

BIODIVERSITY LOSS, THE MOTIVATION PROBLEM,
AND THE FUTURE OF CONSERVATION EDUCATION IN THE UNITED STATES

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The purpose of this dissertation is to make sense of two sets of reactions. On the one hand, Americans can barely lift a finger to help threatened and endangered species while on the other, they routinely come to the aid of human victims of disaster. I argue that in contrast to cases of human tragedy, for the biodiversity crisis conservationists are faced not only with the familiar yet arduous task of motivating the American public to care for living other-than-humans, but they are also saddled with having to overcome the Motivation Problem of Future Ethics.

The Motivation Problem consists in eliminating or bridging a motivational gap that lies between knowledge of the effects of our actions on future generations and action taken based upon such knowledge. The gap exists because motives that typically move people to action are either ineffective or unavailable. What is more, the gap influences not only our ability to care for future humans, but it affects our ability to care for future other-than-humans as well. Biodiversity loss is in fact a subset of the problem of future generations, an identification hitherto little appreciated.

I argue that conservationists can overcome the motivational gap not by appealing directly to the value of species or biodiversity, both of which are temporally distant, abstract and general moral patients, but indirectly, by focusing on the concrete and particular lives of extant and near future moral patients. By applying techniques that have been developed to overcome the Motivation Problem as it pertains to distant future

human generations, conservationists have additional resources to draw upon in their efforts to motivate American citizens to preserve biodiversity.

This dissertation's contribution to the fields of environmental philosophy and conservation biology is both theoretical and practical. It is theoretically significant to elucidate the nature of moral failure for biodiversity conservation. In terms of broader impacts, identifying the basis of moral failure for biodiversity conservation allows me to assess educational campaigns and environmental policy, and to suggest solutions for bridging the motivational gap.

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CHAPTER I

INTRODUCTION

1. Seeing the Problem

Undoubtedly the twentieth and twenty-first centuries will be remembered as a pivotal moment in the history of the human species, a time during which rapid population growth coupled with staggering demands placed on the Earth's resources gave rise to a sixth wave of mass extinction and the birth of a new geological epoch appropriately labeled "the Anthropocene."¹ To appreciate the magnitude of the current biodiversity crisis consider the following. If 11 million species exist (Chapman 2009, 5) and the 1.52% of recorded anthropogenic extinctions (extinct or extinct in the wild) of species evaluated by the International Union for Conservation of Nature (IUCN) (2010.4) is consistent with the number of extinctions worldwide, then 167,200 species have gone extinct. Famous examples include the auroch (1627), the dodo bird (1662), steller's sea cow (1768), the great auk (1844), the African quagga (1883), the Stephens Islands wren (1895), the passenger pigeon (1914), the Carolina parakeet (1918), numerous subspecies of tigers (Tasmanian [1936], Bali [1937], Caspian [1970], Javan [1976]), the Monteverde

1. The first major work to emphasize global anthropogenic change is George Perkins Marsh's *Man and Nature* published in 1864. A few years later Italian geologist Antonio Stoppani coined the term "Anthropozoic" to denote the transition from nonhuman to human alternation of the global environment (Zalasiewicz, Williams, et al. 2011, 835). However, the notion of an age of humanity did not gain traction in the scientific community until 2000 when Paul Crutzen blurted out at a conference, "Let's stop it, we are no longer in the Holocene. We are in the Anthropocene" (Kolbert 2011; Pearce 2007, 21). Though the proposal to formally recognize "Anthropocene" as a formal geological epoch was made by 21 British geologists in 2008 (Zalasiewicz et al.), the adoption of the term has yet to be ratified by the International Union of Geological Sciences. *Philosophical Transactions of the Royal Society A* (vol. 369, no. 1938 [March 2011]) devotes an entire issue to the matter.

golden toad (1989), and almost certainly the Yangtze River dolphin (2007).² Not only have 854 global species extinctions been recorded, but local extinctions have also spiked. The latest Living Planet Index, which monitors some 8,000 distinct populations of mammals, birds, fish, reptiles and amphibians, indicates an overall 30% decline with a staggering 60% drop in the tropics. The situation is so bad that ecologists Corey Bradshaw and others (2009, 79) lament: “As much as we would like to be bearers of good news, the sad reality is that tropical biodiversity,” which holds more than 60% of all known species, “has never been in worse shape . . . we are already squarely in the midst of a tropical biodiversity tragedy and on a trajectory toward disaster.” Such a disaster includes direct effects on biomass removal and degradation; the wholesale disruption of ecological processes with attendant cascading co-extinctions; and large-scale, heavy-impacts on human populations, including the deregulation of the world’s water systems that directly support nearly three quarters of the world’s population. The authors bleakly conclude that the crisis in the tropics “cannot be avoided.” The Index also reveals an overall 25% decline of terrestrial populations, 24% of marine populations, and 35% of freshwater populations (World Wildlife Fund International 2010).

Extant species fare little better. Of the 55,926 evaluated in IUCN’s 2010.4 report, 33% (18,351) are threatened, a 12.5% increase from the 2008 report. Among vertebrates, the best inventoried of all the taxonomic groups, 30% of amphibians are threatened followed by fishes, reptiles and mammals (each 21%), and birds (12%). Other taxa are

2. There exists any number of quality sources on anthropogenic extinction. See, for instance, Peter Maas’s website *The Sixth Extinction* (2011) and Ross Piper’s *Extinct Animals* (2009). The IUCN currently lists as critically endangered the Yangtze River Dolphin, although it will undoubtedly be recategorized as extinct in future reports (Turvey 2008; Turvey et al. 2007; Smith et al. 2008).

similarly endangered: 68% of evaluated plants followed by fungi and protists at 50% and invertebrates at 30%. As the IUCN makes clear, these estimates are overly conservative because many of the 8,358 data-deficient species will also be threatened. Finally, the rate of anthropogenic species extinction is between 100 to 1,000 times above the natural background rate, which translates into 1,100 a year or 3 a day (Primack 2010, 141).

