot more interaction and collaboration with other organizations,” says Robin (LN). Within the organizations, not only group dynamics but also perspectives and approaches to conservation issues themselves may be influenced:

I think that the communication thing, thinking about, just even talking to other people, that often reveals a lot of different pathways or different things that you might want to consider or include. And maybe that is a limitation through not having those same levels of communication [when you have a male-dominated leadership], that you maybe don’t necessarily think as broadly as maybe you should or you could. … So you maybe don't consider the whole picture or the whole list of options, suite of options that you could do [if women were well represented in leadership].” (Desiree, LN)

Speaking about how her own organization has changed with the inclusion of more women in leadership, Natalie (LN) says, “I think people are just more communicative and more open [now that there are more women in leadership].” Thus increasing female involvement in
leadership can be argued to improve inclusion, openness to differing approaches and viewpoints, communication, consultation, and wider engagement and collaboration with other organizations and the community. Increasing women’s participation in leadership in environmental organizations can perhaps alleviate some of these issues around lack of consultation, lack of communication and engagement with colleagues, and the giving of less weight to the opinions of others. It could also go further afield and increase consultation and communication with the public more generally on environmental and conservation issues and initiatives.

7.3 Group Relations

Women’s greater involvement in the environmental decision making space also appears to have important impacts on groups relations, with half of the interviewees (16/32) making reference to the role women’s involvement in these leadership teams plays in producing an enhanced group dynamic. In particular, women’s increased involvement seems to not only increase openness to other’s ideas, but also produces a more emotionally supportive and prosocial work environment:

I know, for me, I find the women more personally supportive. The men are very active in the, or become very active in helping with sponsorship, recruitment, and things like that. And they are really great. But on a personal level, it’s the women who will say, “How are you? How’s it going?” (Christine, SL)

I think they're [women] much more in tune with people's emotional needs on their teams. So they're definitely able to look across their team and go, “Well that person's really overwhelmed at the moment and I'm not going to put any more jobs on top of them”, whereas that's perhaps not quite as developed in some of the other areas of my team. Or even the organization. (Desiree, LN)

This can create substantial changes in work atmosphere in that improves mental health. As Karen (LN) recollects, “I’m recalling a story that I’ve heard recently from a guy who I work with now. And he said – he gets depression – and he was saying that he prefers to work with women. And it made me think.” Asking what the man cited as a reason for this, Karen responded:

It implied from the conversation that it was because it was just easier to acknowledge ups and downs in your mood or to have them accepted [by women]. But that was me
getting that from other things he said, the context around this comment. So I thought it was really interesting because I wouldn’t say that I have depression, but I certainly – my moods go up and down – and I certainly feel more comfortable when I am with women.

Similarly, Carrie (LN) says, “But when I do think about other groups and ways of operating, you know, certainly I can think of women who are very caring and bring that across and ‘Well how did that make you feel?’ and ‘Are you... You put that out there…’, you know, who will bring forth those sorts of points.” Thus, women’s increased representation in leadership, because of their greater average attention and attunement to the mental wellbeing of others, appears to provide a huge support benefit to individuals throughout the organization.

Friendships and social ties are associated with mental wellbeing (Hintikka et al., 2000; Kawachi and Berkman, 2001), and can ameliorate the incidence of mental health struggles and also increase general feelings of connection and comfort. “But I guess with relationships, some of the women can be quite good at making everyone feel as equal as each other. And again, not that the men don't, but the women probably just do a better job of it,” says Rupert (SL). These kinds of positive social support relations at work are important for the benefits they provide, as they are negatively related to workaholism and burnout (Schaufeli, Taris, and Van Rhenen, 2008), and positively associated with engagement (May, Gilson, and Harter, 2004; Schaufeli, Taris, and Van Rhenen, 2008).

Women also contribute to improved group relations through additional considerations of comfort. Victoria (SL) discusses what she calls the “cream bun factor” as a critical reason for why their conservation organization has been so successful:

And that had to do with anytime we had a meeting or had a, you know, some kind of gathering, get-together to explain things to people or something, we made sure that there was a cup of tea. And we’d call it the “cream bun factor” because she’d bring cream buns from town. Which meant that you got the group together, you did something, and then you slowed down the process of not just being the recipient of a presentation, or being part of a formal meeting, but you allowed people to mingle, and chat, and get to know one another. And I think with that, you not only have this amazing shared experience of conversations that made you think of something, you’re actually getting people, even in the same community, to get to know one another well.
With such an approach, there is an emphasis on not only the work at hand, but on personal connection with others and building bonds and community feel. “It was also, I think, quite female,” Victoria (SL) adds about the “cream bun factor”. Daisy (SL) finds a similar occurrence in her group, saying:

Some women might think, and I mean, these are just little things, it’s like thinking to bring a cake to a meeting or, you know, it’s the AGM so let’s have a cake or let’s...

You know, things that make people feel all one part of a family thing. I think that is more still a women thing. Yeah, those sort of things. I mean, it’s not to do with the conservation, it’s to do with nurturing the conservationists if you see what I mean.

Such findings are corroborated by studies of other conservation groups mentioned in section 3.2.6 “Effects of Including Women in Environmental Leadership”, where researchers found that women’s involvement decreases incidence of conflict (Agarwal, 2000; Clabots, 2013; Coleman and Mwangi, 2013; Sultana and Thompson, 2008) and increases measures of solidarity (Westermann et al., 2005), collaboration (Molinas, 1998; Odame, 2002; Westermann et al., 2005), and group cohesion (Harper et al., 2018).

Thus, focus on the human aspect, especially in ways that support mental wellbeing and a feeling of camaraderie, cohesiveness, and comfort, is one contribution that women’s increased representation in leadership offers. These results are in line with gender differences in work values which find that women place greater importance than men on the affective and interpersonal aspects of their job (e.g. Beltz, Swanson, and Berenbaum, 2011; Elizur, 1994; Konrad et al., 2000; Lechner et al., 2017, 2018; Marini et al., 1996; Peterson, 2004; Sortheix et al., 2013, 2015; Su and Rounds, 2015; Su, Rounds, and Armstrong, 2009; Weisgram, Bigler, and Liben, 2010). In addition to the job itself, women more so than men find the interpersonal climate of their workplace to be a very important work consideration, therefore it is not surprising that women put more time and effort into creating and nurturing an environment in which positive relationships with co-workers are cultivated and supported. Still, the improvement in work environment that this emphasis on people creates is not limited to women alone; men also benefit. In a study by Morrison (2009), friendship variables were found to be significantly correlated with organizational commitment for both men and women, while friendship prevalence and opportunities were found to be even more strongly correlated to job satisfaction for men than women! On the other hand, for women but not men, intent to leave was significantly inversely related to friendship opportunities, friendship prevalence, and social support and cooperation aspects of cohesion.
In the same vein, positive exchanges with leaders and with co-workers are associated with increased organizational commitment, and co-worker exchanges also positively relate to job performance (Liden, Wayne, and Sparrowe, 2000). In a research review by Warr (2003), it was found that supportive leadership and the opportunity for interpersonal contact are both important for well-being at work, where greater well-being is linked to improved job performance, lower absenteeism, reduced probability of leaving, and higher occurrence of discretionary work behavior (i.e. going beyond what is required). Overall, work engagement is affected by mood and attitude (Bledow et al., 2011), which is improved through contact with others at work (Kahneman, 2011). Additionally, high-quality interpersonal relationships are directly and indirectly (through feelings of psychological safety) tied to the facilitation of organizational learning behaviors (seeking new information, speaking up to test validity of work assumptions, devising ways to improve, etc.) which are crucial for their role in improving organization performance by critical evaluation and questioning (Carmeli, Bruller, and Dutton, 2009).