Now of course the numbers on biodiversity loss are elastic depending on how diversity is parsed and measured, and the long-term impacts of the current and projected losses are not well understood. But still, it is reasonable to assume that the most conservative of estimates and projected impacts ought to generate substantial hue and cry with the American electorate.³ Surprisingly this has not occurred.⁴ While a permanently impoverished world becomes ever more certain, support to halt the extinctions remains shallow. A series of studies (1995, 1996, 2002) commissioned by the Biodiversity Project provides insight into the attitudes of American voters on biodiversity loss.⁵ In the first study (1995), based on a series of 10 focus groups, the firm of Belden & Russonello Research and Communications (B&R) remarks:

[T]he public's real concern over habitat or species extinction is paper-thin and public understanding of biodiversity is superficial. . . . [M]any in the target audience do not believe we are losing enough species and habitat to impact human well-being. They have a hard time accepting the idea that losing some

3. Although biodiversity loss is a global phenomenon, perhaps requiring a global solution, my focus is exclusively on American voters. This is the case because I intend for my work to affect US environmental policy and education. Undoubtedly, a full analysis would take into account the majority of electorates worldwide.

4. In the late 1960s and 1970s such uproar led to the Endangered Species Act of 1973. However with the coming of the 1980s and the "Reagan generation," any sort of broad-based public concern that might have sustained and expanded environmental protections quickly dissipated.

5. See the Appendix for detailed information on the following studies.

species and habitat will affect life on earth in a way that matters to them personally. (6)

B&R's 1996 study and Belden Russonello & Stewart Research and Communications's (BR&S) 2002 study (apparently the firm took on a third principle partner sometime between 1996 and 2002), conducted as national polls as opposed to the focus-group format of the 1995 study, show only modest improvement. In 1996 the term "biodiversity" was nearly invisible across the American landscape with less than 2 in 10 reporting that they had heard of "the loss of biodiversity." The number jumps to 3 in 10 in 2002. Over the same period, however, concern for the rate of extinction dropped 6%, from 25% to 19%. The polls additionally reveal that support for maintaining biodiversity diminishes when placed against jobs or the economy. Of those surveyed in 1996, almost half (48%) believed that protecting jobs is more important than saving habitats; in 2002 this number drops to 38%, an 11% improvement. Commitment to saving species also declines when unattractive, nuisance species like poison ivy or mosquitoes are considered. Nearly half of those surveyed in 1996 (49%) believed that it is acceptable to eliminate such species; in 2002 the number falls to almost one third (38%), an 11% rise in concern (Belden & Russonello Research and Communications 1996; Belden Russonello & Stewart Research and Communications 2002).

Other well-known national polls reveal similar numbers.⁶ According to Pew Research Center surveys, from January 2008 to January 2011 concern for the

6. Yeager et al. (2010) have questioned the accuracy of these types of polls, arguing that the "most important problem" (MIP) question fails to adequately capture attitudes about future-oriented environmental issues. By adjusting the MIP question to include a time dimension—the most important problem *in the future*—the research appears to demonstrate a jump in environmental concern. Clearly the question of whether the current structure and format of national polls accurately captures Americans'

environment tumbled 16% with only 40% of respondents rating it a top priority, down from 56% in 2008. Over the same period though, concern about the economy increased from 75% in 2008 to 87% in 2011, a 12% jump. In Gallup Polls, 36% of respondents rated concern for the environment a top priority, down from 42% in 2008, a 6% decrease. Over the same period, concern for the economy increased 5%, from 49% to 54%. The turning point was 2009 when “[f]or the first time in Gallup’s 25-year history of asking Americans about the trade-off between environmental protection and economic growth, a majority of Americans say economic growth should be given top priority, even if the environment suffers to some extent” (Newport 2009). In addition to asking Americans to rank priorities for the coming year, Gallup also ranks attitudes on particular environmental issues (the Pew Research Center does not). Maintaining a clean water supply consistently lands near the top of Gallup’s list while extinction invariably falls at or near the bottom. More significantly, and echoing the B&R and BR&S polls, there has been a steady if moderate decline in concern about extinction, from 43% in 2001 to 34% in 2011.

Thus research into Americans’ attitudes on biodiversity loss demonstrates that the majority of Americans has not heard about biodiversity or biodiversity loss. Of those that have, fewer and fewer seem bothered by the increasing rate of extinction while an overwhelming majority does not believe that preserving biodiversity is worth the price in economic and social trade-offs, especially when placed against less visible or nuisance

attitudes on environmental issues, most of which are sensitive to temporal scale, requires further investigation. Given that polls using the MIP-question format influence scholarly debate, work in this area can come none too soon.

species. Even nonprofit organizations, the traditional stalwarts of conservation, have had to brace for dramatic decreases in funding, the necessity of consolidation, and bankruptcy over the past few years (May 2009).

Although support for biodiversity conservation has been declining in the face of a growing number of extinctions, people routinely come to the aid of human victims of disaster. One need only turn on the television in times of human tragedy to witness the instantaneous and unmediated support and self-sacrifice by average citizens. From the recent shooting of Congresswoman Gabrielle Giffords in Tucson, AZ to victims of tornados that ravaged large swaths of the American Midwest and South in spring 2011, it is an ordinary fact of life that citizens regularly mobilize to help those in need.⁷ Jenna Meredith, a British citizen from Hull who lost her home to flooding in June of 2007, provides invaluable insight into her motivation for helping human victims of tragedy. Disillusioned by the British government's response to the devastation in Yorkshire County, Meredith quipped to a film crew that victims of the UK flood were living like Third World refugees. In response to these comments Oxfam invited Meredith to India to experience firsthand how people of South Asia were coping with catastrophic floods of their own. Meredith (Oxfam 2007; Yorkshire Post 2007) subsequently filed this report.

It was heartbreaking . . . I have been flooded out and lost everything so I know what it is like for the people in India. But in comparison I feel lucky. We can go and buy food from the shops, but the people I've met have lost their crops. They haven't got anything. . . . I am determined to continue the campaign not only to get aid to those in need, but also to try to do whatever we can to reduce the effect of global warming. . . . I know I can't walk away from this and I am determined

7. See, for instance, the report filed by NBC Nightly News of citizens from all over the US converging on the town of Joplin, Missouri to help victims of a tornado that ravaged the area on May 22, 2011 (MSNBC.com 2011).

to do whatever I can to help. . . . I have had a life-changing experience and, while I don't know what the future holds, I'll do everything I can to make a difference.

As the two sets of reactions amply demonstrate, American and British citizens can barely lift a finger to help threatened and endangered species while they routinely come to the aid of human victims of disaster. What explains the difference? Why is there a substantial motivational gap between knowledge and action in the case of biodiversity loss and not one in times of human tragedy? My answer is that in contrast to cases of human tragedy, for the biodiversity crisis conservationists are faced not only with the familiar yet arduous task of motivating the American public to care for living other-than-humans, but they are also saddled with having to overcome the motivation problem of future ethics—a double whammy if there ever was one.