Thus, women’s role in producing greater feelings of openness, acceptance, and comfort can play a key role in enhancing group relations, which in turn affects the way employees interact with their organization. In the context of New Zealand environmental management, women’s increased inclusion in leadership may then have important effects for improving the mental health and wellbeing of its members, which has important impacts on not only the attitude and happiness of employees but also their commitment and performance in the organization as well. Women’s participation seems to be important in creating a more comfortable and contented work environment that is not only concerned with achieving organizational aims, but also with achieving a healthy and happy environment for its members.

This array of findings for women’s increased inclusion and openness, focus on communication, and enhanced group relations are in line with literature that shows women to be more cognizant of using social cues for determining appropriate behavior than men, and to be more sensitive to context in their behavior (Croson and Gneezy, 2009; Miller and Ubeda, 2012). While men often adopt one overarching fairness principle, women switch between different ones that are context dependent. Indeed, Sherry (1986) demonstrated early on that female judges display a greater concern for context and community and less concern for abstract rules than their male counterparts. These New Zealand conservation results
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Additionally parallel findings that female law firms in the United States organize more egalitarian, less hierarchical work structures, engage in more participatory decision making, and especially value equality of hearing time (Epstein, 1993). Interestingly then, there is evidence that the inclusion of female leaders does in fact create concrete, measurable changes in the functioning of organizational processes and dynamics, suggesting that such tangible changes in conservation with increased female leadership can also be realized. On the whole, these findings are in line with the seminal feminist ideas of Carol Gilligan (1982), who argued that women are motivated by an ethic of care over more abstract, rights-based approaches.

7.4 Diversity of Thought and Robustness of Decisions

All in all, nineteen of the thirty-two interviewees made references to women’s greater inclusion contributing to increased diversity of thought and / or robustness of decision making in the environmental context:

Well I think it certainly broadens the scope of debate and is more representative than, you know, a few who are [leadership] who are older males mostly. It's open to criticism for not being representative. So I think that not capturing viewpoints, I think that's the risk. And that's the benefit of having women involved in decision-making, is that you have a more representative view and you consider the perspectives that people might not otherwise consider. (Scott, LN)

Similarly, Brandon (LN) says:

When you use words like diversity, it becomes specific or gets angled into specific things, but for me it's a difference. Difference of thought. Because you've been brought up differently, you're able to bring a whole different perspective. And I think that's important. All the way to the top, that's important. And it's recognizing that while we all have a shared – or should have a shared view – of what we are doing, that that difference is often what can make us successful. So that's what I think.

Diversity of not just gender, but also ethnicity, age, and other factors were also seen as helpful in advancing the capacity of the organization to achieve robust decision making and good outcomes: “I think the more diversity you have, the better decisions you'll have for the environment regardless of whether it's male or female or Maori or Pacifika. The more
diverse, the stronger the decisions you will have for society,” argues Brent (LN). Similarly, Rob (LN) claims:

I mean I actually think basically in any group the more diverse you've got in the decision-making pool, the better I think the decisions basically. That goes beyond, you know, gender balance. It's just if your pool's too narrow then your decision-making gets inherently distorted.

Larry (LN) connects increased diversity with decreased “groupthink” and thus improved decision making in a variety of ways, saying:

But we need to understand the benefits of it. So I guess what I'm saying as we think about divergent thinking, and then diversity, and gender and other diversity dimensions, we’re only just working out that actually having divergence and diversity gives you better results, you manage risks better, then there’s a whole other benefits.

Popular sentiment seems to be that increasing women’s inclusion in leadership is beneficial for the organization, especially for its contribution to adding diversity and robustness to the decision making process. Overall, there is great acceptance for women’s increased inclusion and participation in environmental leadership, with a number of interviewees stating their personal preference for working in an environment with mixture of men and women:

But I would be personally happier to work in an organization that was balanced, more or less balanced, with men and women. It seems to work more, it seems to be more, is it more natural? I don't know what it is. But it just seems to be why would you want to work in a totally male-dominated organization or a totally women-dominated organization or totally this and that? The diversity in general I believe is a plus, in terms of gender, in terms of cultural stuff, in terms of everything else. (Peter, LN & SL)

### 7.5 Conclusions

In summary, within the decision making and leadership space of these New Zealand environmental organizations, it seems that women experience relatively little blatant gender discrimination in present day, perhaps in some part due to increased presence of female leaders as well as increased gender awareness of leadership. Nonetheless, discrimination can still be an issue in male-heavy contexts and in dealing with outside organizations, and some
subtler and vaguer forms of gender bias on views of women’s competence may still be present.

As far as for gender differences that affect environmental decision making spaces and the outcomes that result from them, some relevant gendered areas include speaking and critical mass effects, leadership style, engagement with others, and effects on group relations. As far as speaking up is concerned, men and women were mostly seen to be similar, though in some contexts interviewees did claim men speak more than women. Critical mass did not appear to be an issue in these decision making groups. When it comes to leadership style, although both male and female environmentalists alike seem to prefer transformational, participatory styles, a higher overall proportion of women still preferred such approaches. Women were also found to be more inclusive and communicative and especially good at crafting comfortable environments that facilitate individual engagement, ease, and psychological wellbeing. Additionally, gender diversity is thought to be important for its inclusion of diverse perspectives and its contribution to robust decision making.

Overall then, women’s participation in the environmental decision making space appears to have a number of effects on group dynamics and functioning. Women’s inclusion can encourage even greater engagement within the decision making context though increasing openness to the diverse perspectives and ideas of others, which is important for its effect on breaking away from the status quo and providing increased ability to consider a wider array of possible approaches and ideas. Another important potential effect is increased communication and collaboration, both within the organization but also between organizations and with the public. Such increases in engagement can have significant consequences for coming to more considered and robust decisions, and also for generating greater buy-in from the wider community. Finally, women’s participation is very important for its role in creating a more pleasant work environment in which people feel more at ease, listened to, and supported, factors which contribute to increased engagement (May, Gilson, and Harter, 2004; Schaufeli, Taris, and Van Rhenen, 2008) and mental wellbeing (Hintikka et al., 2000; Kawachi and Berkman, 2001). Women’s participation in environmental decision making thus has a number of noteworthy effects on the decision making space.
Chapter Eight: Drawing it Together

8.1 Summary of Findings

This thesis has undertaken an exploration of the myriad of ways in which gender plays a role in environmental conservation in New Zealand. It began with a discussion of background literature on gender differences more generally, from traits like personality to risk aversion, before discussing women in positions of leadership across a variety of contexts (Chapter Two). Conversation then moved onto the intersection of gender and environment (Chapter Three), first looking at gender differences amongst the general public in environmental concern and pro-environmental behavior before moving onto a more detailed discussion of women in the field of conservation more specifically. After establishing the foundation of literature on which this thesis builds, an identification of current gaps in knowledge and the setting out of research questions and methodological details was established in Chapter Four. The three overarching research questions established in Chapter Four were then addressed in Chapters Five to Seven:

1. What is the state of women’s representation and involvement in environmental decision making in New Zealand? (Chapter Five)

2. Does gender affect values, priorities and strategies in environmental decision making? If so, how? (Chapter Six)

3. Does gender affect perceptions of competence and respect, as well as group dynamics, processes, and communications in environmental decision making bodies? If so, how? (Chapter Seven)

8.1.1 Women’s Representation

When it comes to the presence of women in various tiers across conservation organization in New Zealand, it was discovered that women’s representation, though high across organizations generally, decreases as one travels up in tier. Female representation in leadership appears to be higher in small local organizations compared to large national ones, often hitting the 50% mark, although it still represents a male-bias in leadership given that the organizations as a whole are usually predominantly female. Women were found to be overrepresented in administration and support positions and underrepresented in field,
physical, pest, and fisheries positions, similar to the gendered division of labor in the country overall (Statistics New Zealand, 2015).