The motivation problem consists in eliminating or bridging a motivational gap that lies between knowledge of the effects of our actions on future generations and action taken based upon such knowledge. The gap exists because motives that typically move people to action are either ineffective (in the case of the rationalistic and self-interested motives) or unavailable (in the case of the altruistic motives). What is more, the gap influences not only our ability to care for future humans, but it affects our ability to care for future other-than-humans as well. Biodiversity loss is in fact a subset of the problem of future generations, an identification hitherto little appreciated. Note that in making this claim I am *not simply* arguing that included in our responsibilities to future human generations is the responsibility to preserve biodiversity, a common enough ascription. Rather, I am arguing that concern for species loss *is* a future generations problem: just as we have obligations to future human generations (which may involve other-than-

humans), so too we have obligations to morally considerable future other-than-human generations. Accordingly, there exist both anthropocentric and nonanthropocentric reasons for overcoming the motivational gap. Moral agents are responsible to future human generations (to not leave a biologically depauperate planet) and they are responsible to future other-than-human generations (to not cause them to go extinct).

I also argue that conservationists can overcome the motivational gap not by appealing directly to the value of species or biodiversity, both of which are temporally distant, abstract and general moral patients, but indirectly, by focusing on the concrete and particular lives of extant and near future moral patients. In this way the motivationally inaccessible distant future is brought closer to moral agents via the motivationally accessible present and near future. By applying techniques that have been developed to overcome the motivation problem as it pertains to distant future human generations, conservationists have additional resources to draw upon in their efforts to motivate American citizens to preserve biodiversity.

2. Method, Limitations, and Assumptions

My analysis grows out of the literature on future ethics, originally called “the problem of future generations,” which began appearing in Anglophone journals in the United States, Britain, and Australasia in the late 1960s. By the 1980s the parameters of the debate had largely been set, remaining mostly unchanged until the recent spate of interest in climate ethics. My analysis is therefore firmly rooted in Western philosophy of the late twentieth century. By and large I do not incorporate postmodern critiques—

feminist, critical theory, post-structuralist, and so forth—that question grand narratives and the power structures instantiating them. It is not that post-modernist critiques are not insightful (they are); rather, it is unclear, at least to me, whether and if so, how such critiques directly affect my thesis. So although I discuss the effects of the American socio-political structure on the motivation of moral agents, I do directly not speak to postmodern concerns.

I do, however, discuss the biodiversity crisis exclusively in terms of species loss. Despite the fact that (1) biodiversity is often portrayed in terms of all three of its compositional elements (genes, species, and ecosystems) and (2) the loss of the structural and functional elements of biodiversity are as troubling as the loss of its compositional elements, species are nonetheless the most important aspect of biodiversity.⁸ Edward O. Wilson (1992), for instance, calls species “the fundamental unit” and the “holy grail of systematic biology.” To not employ the concept as *the* natural unit of investigation, he contends,

would be to abandon a large part of biology into free fall, all the way from the ecosystem down to the organism. It would be to concede the idea of amorphous variation and arbitrary limits for such intuitively obvious entities as American elms (species: *Ulmus americana*), cabbage white butterflies (*Pieris rapae*), and human beings (*Homo sapiens*). Without natural species, ecosystems could be analyzed only in the broadest terms, using crude and shifting descriptions of the organisms that compose them. Biologists would find it difficult to compare results from one study to the next. How might we assess, for example, the thousands of research papers on the fruit fly, which form much of the foundation of modern genetics, if no one could tell one kind of fruit fly from another? (38)

8. Introductions to the concept of biodiversity are numerous. See, for instance, Groom et al. (2006) and Primack (2010). Noss (1990) characterizes biodiversity in terms of its compositional, structural, and functional aspects.

Moreover, these other aspects of biodiversity, being more abstract than species, are even less likely to engage the motivational faculties of the average American than appeals to species preservation. For this reason I limit my analysis of the biodiversity crisis to species.

Regarding the species concept, I do not review the longstanding debate over how best to categorize organisms into different classes, when to recognize new species, and the ontological status of species as natural kinds. While no doubt these are important questions in the philosophy of biology, they do not directly affect my discussion. However “species” is defined, I take it that the concept is sufficiently robust to be operationalized.

I do not argue for the moral considerability of other-than-humans. I assume it. Empirical evidence overwhelmingly confirms that at least some other-than-humans have properties that at one point were thought to ground the moral considerability of (typically only) humans. Moreover, in environmental ethics both individual units of nature (specimens) and collective or holistic units of nature (species or biodiversity as such) have been identified as morally considerable. Because I am focused on necessarily indeterminate moral patients living in the distant future, be they human or other-than-human generations, it makes sense to conceptualize them holistically.

I restrict my analysis of *moral responsibility*, though, to individuals because I am most concerned with the motivational structure of the moral agent. Agency holism, the view that at least some entities existing above the level of the individual (for instance, societies, communities, organizations, governmental bodies) can be moral agents, will

therefore not be considered. Although collective action (law, policy) is required to conserve biodiversity in a democracy like the United States, it nonetheless depends, at least initially, on the motivation of individual members of the body politic to make their voices heard in a system where power is distributed unevenly.

Unfortunately, terminology used to talk about moral agents is often employed ambiguously. Ethicists refer to individual agents with terms like “society” that designate or may designate entities existing above the level of the individual. Yet a society is a collectivity, and the practice of referring to “we” as in “we are responsible” leaves open the question of whether the pronoun is intended to be understood collectively or severally. I suspect that the tendency is prevalent because of the conventions of language. It seems more elegant and efficient to refer to society rather than to “the sum total of individual contemporary citizens.” To employ language as precisely yet as conventionally and efficiently as possible, therefore, I follow standard practice and refer to aggregated individual moral agents as “society” or “we.” Yet in doing so I am never referring to an entity existing above the level of the individual. In cases where shorthand is insufficient, I explicitly identify what organizational level I am speaking about.