**8.1.2 Values, Priorities, and Strategies**

When it comes to values and ideology, female conservationists were found to be more in favor of increased investment in public education, and were also more strongly in favor of increasing iwi involvement. With greater female involvement in conservation leadership then, additional increases in public education and collaboration with iwi is a possible outcome. Also, because women agreed more strongly that forestry and mining practices should be more highly restricted, increased female leadership may have the effect of strengthening lobbying for stricter environmental regulation in New Zealand. Similarly, women’s higher agreement with the need for additional protected land and marine areas suggests that increases in the amount of land set aside for conservation seems quite a plausible result of increased female leadership involvement. Conversely, men more strongly agreed that greater focus should be put on new pest and weed control strategies, while female environmentalists were less likely to engage in the pests aspect of New Zealand conservation, meaning that increased female representation in conservation leadership may lead to changes in the way pest control is conceptualized and prioritized.

Women were found to be more likely to enter conservation due to an interest in animals or ecology while men were more likely to enter from an interest in outdoor recreation. Ethical foundations for participation in conservation was more common amongst women than men, and female conservationists in general exhibited a greater inclination toward biophilic ideology and were especially interested in conservation for the benefit of nature itself rather than for human benefit. Women’s interest in conservation more so than men’s appears to come from a desire to protect the living creatures within them, with women being more likely to express sentiments of the “right to life” that all living creatures possess. The average female conservationist’s philosophy, coming from a comparatively more biophilic and biocentric viewpoint, may then cast a wider net of concern, choosing to protect larger swaths of ecosystems and species than male managers may select.

The average female conservationist from this study was found to conceptualize the natural world through a “bigger picture” lens, while male conservationists were found to be more
likely to reduce and divide the natural world into smaller and more discrete manageable portions. This can lead to differences in the way male and female environmentalists engage in conservation, with women perhaps seeking more holistic and broader actions to achieve their ultimate environmental goals. Whereas the reductionist tendency of some male environmentalists may lead to very narrow and specifically defined conservation goals and actions, those that women come up with may tend to be more encompassing. This wide-thinking approach could perhaps be part of the reason for women’s increased engagement with public and education related aspects of conservation. That is, perhaps women are especially likely to consider the importance of extending conservation goals to include the broader community as an important factor instrumental in achieving conservation goals.

8.1.3 Ways of Working and Group Dynamics

Female conservationists, on average, were seen to be more cautious in decision making and more conscientious in habit, two ways of working that together slows the speed of decision making but increases of the robustness of final decisions. Within the decision making group space, women’s involvement appears to be especially significant in how it affects member engagement and group feel. In particular, women are more likely to be participatory and open toward others, making special effort to ensure group members are given the chance to contribute to and be heard in decision making processes, and being less assertive in their own opinions. Women in conservation groups also provide mental support for others, and women’s participation in leadership can be important in facilitating the effective and open engagement and participation of others in conservation more generally. Thus, women’s involvement in decision making groups can have important effects not only on conservation ethos, but also in group dynamics and processes.

The current state of women’s treatment in conservation leadership overall is New Zealand is positive. Few issues with respect for women were found, and these incidents were generally limited to male-heavy or “outside organization” contexts. Leaving room for improvement though, perceptions of women’s competence as leaders might still be somewhat negatively biased, with women being evaluated more harshly in some instances, and women’s ability to be effective leaders at times going unrecognized.
8.2 Implications for Conservation Practice

The practical implications of the findings from this study on the field of conservation are numerous. Given the variety of ways in which male and female conservationists were found to differ in their thoughts and values for the environment as well as in ways of working, the gender diversity of leadership can have real impacts on shaping the way conservation is conceptualized and achieved. Given that women’s representation in conservation leadership around the world today leaves much room for improvement (e.g. IUCN, 2015b; Natcher, 2013; Westberg and Powell, 2015), increased female representation in conservation leadership will arguably shift conservation practice. As proposed in previous chapters, effects may include increases in stakeholder and public involvement, education, industry regulation, and protected areas as well as more biophilic approaches to conservation. Additionally, the burden of knowledge may be increased such that a greater degree of information is required for decision making, and cautiousness and contentiousness may become a more central part of conservation practice. In the group context, increased women’s representation will perhaps lead to more participatory styles of management, with increased inclusion, openness, and communication. Connecting with research from other fields, such as the widely studied areas of business and government (Chapter Two, Part II), similar changes have already been observed: women’s somewhat different priorities and ways of thinking and operating have already led to observable changes in ethics, financial performance, legislation, and cooperation (e.g. Bear et al., 2010; Bernardi et al., 2009; Boulouta, 2013; Brammer et al., 2009; Campbell and Mínguez-Vera, 2008; Desvaux et al., 2010; Devlin and Elgie, 2008; Francoeur et al., 2008; Gottlieb, Grossman, and Robinson, 2018; Post et al., 2011; Smith et al., 2006; Swiss et al., 2012; Zhang et al., 2013, see sections 2.4.2 and 2.4.3). Thus, comparable changes in the field of conservation will perhaps also be observed as women become even more involved in the uppermost levels of conservation leadership and decision making.

8.3 Increasing Women’s Leadership Participation

Although women’s representation in leadership across various fields, from government to Fortune 500 companies to universities, has greatly increased with the passage of time (Pew Research Center, 2018b), women’s representation in conservation leadership around the world today still falls short of parity in many cases (e.g. IUCN, 2015b; Kulcur, 2012; Natcher, 2013; Westberg and Powell, 2015). In section 5.6, four major drivers inhibiting
women’s greater involvement in conservation leadership were discussed: 1) organization history, 2) personal values, 3) gender norms for leadership, and 4) caretaking responsibilities. Using the knowledge of these four impactful constraints on women’s leadership involvement, proactive steps can be taken to enhance and improve women’s participation. Table 8.1 gives some suggestions to do this.

Table 8.1 Recommendations for encouraging women in leadership based on the four drivers identified in section 5.6, supplemented with information from Wynn and Correll (2018)

<table>
<thead>
<tr>
<th>Driver</th>
<th>Recommendations</th>
</tr>
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<tbody>
<tr>
<td>Organization History</td>
<td>• Encourage diversity in new hires</td>
</tr>
<tr>
<td>Personal Values</td>
<td>• Foster chances for interpersonal interaction (morning tea, etc.)</td>
</tr>
<tr>
<td></td>
<td>• Pay attention to “human” aspects of work environment</td>
</tr>
<tr>
<td></td>
<td>• Establish policies to promote healthy work-life balance (e.g. regular vacation time, maximum 40 hour work weeks, etc.)</td>
</tr>
<tr>
<td>Gender Norms for Leadership</td>
<td>• Provide anti-bias training for HR and employees</td>
</tr>
<tr>
<td></td>
<td>• Establish explicit evaluation criteria beforehand</td>
</tr>
<tr>
<td></td>
<td>• Use “blind” screening of applicants</td>
</tr>
<tr>
<td></td>
<td>• Broaden image of “leader”</td>
</tr>
<tr>
<td>Women in Caretaking</td>
<td>• Offer child care services</td>
</tr>
<tr>
<td></td>
<td>• Be more flexible with working arrangements</td>
</tr>
<tr>
<td></td>
<td>• Have preparations for seamless maternity leave and re-entry</td>
</tr>
</tbody>
</table>

Organizations can address the impact of their male-heavy history by encouraging diversity in new hires and making it a point to hire more women for leadership positions. Organizations must also be mindful of the pervasive but often unconscious impact of gender biases and norms on shaping whether women are hired for leadership positions and how they are treated when they hold them. Providing anti-bias training can help increase recruitment of women, as those doing the hiring would be less biased against female leaders. Additionally, using “blind” applicant screenings (i.e. gender not disclosed) can create a fairer application process that evaluates candidates without the chance for gender to unconsciously influence perceptions of competence. Mandating anti-bias training and generally creating a more open and accepting idea of women’s “role” helps to create an organizational climate where women holding positions of power are treated fairly and are not penalized for acting outside of gender norms.
Additionally, paying attention to certain values can go a long way to increasing female engagement in top positions. By framing leadership positions in terms of the fulfilling interpersonal engagements they offer and “greater good” purposes they serve, rather than stressing the power and financial benefits that often go alongside them, perhaps women’s participation can be increased. Also, it is critical to provide a work environment that recognizes and is flexible to the demands that caretaking puts on many women, perhaps by offering flexible working arrangements, childcare services, additional healthcare / family benefits, good maternity leave policies, etc.

By enhancing women’s engagement in leadership using these targeted recommendations, organizations can put themselves in the position to proactively enhance the gender diversity of their leadership teams, and reap its many benefits.

**8.4 Limitations and Future Research**

This thesis has a number of limitations. First and foremost, these research questions look only at gender as the singular point of difference affecting environmental decision making. Information on other demographic factors such as ethnicity, age, or educational background were not included in the discussion. However, it is expected that other such demographic factors can also have meaningful influences on environmental decision making.

For example, younger decision makers may prefer different approaches from older environmentalists, either due to age alone or due to some concomitant disparities in ideology resulting from generations, for example. In the New Zealand context in particular, there is also a special interest in the way indigenous Māori view and implement conservation and environmental management. Te Ao Māori, the Māori world, has a kin relationship with the natural environment that provides the basis for stewardship and concepts and practices that are hard to translate into Western thought. “Kaitiakitanga”, for example, has no single meaning and is not easily defined, but is rather seen as a holistic idea for the broader cosmic unity between humans and the universe (Kawharu, 2000). Due to fundamental differences between Te Ao Māori and the Western worldview, according to Kawharu (2000, p. 351) “a problem has developed, however, where kaitiakitanga has become almost locked into meaning simply "guardianship" without understanding of (or in the case of the Crown,
providing for) the wider obligations and rights it embraces.” Given Māori relationships with nature, conservation, and relationship with the land which differs from the Western paradigm that currently dominates in New Zealand conservation today, the consideration of how Māori might approach environmental decision making is a limitation as well as a critical arena for further study.

Furthermore, the surveys and interviews in this study did not consider additional demographic factors beyond gender as both separate and synergistic confounding variables to be investigated. To achieve greater understanding of the extent to which the ‘who’ of conservation decision making affects the character of conservation practice, further collection and analysis of demographic factors beyond gender is necessary. In this study, I chose to focus solely on gender to narrow in on this one factor and give it a more detailed treatment rather than focus on many demographic factors, each in less detail.

Nevertheless, this study provides a starting point for more research into the effect of various demographic factors on environmental management (and perhaps other areas as well). By demonstrating that gender can affect decision making in a variety of ways, this research suggests other demographic variables could be similarly impactful and are therefore worth looking into as well.

Another limitation of this research is the level of stratification of the study participants and organizations based on size and organizational focus. Organizations are all categorized as “small local” or “large national”, thus finer detail on size and scale could provide additional useful information on how different organizational sizes and scales of operation may also affect decision making behavior. Additionally, project focus of the organization (e.g. tuatara breeding, protected areas, many foci, etc.) was not a major consideration for analyzing data in this thesis, thus the way gender interacts with organization focus to affect decision making was not considered. Greater detail on the conservation foci of each organization would provide additional detail and context, which would allow even more nuanced discussion that can help explain the numerous confounding factors that also play a role in decision making in these contexts.

For example, as a hypothetical scenario, research could take into account how working with a small local organization that works purely on penguin breeding and recovery in a small and
relatively egalitarian decision making board of only ten people differs from that of a highly hierarchical and massive government agency that focuses on a variety of conservation goals well beyond just penguin recovery. Using such information would provide finer analysis and insight on other accompanying influencers. Nonetheless, for this thesis the choice was made not to gather this more specific information as it would have made individual organizations be more easily identifiable, and organization anonymity was an important consideration when undertaking this research. However, for future studies, such finer information would be desirable, if similar privacy concerns do not prevent it.

Finally, this thesis is limited by data collection methods. Survey respondents were acquired through emails to various human resource departments, publicly available emails, and finally through snowballing. Because of the methods used, information on response rates and similar self-selection is not available. Participation was not limited beyond affiliation with a New Zealand based conservation / environmental organization, leaving a broad and unrestricted set of respondents across many organizations focusing on various topics in many different regions across the country. This makes organizing data into similar groups for comparison against one another difficult. Still, this issue is ameliorated since comparisons between genders was the major relevant factor for this investigation, such that the specifics of the organizations for each respondent is less important than gender. Also, greater sample size for both surveys and interviews would increase robustness and reliability.

Although some of these limitations may restrict generalizability of results, it was a conscious decision to trade off focusing on additional demographic factors, further levels of gradation and stratification, and increased ability for categorization in favor of greater detail and attention paid to the focus on gender in particular and its myriad ways of interacting with conservation and environmental management context. Overall, this research fills gaps in knowledge of how gender factors into the conservation space. Still, being limited to New Zealand, further studies should be replicated in a variety of other contexts and countries. As each nation, region, and even each organization has its own idiosyncrasies and peculiarities, a broad sample across a variety of places and organizations is necessary to build upon and allow further, more robust generalizations and understandings of gender in conservation. Research concerning the mechanisms and drivers that underlie these gender disparities in values, ideologies, and ways of working and interacting is also of interest, as is more research
that seeks to expand and further understanding of the various reasons for women’s lesser representation in positions of leadership.