3. Significance and Implications

My project’s contribution to the fields of environmental philosophy and conservation biology is both theoretical and practical. It is theoretically significant to elucidate the nature of moral failure for biodiversity conservation. As mentioned, this involves identifying concern for biodiversity loss as a subset of the problem of future

generations. Additionally, linking biodiversity conservation to posterity enables the exploration of mapping strategies developed in response to the problem of future human generations onto the problem of future other-than-human generations (biodiversity loss). This, in turn, promises to open up new avenues of research for conservation biologists and educators. On the practical side, once I identify the basis of moral failure for biodiversity conservation, I will be in a position to assess environmental education and policy, and to suggest solutions for bridging the motivational gap. In this way my project is directly relevant to US environmental public policy, both in terms of general approaches as well as particular laws like the National Environmental Education Act of 1990 (Pub. L. no. 101-619, 104 Stat. 3325).

4. Summary of Chapters

To appreciate why ordinary Americans regularly come to the aid of humans in distress while remaining largely unmotivated to do anything about the biodiversity crisis, I have to take a few steps back.

I begin my analysis by documenting the rise of future ethics. I introduce a number of important terms and distinctions that structure the discussion. I then outline criteria of moral responsibility and show how individuals living in Western society satisfy the criteria as they apply to moral patients living in the future. I discuss different views of the object of consideration, a subset of all future humans most commonly referred to as “future generations,” and explain how the different views reflect varied rationales for delimiting the target subset. Along the way I appraise a debate, known as

moral distance in the literature, about the extent of moral obligation. Impartialists claim that (spatial and temporal) distance is irrelevant for determining the outer limit of moral responsibility whereas partialists think otherwise. I conclude by applying the distinction between “regulative” and “operative” obligations to the distance problem, and show that even if the distinction is cogent, the goal is to generate operative obligations, those that can actually motivate action.

In chapter III I introduce the motivation problem of future ethics. After tracing a growing awareness of the problem, I discuss the challenge it poses to societies like ours. I review a debate over whether reason alone can move a person to action as motivational internalists contend or requires the addition of external conative states like wants and desires as motivational externalists claim. I then show how motivational internalism is often assumed in discussions of obligations to future (human) generations. At this point I discuss the motivation problem directly, arguing that a gap between knowledge and action exists because motives that typically move people to action are either ineffective (in the case of the rationalistic motives) or unavailable (in the case of the altruistic motives). I also argue that factors giving rise to the motivational gap in the case of distant future human generations give rise to a motivational gap for distant future other-than-human generations. I conclude the chapter by assessing evidence taken to indicate that people act on behalf of posterity. I concede that in these cases the burden of proof lies on the skeptic, but argue that the skeptic can in all likelihood shoulder such a burden.

In chapter IV I suggest a solution to the motivation problem. Because the motivational gap is caused by a disconnect between human motivational faculties and the

object of moral consideration, distant human and other-than-human future generations, it follows that solutions to the problem will have to rely on the indirect moral motives that take as their object of *motivational* concern the particular and concrete lives of individual members of present and near future generations. If, in caring for the lives of immediate humans and other-than-humans, distant future generations are likewise taken care of, then there is hope that the motivational gap can be bridged, although perhaps never closed. I reject the indirect self-interested motives because they fail to provide sufficient motivation despite being in vogue with the scientific community. The indirect altruistic motives, on the other hand, show considerable promise. In particular, John Passmore's "chain of love" solution may provide just the theoretical resources needed to link the objects of motivational consideration to the object of moral consideration. I conclude the chapter with a review of conservation education techniques. I argue that of the two central approaches, the strategy of changing behavior through raising awareness is unsuccessful whereas in situ conservation techniques have the potential to be successful. Although this result may be unsurprising, discussion of conservation strategies rarely if ever identify the underlying causes of their success, something that I do.

In chapter V I summarize the goals and arguments of the dissertation, pointing out the status and limitations of my research. I then provide a list of recommendations that future-oriented environmental education and legislation will have to take if they are to have any chance of overcoming the motivational gap without resorting to coercive mechanisms. I end by looking at biodiversity loss and the future of conservation education outside of a strictly academic setting. Regrettably, I am skeptical about

whether the current structure and approach of environmental education in the US will move enough people to action, quickly enough, to avoid catastrophic biodiversity loss.

CHAPTER II

THE RISE OF FUTURE ETHICS

1. Introduction

In this chapter I discuss the emergence of future ethics, focusing predominantly on the scope of moral considerability.¹ I begin by introducing a series of key terms and distinctions that will structure the discussion. I then outline criteria of moral responsibility and show that, beginning in the mid-twentieth century, individuals living in Western society or those following the Western economic model (living in Asia perhaps) met the criteria as it applies to a subset of all future moral patients most commonly referred to as “future generations.” Although historically this class of future generations has been restricted to future *human* generations, I argue that it also includes morally considerable other-than-humans (biodiversity). A small step conceptually, expanding the problem of future generations to include other-than-human future generations has significant implications. Not only does it promise to reveal why motivating the American public to care about biodiversity loss is so difficult, it opens up the possibility of exploring whether and if so, how solutions to the problem of future human generations can be applied to the problem of biodiversity loss. I next review a debate over how to best delimit the scope of moral considerability. Termed “moral distance” in the

1. I do not consider debates about which normative theory—utilitarianism and social discounting or deontology and a rights-based approach in particular—best describes the character of our obligations to future moral patients. I also do not review specific moral duties, both positive and negative, that have been claimed to follow from such obligations. Doing so would take me too far afield of the central topic of the chapter.

literature, impartialists and partialists differ on whether moral agents ought to be impartial about obligation, extending the ambit of moral considerability to the outermost human generation affected by their actions, or instead should be partial to more immediate human generations thereby circumscribing the scope of moral considerability to some extent. The distance problem is fueled by the fact that impartialists and partialists mutually conflate what Kenneth Goodpaster calls regulative and operative obligations. After reviewing implications of Goodpaster's distinction for the distance problem, I close the chapter with a discussion of problems associated with the impartialist position.

2. Terms and Distinctions

Developing a language for talking about future generations is imperative. Although such a language is undoubtedly in its infancy, there exist some conceptual resources to start the conversation.

To begin with, the term "generation(s)" ought to be defined.² A human generation is any group of contemporary humans that is individuated according to one of three methods. Sometimes human generations are delimited in terms of a combination of time period and culturally significant events. The Baby Boom generation, for instance, was born following the conclusion of World War II, sometime between 1946 and 1964 (Britannica Concise Encyclopedia 1994-2010). In addition to being a relatively large cohort it is distinguished by its rejection of traditional values and religion, the civil rights

2. The following discussion is based largely on Gardiner (2003, 481-483).

movements of the 1960s and 1970s, the Vietnam War, the emergence of the US space program, and so forth. But human generations are also understood in terms of the time it takes children to replace their parent(s). On this view a human generation is born approximately every 20 to 25 years and is identified by its position in the family tree—great-grandparents, grandparents, parents, children, grandchildren, great-grandchildren, and so on. Finally, human generations can be separated into non-interacting cohorts separated by intervals of greater than 100 years. Discussions of future human generations typically involve either the second or third definitions, and I adopt the second.

A key distinction to be aware of is the difference between moral agents and moral patients.³ Ethicists generally agree that moral agents, paradigmatically the competent adult human being, are obligated to consider the interests of moral patients. Moral patients are entities deserving of moral consideration, to whom ethical obligations are owed, but who themselves are not necessarily responsible for their actions. In addition to moral agents, who are also paradigmatic moral patients, the class of moral patients includes human non-agents, such as infants and mentally impaired persons. Thus all moral agents are moral patients (deserving of moral consideration) but not all moral patients are moral agents (capable of behaving morally). The difference between moral patients and moral agents can easily be illustrated. Consider the case of a young child, around five years old, who shoots another person. In situations like this the courts and public sentiment almost always blame the parents because it is (legally or implicitly) understood that the child is not a moral agent, fully aware of what she or he did and

3. As far as I can gather, Warnock (1971) was the first to discuss the agent/patient distinction. Light and Rolston (2003, 6) provide an excellent if brief discussion of it.

capable of understanding the difference between right and wrong.⁴ But we think that competent adults are or should be cognizant of the relevant facts. This is why we punish the adults, not the children.

Moreover, animal and environmental ethicists have thought that at least some other-than-humans are moral patients. Like infants or mentally impaired adults, it doesn't matter whether they are capable of behaving morally or are aware of their interests. We don't expect the bear to be moral to its fellow bears, much less to us, just as we don't expect very young shooters to be able to behave morally. There is an important difference between bears and normally functioning children, however. Children are moral agents-in-training, something bears can never be. But this fact is of no consequence with regard to what units of nature deserve moral consideration, for other widely recognized human patients, like mentally disabled and demented people, are also not agents-in-training.

A second distinction to keep in mind is provided by Kenneth Goodpaster (1978) in his influential essay "On Being Morally Considerable." There, Goodpaster is principally concerned with establishing that the property of being alive, as opposed to sentience or rationality, is the appropriate criterion of moral considerability. He foregrounds his argument by dividing moral obligations into two classes, those that are regulative and those that are operative. There exists an important difference between what morality rationally demands (regulative obligations) and moral demands that moral

4. While clearly a five-year-old human is not a moral agent, in jurisprudence there is debate about the minimum age of responsibility. Sometimes sub-adults are tried for their crimes as adults, implying that even though they are of age under the law, they may in fact be morally responsible humans.

agents are capable of actively responding to given their psychological makeup (operative obligations). One may wonder, perhaps recalling Immanuel Kant's maxim that "ought implies can," whether it is cogent to maintain the existence of a class of obligations lying outside the bounds of possibility. In rebutting the objection as it applies to his criterion of moral considerability (life), Goodpaster explains:

It seems to me that there clearly are limits to the operational character of respect for living things [that is, moral patients]. We must eat, and usually this involves killing (though not always). We must have knowledge, and sometimes this involves experimentation with living things and killing (though not always). We must protect ourselves from predation and disease, and sometimes this involves killing (though not always). The regulative character of the moral consideration due to all living things asks, as far as I can see, for sensitivity and awareness, not for suicide (psychic or otherwise). *But it is not vacuous*, in that *it does provide a ceteris paribus encouragement* in the direction of nutritional, scientific, and medical practices of a genuinely life-respecting sort. (324, emphasis added)

Generalizing Goodpaster's claim, it is cogent to distinguish regulative and operative obligations because even if regulative obligations can never fully be discharged, they nonetheless encourage moral agents to be responsible when their own interests ("nutritional, scientific, and medical") are not engaged. Assuming Goodpaster's criterion of moral considerability, if one finds a poisonous spider in one's house, one is perfectly entitled to kill it because we are entitled to protect ourselves from predation and disease; but if one finds a harmless spider in one's house—all things being thus equal (*ceteris paribus*)—one ought to let it live.

3. Criteria of Moral Responsibility

When a moral agent has an obligation or duty we say that she or he satisfies conditions of moral responsibility. To begin with, (1) the obligation must be morally

significant, it must concern the well-being of moral patients be they humans or other units of nature. Such obligations may include omissions wherein a person opts to not do something that would otherwise harm or diminish others (killing, stealing, or manipulating) as well as actions performed on behalf of others (helping those in need, responding to suffering, and so forth). (2) The agent must also have access to the morally relevant information, including knowledge of the consequences of her or his actions and knowledge that these actions are morally relevant. The third condition (3) is that the agent must be capable of performing the act in question; it must be within her or his power to realize. The fourth and last condition is that (4) the agent must be free to choose whether or not to perform the act. She or he must not be coerced by some physiological condition (for example, obsessive-compulsive behavior) or by psychological or physical forces (for example, torture or the threat of torture). Hence moral responsibility entails no less than (1) moral significance, (2) knowledge, (3) capacity, and (4) choice (Partridge 1981, 1-5; Partridge 2003, 377-378).

Provided criteria as this, ethicists have often thought that moral patients living in the distant future lie outside the scope of moral considerability. It makes little sense, from this perspective, to ascribe obligations to future humans if they are impervious to the actions of their forebears. Beginning as early as the industrial revolutions of the eighteenth and nineteenth centuries, however, Western society acquired the capacity to

affect the well-being of future generations.⁵ The introduction of coal-driven technology together with the invention of the internal combustion engine dramatically increased the rate at which carbon enters the atmosphere. Recombinant gene technology has allowed for the permanent alteration of the genetic composition of germ cell lines. And the introduction of organo-chlorine compounds has given rise to vinyl chlorides, chloromethanes, pesticides, and polychlorinated biphenyls (pcbs)—all persistent organic pollutants thought to accumulate in the environment for extended periods of time. The capacity to affect our remote descendants promises to only increase with the rise of planetary engineering and efforts to manipulate the Earth's climate through heat transport, ocean fertilization, and solar radiation management.