Additionally, future studies that broaden further to look at the effects of other diversities (e.g. age, race, socioeconomic status, etc.) on conservation are of special interest. With decision makers setting the stage for how conservation is done, it becomes important to know how the “who” in environmental decision making affects conservation and environmental management more broadly.

8.5 Final Thoughts
All in all, conservation has no set formula for how it must be practiced, and as a result there exist a myriad of differing ideologies concerning people’s relationship with nature and how humans should go about stewarding the natural world. Individuals differ in these thoughts, with the ideology of those holding positions of leadership then dictating the ethos of conservation practice overall. If individuals from diverse backgrounds and axes of difference hold somewhat different ideology and approaches toward conservation but leadership does not reflect this diversity, one can expect significant biasing effects on the way conservation is practiced as a result. In the case of gender and conservation, this thesis has provided a discussion of the ways in which gender representation in conservation is biased, especially in leadership, the ways in which male and female environmentalists think about conservation, and how male and female environmentalists work differently in group contexts. Investigations of this sort are critical to improving the field of environmental management, and in this case the evidence makes a strong argument that increasing women’s participation in conservation leadership is not just an issue of fairness, but also an issue of effective and comprehensive conservation practice.
References


Balmford, A., A. Bruner, P. Cooper, R. Costanza, S. Farber, R. E. Green, M. Jenkins, P. Jefferiss, V. Jessamy, J. Madden, K. Munro, N. Myers, S. Naeem, J. Paavola, M.


Bardhan, P. and J. Dayton-Johnson (2001). Inequality and the governance of water resources in Mexico and South India. Economic Inequality, Collective Action and Environmental Sustainability. Santa Fe Institute.


Capraro, V. and A. Marcelletti (2014). "Do good actions inspire good actions in others?". Scientific Reports, 4, 7470.


Dirilen-Gumus, O. and A. Buyuksahin-Sunal (2012). "Gender Differences in Turkish Undergraduate Students’ Values." Sex Roles 67(9): 559-570.


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Johnson, S. K., S. E. Murphy, S. Zewdie and R. J. Reichard (2008). "The strong, sensitive type: Effects of gender stereotypes and leadership prototypes on the evaluation of


Levin, K., C. McDermott and B. Cashore (2008). "The climate regime as global forest governance: can reduced emissions from Deforestation and Forest Degradation
(REDD) initiatives pass a dual effectiveness test?" International Forestry Review 10(3): 538-549.


Manfre, C. and D. Rubin (2012). Integrating gender into forestry research: A guide for CIFOR scientists and programme administrators, Bogor, Indonesia: CIFOR.


Sun, Y., E. Mwangi and R. Meinzen-Dick (2010). Gender, institutions and sustainability in the context of forest decentralisation reforms in Latin America and East Africa,


Twenge, J. M., S. Konrath, J. D. Foster, W. Keith Campbell and B. J. Bushman (2008). "Egos inflating over time: A cross-temporal meta-analysis of the Narcissistic Personality Inventory." Journal of Personality 76(4): 875-902.


WOCAN (Women Organizing for Change in Agriculture and Natural Resource Management) (2013). Scoping study of good practices for strengthening women's inclusion in forest
and other natural resource management sectors: Joint regional initiative for women's inclusion in REDD+ from


Appendix A – Ethics Approval

Dr S Bond
Department of Geography
Division of Humanities

6 March 2017

Dear Dr Bond,

I am writing to confirm for you the status of your proposal entitled “The Effect of Gender on Environmental Decision Making Bodies”, which was originally received on February 17, 2017. The Human Ethics Committee’s reference number for this proposal is D17/034.

The above application was Category B and had therefore been considered within the Department or School. The outcome was subsequently reviewed by the University of Otago Human Ethics Committee. The outcome of that consideration was that the proposal was approved.

Approval is for up to three years from the date of HOD approval. If this project has not been completed within three years of this date, re-approval must be requested. If the nature, consent, location, procedures or personnel of your approved application change, please advise me in writing.

Yours sincerely,

[Signature]

Mr Gary Witte
Manager, Academic Committees
Tel: 479 8256
Email: gary.witte@otago.ac.nz
Appendix B – Information Sheets and Informed Consents

[Reference Number: D17/034]
[06 March 2017]

The Effect of Gender on Environmental Decision Making Bodies

INFORMATION SHEET FOR SURVEY PARTICIPANTS

Thank you for showing an interest in this project. Please read this information sheet carefully before deciding whether or not to participate. If you decide to participate we thank you. If you decide not to take part there will be no disadvantage to you and we thank you for considering our request.

What is the Aim of the Project?
This project aims to further understanding of how gender affects various considerations in the environmental decision making space. It includes probing on the effect of gender on environmental values, priorities, and strategies as well as its relation to group dynamics, decision making-processes, and communications.

What Types of Participants are being sought?
Participants are members of government or non-profit conservation organizations in New Zealand. They will contacted via mass-emails sent by the HR department of their conservation organization or through their contact information that is publicly accessible online via conservation organization websites or other open sources. Participants will number between 100 – 300 participants. Participants can request a copy of any publications associated with the project if desired.

What will Participants be asked to do?
Should you agree to take part in this project, you will be asked to participate in one or two online survey(s) at a time that is convenient to you. Each survey is expected to take about 10 – 15 minutes to complete. One survey asks about your ideas and opinions concerning the environment and its management while the other asks about your perceptions of the effect of gender on various aspects of decision making of the organization that you are a member (if this applies to you). Please be aware that you may decide not to take part in the project without any disadvantage to yourself.

What Data or Information will be collected and what use will be made of it?
The raw data collected from this project comprises survey responses. This data will only be accessed by researchers associated with the project and will be used exclusively to inform the research questions outlined in the “Aims” section above. Responses will not be linked to your name and contact information will be discarded after the end of the study. Although there will
be no explicit linking of individuals to responses in the writing of results, please note that people close to the respondent may be able to deduce the identity based on the content of their quoted comments (if used to support a point). However, we will make every effort to avoid including information that may allow an individual to be identified. The data collected will be securely stored in such a way that only those mentioned below will be able to gain access to it. Data obtained as a result of the research will be retained for at least 5 years in secure storage. The results of the project may be published and will be available in the University of Otago Library (Dunedin, New Zealand).

**Can Participants change their mind and withdraw from the project?**
Yes. By proceeding to the survey, you consent to participate in the research. However, you may withdraw from the project at any stage before you complete the survey by simply closing the browser window.

**What if Participants have any Questions?**
If you have any questions about our project, either now or in the future, please feel free to contact either:-

*Nadia Tenouri* and *Sophie Bond*
Department of Geography  
Department of Geography  
03 4798777 03 4793068  
nadia.tenouri@postgrad.otago.ac.nz sophie.bond@otago.ac.nz

This study has been approved by the Department stated above. However, if you have any concerns about the ethical conduct of the research you may contact the University of Otago Human Ethics Committee through the Human Ethics Committee Administrator (ph 03 479-8256). Any issues you raise will be treated in confidence and investigated and you will be informed of the outcome.
CONSENT FORM FOR SURVEY PARTICIPANTS

I have read the Information Sheet concerning this project and understand what it is about. All my questions have been answered to my satisfaction. I understand that I am free to request further information at any stage.