In addition to increased technological capacity, the explosion of the information sciences—including the advent of sophisticated information-gathering systems, the computer, and the internet—has enabled scientists to predict with increasing confidence the long-term effects of current policies and actions.⁶ Space satellites monitor most every inch of the Earth's surface, deep water probes penetrate to the extreme depths of the world's oceans, and medical technology is lifting the veil on the body's physiological processes. The exponentially increasing capacity of computers to process these data streams along with the ability to disseminate the results via the internet leaves little

5. Almost certainly hunter-gathers and early agriculturalists affected later generations through soil salinization and exhaustion, overhunting and species extinction, over-extraction and deforestation, and so forth. But as White (1967) points out, the *degree and duration* of affect is a novel capacity that emerged with the Industrial Revolution. Later in the chapter I discuss exactly how far into the future the effects of our current activities are likely to extend.

6. As with capacity, I contend that present generations' knowledge of the effects of their actions on distant generations is of a different order than knowledge held by members of earlier societies. Obviously a sweeping claim as this requires anthropological and archeological support.

support for the claim that the effects of emerging technologies are entirely unpredictable. Even if the specific consequences of our actions and policies are too complex or too remote to anticipate with pin-point accuracy, the scale of the projected changes typically renders such fine-grained predictions irrelevant (Partridge 1981, 2).

Thus, where at the dawn of the twentieth century it was incomprehensible to attribute to individuals living in Western society the power and knowledge to affect future generations, at the dawn of the twenty-first such an attribution is the norm. Where previously we did not have to consider our moral obligations to future generations because two of the four criteria of moral responsibility—capacity and knowledge—could not be met, by the mid-twentieth century moral agents in Western society suddenly fulfilled all four, and in doing so became obligated to an entirely new class of moral patients: those living in the remote future.

4. Biodiversity Loss as a Future Generations Problem

The problem of future generations is usually described as the problem of making sense of theoretical and practical implications of attributing obligations to distant future human generations. Although the duty to not threaten the existence of the human species is sometimes recognized (see Jonas 1984, 38-46, for instance), most often duties to future generations involve the type of world that future human generations are bequeathed. Given that the interests of most human moral patients involves more than an interest in life, discussions of this sort typically focus on not leaving the world depauperate, the preservation of wilderness areas, the acceptability of substituting technological systems

for natural systems, and so forth. Accordingly, biodiversity loss is not often described as a future generations problem. Other-than-humans simply do not have the range and type of interests that characterize the future generations problem as it is most often discussed.

But like concern for the continuation of the human species, concern for extinction is a concern for the continuation of other-than human species. If a species goes extinct, future generations of that species will no longer exist. Regardless of whether it is meaningful to talk about preserving a way of life for future generations of other-than-humans, it is meaningful to talk about their continuance. For this reason biodiversity loss is a future generations problem, albeit one focused solely on the obligation to not threaten the continuation of other-than-human species.⁷ And if biodiversity loss is a future generations problem, provided the criteria of moral responsibility, then moral agents are responsible to *all* morally considerable moral patients living in the distant future, be they human generations or other-than-human generations.

5. The Scope of Moral Responsibility

Yet the fact that moral agents are responsible to future moral patients may obscure as much as it reveals. As first noted by Martin Golding (1968, 452-458),

“Future” is a vague term, and no headway can be made until we settle on the “future” that is the subject of concern. Purposive conduct is future-oriented; one does something now in order to bring about some condition at a later date. But this later date may vary from the next second on into eternity. . . . There are many generations between the present and the remote future. Aside from the question “What shall we plan for?” we must consider whom we shall plan for. Is any

7. I am not convinced that concern for future generations of other-than-humans amounts to no more than a concern for their continuation. The more science reveals about other-than-humans (elephants and dolphins, for instance), the more appropriate questions about the kind of world we leave them become.

generation, or set of generations, more entitled to our humanitarian concern than any other?”

The question of isolating a particular subset of future moral patients from within a larger class, originally raised by Golding with regard to temporally distant humans, was picked up by Peter Singer (1972) in his essay “Famine, Affluence, and Morality.” Although Singer’s focus is limited to spatial distance and individual human moral patients, Singer brings to the fore the issue of moral boundaries that was originally broached by Golding.

The uncontroversial appearance of the principle just stated [“if it is in our power to prevent something very bad from happening, without thereby sacrificing anything morally significant, we ought, morally, to do it”] is deceptive. If it were acted upon, even in its qualified form, our lives, our society, and our world would be fundamentally changed. *For the principle takes, firstly, no account of proximity or distance.* It makes no moral difference whether the person I can help is a neighbor’s child ten yards from me or a Bengali whose name I shall never know, ten thousand miles away. . . . If we accept any principle of impartiality, universalizability, equality, or whatever, we cannot discriminate against someone merely because he is far away from us (or we are far away from him). . . . There would seem, therefore, to be no possible justification for discriminating on geographical grounds. (231-232, emphasis added)

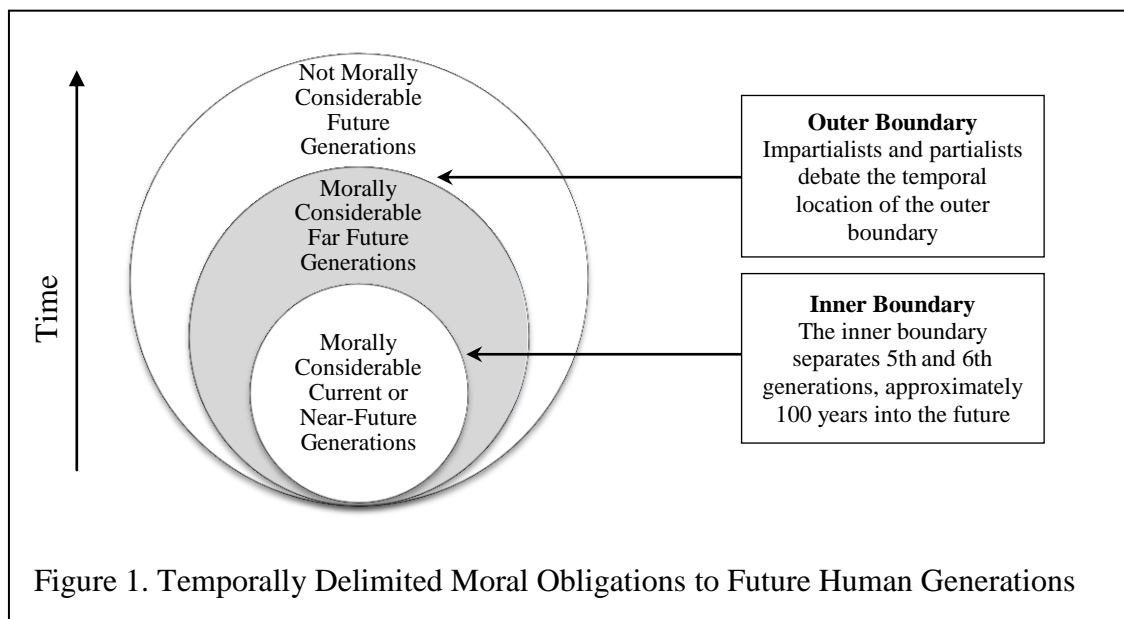
Of course, at least in the case of spatially distant humans, Singer introduces boundaries in order to deny that any should exist.⁸ Nonetheless, his comments initiated a concept in contemporary literature that has become known as “moral distance.”⁹

Moral distance concerns whether and if so, to what degree, spatial and temporal distance sets the boundaries and extent of moral consideration and obligation. Does consideration diminish over distance? Is the character of our obligations to temporally

8. Singer was not the first to emphasize the irrelevance of moral distance. The idea emerges from the universalistic tendencies of the Enlightenment. Among the precursors to Singer are Sidgwick (1877, 354) and Kant (1912, 27). Kavka (1978, 188-189) and Richard and Val Routley (1982) provide more recent examples.

9. The journal *The Monist* (vol. 86, no. 3, 2003) devotes a recent issue to the topic.

distant moral patients (usually only humans) analogous to the character of our obligations to spatially distant moral patients, or does temporal distance involve additional, morally relevant factors? (Chatterjee 2003, 327-328) Whatever the answers to these questions, moral distance fundamentally concerns the scope of moral obligation, which is circumscribed by two boundaries, an inner boundary and an outer boundary (see Figure 1).



The inner boundary separates those humans living in the present and the immediate future—to whom we are related, who are born during our lifetimes (children, grandchildren, great-grandchildren), and/or with whom we literally share a common life—from those who will inherit the world from us but to whom we are not immediately

related and do not literally share a common life.¹⁰ If members of each generation live exactly 100 years and have offspring at the age of 20 years, the boundary separates 5th and 6th generations.¹¹ What distinguishes current and near-future human generations from generations after the 5th (a hundred years later) is that present generations cannot literally know or share in a common life with the later ones; there is no possibility of overlap or interaction between the two. Unlike current and immediate generations, this second class of human moral patients is a conceptual placeholder, a necessarily abstract category for the undifferentiated and undifferentiable masses who come after us and our immediate descendants.

The outer boundary is harder to demarcate, for it concerns whether capacity and knowledge alone, two of the four criteria of moral responsibility, should determine the extent of obligation. Impartialists claim that capacity and knowledge are the only relevant factors while partialists want to include additional, considerability-limiting factors like kith and kin, a shared conception of the good life, and so on. Before

10. The following discussion does not apply to other-than-human generations. While I discuss the inner boundary of moral considerability in terms of temporal overlap and genealogy, it does not make sense to discuss other-than-human generations in this manner because they belong to a different species than ours. The exact location of the inner boundary of moral considerability is therefore irrelevant with regard to our obligations to future other-than-human generations. What is more, if the obligation in question is the continuance of a species, be it the human or some other-than-human species, the following discussion of the outer boundary of moral considerability is also irrelevant, for if the duty to not cause a species to go extinct is not upheld (that is, if a species wrongly goes extinct), then there can be no question of specific duties concerning quality of life, the type of world bequeathed, and so forth, as the species will no longer exist. In light of these considerations, a future other-than-human generation is simply every generation after the first.

11. If the first generation is 99 years old, their lives can conceivably overlap with the lives of their great-great grandchildren (for 19 years), but not with their great-great-great-grandchildren who would be born shortly thereafter, in their 101st year. I have chosen a life span of 100 years and the age of 20 years for women to have their first child in order to illustrate the overall limits of biological possibility, not average life expectancy or the average age of childbirth in the US.

comparing the two positions, it is instructive to consider the location of the outer boundary of moral considerability on each account.

According to impartialists like Singer (recall his injunction that “[i]f we accept any principle of impartiality . . . we cannot discriminate against someone merely because he is far away from us”), the subset of future human generations to which present generations are morally obligated is those living between 100 years in the future (the inner boundary) and 1,000 to one million years in the future (the outer boundary).¹² The introduction of coal-driven technology, for instance, is one of the main drivers of anthropogenic climate change. If carbon dioxide emissions were to stop today, the climatic effects of anthropogenic emissions already in the atmosphere would linger for more than 1,000 years (Solomon et al. 2009). And if the projected 20% - 30% climate-change-induced loss of biodiversity is taken into account, the effects may be as long as the time it takes evolutionary processes to recover the sum total of lost biodiversity, up to a million years.¹³

On an partialist account of moral responsibility the subset of future humans that present generations are morally obligated to is substantially restricted, from between either 25 years in the future (the 2nd generation) and 100 years in the future (the 5th generation) or between 100 years in the future (the 6th generation) and 1,000 years in the future (the 50th generation), depending on what restricting factors a given partialist

12. Another famous impartialist argument comes out of the Routley’s (1982) well-known “nuclear train into the future” thought experiment.

13. Parry et al. (2007) provide a complete account of projected climate impacts. Similar numbers can be generated for the other novel technologies mentioned in section three of this chapter—organo-chlorine compounds, recombinant gene technology, and planetary engineering.

invokes. For example, assuming with David Hume that morality is a function of human psychology, the extent of moral obligation can extend no further than the objects of the moral sentiments, five generations or a hundred years hence (*Treatise* 2.3.7). By limiting moral considerability to a shared conception of the good life, Golding (1972, 67-68) pushes the boundary out to perhaps 1,000 years, though establishing exactly how far to extend such a conception is relative to the generations in question. For at some point beliefs held by current and near future generations will no longer be held by those living in the further future, but exactly when this will occur depends on contingent facts about both generations. Views of the good life held by people living in the Middle Ages lasted through the fifteenth century after which time the Modern period, with a very different worldview, was born. This means, *ceteris paribus*, that people living in AD 500 would have been responsible for people living in AD 1300, some 800 years later.