I know that:-

1. My participation in the project is entirely voluntary;

2. I am free to stop participation by not completing the survey without any disadvantage;

3. Contact information from survey responses (if provided) will be destroyed at the conclusion of the project but any raw data on which the results of the project depend will be retained in secure storage for at least five years;

4. The results of the project may be published and will be available in the University of Otago Library (Dunedin, New Zealand) but every attempt will be made to preserve my anonymity.

5. I understand that if I wish to receive a copy of any published results, I will have the option to provide my contact information at the end of the survey.

I have read the information sheet and understand that by clicking next, I am agreeing to take part in this project.
The Effect of Gender on Environmental Decision Making Bodies

INFORMATION SHEET FOR INTERVIEW PARTICIPANTS

Thank you for showing an interest in this project. Please read this information sheet carefully before deciding whether or not to participate. If you decide to participate we thank you. If you decide not to take part there will be no disadvantage to you and we thank you for considering our request.

What is the Aim of the Project?
This project aims to further understanding of how gender affects various considerations in the environmental decision making space. It includes probing for the effect of gender on environmental values, priorities, and strategies as well as its relation to group dynamics, decision-making processes, and communications.

What Types of Participants are being sought?
Participants are past or present decision making body members of New Zealand-based non-profit or government conservation organizations. Approximately 30 individuals will be interviewed. Participants are recruited via email or phone contact acquired from conservation organization websites or referral from another participant. Interviewees can request a copy of any publications associated with the project if desired.

What will Participants be asked to do?
Should you agree to take part in this project, you will be asked to participate in a semi-structured key informant interview focusing on your experience as a member of an environmental decision making body. This project involves an open-questioning technique. The general line of questioning includes ideas and opinions concerning the environment and its management as well as your perceptions on the effect of gender on various measures in the decision making body of which you are a member. The precise nature of the questions that will be asked have not been entirely determined in advance, but will depend on the way in which the interview develops. Consequently, although the Department of Geography is aware of the general areas to be explored in the interview, the Committee has not been able to review all of the precise questions to be used.

Interviews will be scheduled for a time and method (Skype, in person, etc.) that is convenient for you and is expected to take anywhere from 30 minutes to an hour. With your consent, we would also like to audio record the interview (rather than only taking notes) to ensure we accurately capture your responses.

In the event that the line of questioning does develop in such a way that you feel hesitant or uncomfortable you are reminded of your right to decline to answer any particular question(s). Please be aware that you may decide not to take part in the project without any disadvantage to yourself.

What Data or Information will be collected and what use will be made of it?

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The raw data collected from this project will include audio recordings, interview notes, and survey responses. This data will only be accessed by the student researcher and her two supervisors associated with the project and will be used exclusively to inform the research questions outlined in the “Aims” section above. Although the interviewer will know the identity of the interviewee, recorded responses will not be linked to names, and any contact information (if provided) will be discarded at the completion of the study. Although there will be no explicit linking of individuals to responses in the writing of results, please note that people close to the interviewee may be able to deduce the identity based on the content of their quoted comments (if used to support a point). However, we will make every effort to avoid including information that may allow an individual to be identified. The data collected will be securely stored in such a way that only those mentioned below will be able to gain access to it. Data obtained as a result of the research will be retained for at least 5 years in a password locked database online. The results of the project may be published and will be available in the University of Otago Library (Dunedin, New Zealand).

In the event that the line of questioning does develop in such a way that you feel hesitant or uncomfortable you are reminded of your right to decline to answer any particular question(s).

Can Participants change their mind and withdraw from the project?  
Yes. You may withdraw from participation in the project any time within one month from the interview without any disadvantage to yourself.

What if Participants have any Questions?  
If you have any questions about our project, either now or in the future, please feel free to contact either:-

Nadia Tenouri and Sophie Bond  
Department of Geography and Department of Geography  
03 4798777 and 03 4793068  
nadia.tenouri@postgrad.otago.ac.nz and sophie.bond@otago.ac.nz

This study has been approved by the Department stated above. However, if you have any concerns about the ethical conduct of the research you may contact the University of Otago Human Ethics Committee through the Human Ethics Committee Administrator (ph 03 479-8256). Any issues you raise will be treated in confidence and investigated and you will be informed of the outcome.
The Effect of Gender on Environmental Decision Making Bodies

CONSENT FORM FOR INTERVIEW PARTICIPANTS

I have read the Information Sheet concerning this project and understand what it is about. All my questions have been answered to my satisfaction. I understand that I am free to request further information at any stage.

I know that:-

1. My participation in the project is entirely voluntary;

2. I am free to withdraw from the project within one month of the interview without any disadvantage;

3. Personal identifying information from audio recordings and associated transcripts will be destroyed at the conclusion of the project but any raw data on which the results of the project depend will be retained in secure storage for at least five years;

4. This project involves an open-questioning technique. The general line of questioning includes ideas and opinions concerning the environment and its management as well as your perceptions on the effect of gender on various factors (processes, respect, communication, etc.) in the decision making body of which you are a member. The precise nature of the questions which will be asked have not been determined in advance, but will depend on the way in which the interview develops and that in the event that the line of questioning develops in such a way that I feel hesitant or uncomfortable I may decline to answer any particular question(s) and/or may withdraw from the project without any disadvantage of any kind.

5. The results of the project may be published and will be available in the University of Otago Library (Dunedin, New Zealand) but every attempt will be made to preserve my anonymity.

If you wish to receive a copy of any published results, please provide your email here

___________________________________________________________________________

I agree to take part in this project.

............................................................................. ........................................
(Signature of participant) (Date)

.............................................................................
(Printed Name)
Appendix C – Survey

Environmental Values / Conservation Priorities and Strategies

The aim of this survey is to gather information on the environmental values, priorities and conservation / management strategies of various individuals within New Zealand based conservation organizations. The information gathered will be used as part of a PhD thesis at the University of Otago. Your answers will remain strictly confidential and will not be linked to your identity in any way.

There are no incorrect answers, as we are interested in your own personal opinions.

CONSENT FORM FOR SURVEY PARTICIPANTS

I have read the Information Sheet concerning this project and understand what it is about. All my questions have been answered to my satisfaction. I understand that I am free to request further information at any stage.

I know that:-

1. My participation in the project is entirely voluntary;

2. I am free to stop participation by not completing the survey without any disadvantage;

3. Contact information from survey responses (if provided) will be destroyed at the conclusion of the project but any raw data on which the results of the project depend will be retained in secure storage for at least five years;

4. The results of the project may be published and will be available in the University of Otago Library (Dunedin, New Zealand) but every attempt will be made to preserve my anonymity.

5. I understand that if I wish to receive a copy of any published results, I will have the option to provide my contact information at the end of the survey.

I have read the information sheet and understand that by clicking next, I am agreeing to take part in this project.
We will start by asking some demographic questions about you:
What is your gender?
- Male
- Female
- Gender diverse
What is your age?
- Under 18
- 18 - 24
- 25 - 34
- 35 - 44
- 45 - 54
- 55 - 64
- 65 or over
What is your highest completed level of education?
- No qualification
- Completed NCEA levels 1 - 3 or equivalent
- Apprenticeship, trade certification, or similar
- Bachelor's degree
- Postgraduate degree (other than Doctorate)
- Doctorate
- Other (please specify): ________________________________
What is your ethnicity (select all that apply)?

☐ European / Pākehā
☐ Māori
☐ Pacific Islander
☐ Other (please specify) ___________________________________________________________________

What environmental or conservation organization do you work with?
_____________________________________________________________________________________

What is your role or job title at this organization? (Also, please specify if you are a volunteer)
_____________________________________________________________________________________

Please indicate which best describes your position in this organisation.

☐ Senior management
☐ Middle / lower management
☐ Operations / on-the-ground / project level
☐ Other (please specify) ___________________________________________________________________

The next set of questions seek to gauge your general environmental attitudes and values. Please think about your personal ideals and feelings relating to the environment as you answer the following questions.

How concerned are you for the environment?

<table>
<thead>
<tr>
<th>Level</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>It is not a concern of mine</td>
</tr>
<tr>
<td>1</td>
<td>I consider the environment but do not go out of my way to do so (i.e. recycle when convenient, etc.)</td>
</tr>
<tr>
<td>2</td>
<td>The environment is a major priority of mine and a large part of my identity</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Score</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>8</td>
<td>9</td>
</tr>
<tr>
<td>10</td>
<td>10</td>
</tr>
</tbody>
</table>

My primary reason for wanting to preserve the environment is:

<table>
<thead>
<tr>
<th>Reason</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primarily for human benefit</td>
<td>0</td>
</tr>
<tr>
<td>Equally both</td>
<td>5</td>
</tr>
<tr>
<td>Primarily for nature itself</td>
<td>10</td>
</tr>
</tbody>
</table>
When thinking about the reasons you want to protect the environment, rate how important each of these reasons is to you personally.

<table>
<thead>
<tr>
<th>Not a reason I value environmental protection (0)</th>
<th>A major reason I value environmental protection (10)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 1 2 3 4 5 6 7 8 9 10</td>
<td>0 1 2 3 4 5 6 7 8 9 10</td>
</tr>
</tbody>
</table>

I value environmental protection because I want to ensure current and future generations have a healthy planet

I value environmental protection because I want to protect native fauna

I value environmental protection because I want to protect all native living creatures (animals, plants, fungi, etc.)

I value environmental protection because I want to protect entire ecosystems

Thinking about your personal feelings concerning the environment, please rate how much you agree with the following statements.

<table>
<thead>
<tr>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Somewhat disagree</th>
<th>Neither agree nor disagree</th>
<th>Somewhat agree</th>
<th>Agree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Humans are meant to rule over or have dominion over nature</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Natural resources should be protected, even if that means humans have to make do with less</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Environmental issues are greatly exaggerated</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Animals have as much right to life as people</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Economic growth should take priority over environmental protection</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Governments should create laws restricting personal freedom if it means increased environmental protection</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Nature is strong enough to resist damaging impacts made by humans</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Humans are abusing the environment</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>People should be free to use nature as they see fit</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>The loss of natural areas disturbs me</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Human concerns should be prioritized over environmental ones</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Agriculture is damaging our environment</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>I consider how my daily actions affect the environment</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>I generally do not find issue with recreational fishing of non-protected species</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Nature's balance is delicate and easily damaged</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>I generally do not find issue with recreational hunting of non-protected species</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>If humans continue on their current course, there will be major environmental consequences</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>
The next set of questions asks your opinions on various environmental management priorities and strategies. Please read carefully before answering.

Thinking of the successes and failures you have seen with conservation in New Zealand and how you personally would approach issues if left in charge, please rate how much you agree with the following statements about **pests and conservation**.

<table>
<thead>
<tr>
<th></th>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Somewhat disagree</th>
<th>Neither agree nor disagree</th>
<th>Somewhat agree</th>
<th>Agree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>The use of fencing to keep pests out has been largely worth the investment</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
</tr>
<tr>
<td>Controlling pests and weeds should continue to be one of the major conservation objectives in New Zealand</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
</tr>
<tr>
<td>There should be more conservation focus on new pest and weed control strategies</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
</tr>
<tr>
<td>There is too much emphasis on pest and weed control when it comes to conservation in New Zealand</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
</tr>
</tbody>
</table>

Thinking of the successes and failures you have seen with conservation in New Zealand and how you personally would approach issues if left in charge, please rate how much you agree with the following statements about **species-related conservation**.

<table>
<thead>
<tr>
<th></th>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Somewhat disagree</th>
<th>Neither agree nor disagree</th>
<th>Somewhat agree</th>
<th>Agree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>There should be more focus on protecting individual endangered species</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
</tr>
<tr>
<td>Species that are not endangered still deserve protection</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
</tr>
<tr>
<td>All species, endemic or not, that are native to New Zealand deserve equal consideration</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
</tr>
<tr>
<td>Focus should especially be on protecting New Zealand’s endemic species</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
</tr>
<tr>
<td>More focus should be given to non-charismatic species (plants, bugs, etc.)</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
</tr>
<tr>
<td>There is too much focus on individual species protection</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
</tr>
</tbody>
</table>
Thinking of the successes and failures you have seen with conservation in New Zealand and how you personally would approach issues if left in charge, please rate how much you agree with the following statements about **area-based conservation**.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Somewhat disagree</th>
<th>Neither agree nor disagree</th>
<th>Somewhat agree</th>
<th>Agree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>More holistic approaches to conservation (e.g., less focus on individual species and more on total ecosystem health) should be implemented</td>
<td>(Circle)</td>
<td>(Circle)</td>
<td>(Circle)</td>
<td>(Circle)</td>
<td>(Circle)</td>
<td>(Circle)</td>
<td>(Circle)</td>
</tr>
<tr>
<td>There should be more focus on specific animal habitat conservation (e.g. tuatara habitat protection)</td>
<td>(Circle)</td>
<td>(Circle)</td>
<td>(Circle)</td>
<td>(Circle)</td>
<td>(Circle)</td>
<td>(Circle)</td>
<td>(Circle)</td>
</tr>
<tr>
<td>There should be more focus on soil quality and degradation</td>
<td>(Circle)</td>
<td>(Circle)</td>
<td>(Circle)</td>
<td>(Circle)</td>
<td>(Circle)</td>
<td>(Circle)</td>
<td>(Circle)</td>
</tr>
<tr>
<td>There should be more focus on water issues</td>
<td>(Circle)</td>
<td>(Circle)</td>
<td>(Circle)</td>
<td>(Circle)</td>
<td>(Circle)</td>
<td>(Circle)</td>
<td>(Circle)</td>
</tr>
<tr>
<td>Restoration and reforestation efforts should be increased</td>
<td>(Circle)</td>
<td>(Circle)</td>
<td>(Circle)</td>
<td>(Circle)</td>
<td>(Circle)</td>
<td>(Circle)</td>
<td>(Circle)</td>
</tr>
<tr>
<td>More land should be set aside for conservation purposes</td>
<td>(Circle)</td>
<td>(Circle)</td>
<td>(Circle)</td>
<td>(Circle)</td>
<td>(Circle)</td>
<td>(Circle)</td>
<td>(Circle)</td>
</tr>
<tr>
<td>More marine areas should be set aside for conservation purposes</td>
<td>(Circle)</td>
<td>(Circle)</td>
<td>(Circle)</td>
<td>(Circle)</td>
<td>(Circle)</td>
<td>(Circle)</td>
<td>(Circle)</td>
</tr>
</tbody>
</table>
Thinking of the successes and failures you have seen with conservation in New Zealand and how you personally would approach issues if left in charge, please rate how much you agree with the following statements about the interaction between conservation and people.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Somewhat disagree</th>
<th>Neither agree nor disagree</th>
<th>Somewhat agree</th>
<th>Agree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>An important part of conservation is to create recreational lands for use by visitors</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Conservation is important especially because of its benefit to the economy</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Strong laws are needed to ensure individuals and companies do not damage the environment, even if that restricts their personal freedom</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>There should be more protected conservation areas in which people are not permitted to visit</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Most conservation areas should also be recreation areas for the public</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Thinking of the successes and failures you have seen with conservation in New Zealand and how you personally would approach issues if left in charge, please rate how much you agree with the following statements about conservation and business / industry.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Somewhat disagree</th>
<th>Neither agree nor disagree</th>
<th>Somewhat agree</th>
<th>Agree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmentally damaging agricultural practices should be more highly regulated</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mining practices should be more highly restricted</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Conservation agencies are too lenient with industry</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Farmed (e.g. pine) forestry and logging practices should be more highly restricted</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The tourism industry should be held to higher environmental standards</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Thinking of the successes and failures you have seen with conservation in New Zealand and how you personally would approach issues if left in charge, please rate how much you agree with the following statements about how the involvement of stakeholders in conservation should be altered (if at all).

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Somewhat disagree</th>
<th>Neither agree nor disagree</th>
<th>Somewhat agree</th>
<th>Agree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conservation projects should involve community stakeholders more</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Conservation projects should involve farmers more</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Conservation projects should involve iwi more</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>More money and time should be put into educating the public about conservation issues</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>

Imagine a hypothetical scenario where you were put in charge of prioritizing and strategizing the conservation for all of New Zealand. What would you rank as the top five environmental issues that should be addressed?

Most important __________________________________________________________
Second most important ________________________________________________
Third most important ____________________________________________
Fourth most important ____________________________________________
Fifth most important ____________________________________________

Thinking of the most important factors you listed in the previous question, please explain how you would go about addressing each issue (what steps would you take to fix these problems, what strategies would you use, etc.).

Most Important __________________________________________________________________
Second Most Important __________________________________________________________
Third Most Important __________________________________________________________
Fourth Most Important __________________________________________________________
Fifth Most Important __________________________________________________________

Are you a member of a decision making group in your organization (i.e. an executive board or a member of a group that makes conservation-related decisions, etc.)?

○ Yes
○ No
Can we contact you some time in the future for another short survey concerning your experiences as a member of this group (again, your answers will be completely confidential and unlinked to your identity)?

- Yes (please provide your email) ________________________________
- No

If you would like to receive a copy of any summary documents associated with this project, please provide your email.

________________________________________________________________
Appendix D – Survey Respondent Demographics

Total respondents: 225

By gender:
Male: 104 (46.22%)
Female: 121 (53.78%)

By gender and age category:

<table>
<thead>
<tr>
<th>Age</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 18</td>
<td>0.00%</td>
<td>0.00%</td>
</tr>
<tr>
<td>18 – 24</td>
<td>16.67%</td>
<td>83.33%</td>
</tr>
<tr>
<td>25 – 34</td>
<td>30.95%</td>
<td>69.05%</td>
</tr>
<tr>
<td>35 – 44</td>
<td>30.00%</td>
<td>70.00%</td>
</tr>
<tr>
<td>45 – 54</td>
<td>40.91%</td>
<td>59.09%</td>
</tr>
<tr>
<td>55 – 64</td>
<td>70.00%</td>
<td>30.00%</td>
</tr>
<tr>
<td>65 or over</td>
<td>64.86%</td>
<td>35.14%</td>
</tr>
</tbody>
</table>

By gender and level of education:
By gender and ethnicity:

<table>
<thead>
<tr>
<th>Ethnicity</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>European / Pākehā</td>
<td>84.82%</td>
<td>87.02%</td>
</tr>
<tr>
<td>Male</td>
<td>95</td>
<td>114</td>
</tr>
<tr>
<td>Female</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Māori</td>
<td>6.25%</td>
<td>5.34%</td>
</tr>
<tr>
<td>Male</td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td>Female</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pacific Islander</td>
<td>0.89%</td>
<td>1.53%</td>
</tr>
<tr>
<td>Male</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
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<tr>
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<tr>
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Appendix E – Interview Questions

**Background:**
1. Agency
2. Position / title / job description
3. Level (top management, lower management, operations level, etc.)
4. What is your reason for entering the field of conservation?
5. What particular sub-field do you work in, and why did you choose that particular one?
6. How is the decision making in your organization done? By whom?
7. What are the characteristics of those in various roles within your organization (i.e. the volunteers are generally young students, management is generally made of up PhD scientists, etc.) (Do men and women seem to be more or less present in certain positions)?

**Personal Environmental Management Thoughts and Strategies:**
8. What environmental issues do you feel are the most important to address right now?
9. Are these different from what is currently being addressed by your group? If so, why do you think the group has chosen a different focus?
10. If you had sole decision making power, what would be your preferred method / strategy to address the most important issues? Why did you choose this?
11. If you were in charge of leading others in the group, how would you go about it? What strategies would you employ (e.g. making clear lists of tasks for members, holding regularly meetings, encouraging communication and participation, etc.)?
12. Do you notice any patterns for differences in environmental values between your co-workers (esp. men vs. women) (e.g. women focus less on pests, more on outreach, education, ecosystem, etc.)? What about in their conservation priorities? Strategies?

**Decision Making Group Context:**
13. How many people are part of your group? Who are they? (How many are male and female?)
14. Do you feel that your ideas are respected within your decision making group?
15. Do you feel there are any factors that influence the respect you get from other members (e.g. experience, competence, appearance, gender, etc.)? What about for other members?
16. Have you noticed if ideas are more likely to be accepted depending on the person who it comes from? If so, what factors do you think contribute to this (i.e. their expertise, gender, personality, etc.)? (Does gender influence the respectability of proposed ideas and strategies?)
17. Have you noticed any differences in the way certain members interact within the group (esp. men vs. women) (e.g. men speak more on average, women are more likely to place emphasis on exchange and communication, etc.)?

**More direct**
18. When there are fewer women present in the decision making group, are they less likely to speak up? Do you notice any critical mass effects to women’s effective participation?
19. Do you think male and female members are perceived differently in terms of their competence and the level of respect afforded them because of their gender?
20. Do you notice any differences in what male and female members appear to value environmentally (e.g. different environmental values, priorities, and strategies)?
21. Do you notice any differences in what male and female members appear to value within decision making groups (e.g. do women place more importance on intragroup
relationships, communication, management, do they use different processes, etc. as literature suggests)?

22. Are there any other ways you have noticed that gender plays a role in (group dynamics, decision making processes, emphasis on communication, conflict resolution, etc.)?

23. Do you think the gender composition of an environmental decision making group affects environmental values, priorities, strategies, etc. or group dynamics (communication, conflict, etc.)?

24. Do you want to add anything else on your experience with how gender plays into the environmental decision making context in any way?

- Do you know anyone (yourself included) who works at / with a NZ conservation / environmental organization that may be willing to take a 15 minute (mostly closed answer) survey relating to personal preferences in values, priorities and strategies for managing the environment?