Now Goodpaster's distinction between regulative and operative obligations goes a long way in explaining differences between impartialists and partialists. Recall that regulative obligations are moral obligations that rationality demands while operative obligations are obligations that moral agents are capable of performing or not performing given their psychological makeup. Impartialists and partialists seem to conflate the two, insisting that one or the other alone establishes the horizon of moral responsibility.¹⁴ Impartialists interpret all regulative obligations to be *eo ipso* operative, and do not give any thought to attendant theoretical and psychological challenges. Partialists, on the other hand, keenly aware of the motivational challenges facing the impartialist position,

14. Examples are too numerous to count. In addition to Singer, Hume, and Golding, see Passmore (1974, especially chapter 4) and Waldron (2003).

introduce considerability-limiting criteria, and in so doing reduce regulative obligations to operative obligations.

Although it would be helpful if both parties were clear about the difference between grounds for moral consideration and questions of motivation, impartialism is saddled with two tremendous challenges. First, it is highly unlikely that humans as *Homo sapiens sapiens* (beginning with Cro-Magnon man) will exist in a million years, for as a sub-species *Homo sapiens sapiens* have only been around for some 40,000 years (The Columbia Encyclopedia 2008). So even though the effects of our current activities may well extend beyond 40,000 years, the recipients of the effects, whoever they turn out to be, will probably no longer be human as we now understand what “human” refers to or what it means to be human (assuming, of course, that evolutionary processes do not drastically slow down).¹⁵ Second, there exists considerable difference in motivation between whether one conceives of one’s self as obligated to moral patients living in the near future (for instance, one’s grandchildren) or to the faceless, indeterminate masses living in the remote future. Indeed, the psychological differences in motivation between caring for these two groups informs discussion in the next chapter.

6. Conclusion

In this chapter I have discussed a number of the central themes or issues in the field of future ethics. I began by introducing key terms and distinctions: generations,

15. It might still be argued that obligations exist, only under such conditions they would take on the character of inter-species obligations. Given the fantastic nature of this possibility, I set the matter aside. For more on the fruitfulness of speculations like this, see Callicott (1986), especially section 3, 238-245.

moral agents/moral patients, and regulative obligations/operative obligations. With these in hand, I outlined criteria of moral responsibility, demonstrating how by the late-twentieth century people living in Western society or following the Western economic model became responsible to moral patients living in the distant future. I next discussed how concern for biodiversity loss is a future generations problem. Although perhaps more restricted than the problem of future human generations, the problem of biodiversity loss concerns generations of temporally distant other-than-human moral patients. I then turned to the class of future humans to which present generations are morally responsible. Of the three candidate classes, the locus of considerability is on the intermediate group—those humans lying beyond the ken of what we can experience or know close up (subsequent to the 5th generation) but who are nonetheless affected by our actions (anywhere from a 1000 to 1 million years in the future). In the course of discussing the intermediate group, I reviewed the debate between impartialists and partialists about moral distance. If, in the case of distant future generations, Goodpaster's distinction between regulative and operative moral obligations obtains, then regulative obligations to distant generations exist. But as I argue in the next chapter, regardless of their designation, the obligations that matter the most are those that can be acted upon, that is, the operative obligations.

CHAPTER III

THE MOTIVATION PROBLEM OF FUTURE ETHICS

1. Introduction

In this chapter I discuss the motivation problem of future ethics. I begin with a review of the literature, tracing growing awareness of the problem from Antiquity to the present. I then discuss the challenge the problem poses to societies like ours that assign a high value to individual freedom. I review a debate in metaethics over whether reason alone can move a person to action (as motivational internalists contend) or whether the addition of external conative states like wants and desires is required (as motivational externalists claim). As I show, motivational internalism is frequently assumed in discussions of obligations to future generations. At this point I discuss the motivation problem, arguing that in the case of distant future generations, a gap between knowledge and action exists because motives that typically move people to action are either ineffective (as in the case of the rationalistic motives) or unavailable (in the case of the altruistic motives). Because of this, the motivation problem cannot be solved directly. I also argue that factors giving rise to the motivational gap in the case of distant future human generations give rise to a motivational gap for distant future other-than-human generations (biodiversity). I conclude the chapter by assessing evidence that has been taken to indicate that people act on behalf of posterity. While I concede that in these cases the burden of proof lies with the skeptic, I argue that the skeptic can in all likelihood shoulder such a burden.

2. Review of the Literature

Tracing the history of the motivation problem is difficult because as discussed in the previous chapter, partialism about moral distance is often justified on motivational grounds. The result is that discussions of motivation are woven into discussions of the scope of moral considerability. Be that as it may, recognition of the motivation problem dates as far back as Antiquity.

Aristotle (*On Rhetoric* 1386a), for instance, notes that “sufferings of others . . . close to us . . . excite our pity [while] we cannot remember what disasters happened a hundred centuries ago, nor look forward to what will happen a hundred centuries hereafter, and therefore feel little pity, if any, for such things.” Hume (*Treatise* 2.3.7), aware of difficulties in motivation posed by spatially and temporally distant objects, comments:

Contiguous objects must have an influence much superior to the distant and remote. Accordingly we find in common life, that men are principally concern'd about those objects, which are not much remov'd either in space or time, enjoying the present, and leaving what is afar off to the care of chance and fortune. Talk to a man of his condition thirty years hence, and he will not regard you. Speak of what is to happen to-morrow, and he will lend you attention. The breaking of a mirror gives us more concern when at home, than the burning of a house, when abroad, and some hundred leagues distant.

Hume is especially keen to the fact that it is decidedly more difficult to care for temporally remote events than spatially distant ones.

[T]ho' distance both in space and time has a considerable effect on the imagination . . . yet the consequence of a removal in *space* are much inferior to those of a removal in *time*. Twenty years are certainly but a small distance of time in comparison of what history and even the memory of some may inform them of, and yet I doubt if a thousand leagues, or even the greatest distance of

place this globe can admit of, will so remarkably weaken our ideas, and diminish our passions. A *West-India* merchant will tell you, that he is not without concern about what passes in *Jamaica*; tho' few extend their views so far into futurity, as to dread very remote accidents. (*Treatise* 2.3.7, emphasis in original)

Against Aristotle and Hume, Kant (1912, 27) believes that the impulse to act is not inherently tempered by distance. "Human nature is so constituted," he remarks, "that it cannot be indifferent to goods and bads that happen at the most distant epoch, if only they happen to our species and can be expected with certainty."

The contemporary discussion of the motivation problem was started in 1982 with the publication of Norman Care's "Future Generations, Public Policy, and the Motivation Problem." There, Care lays out the problem in its current form, focusing not so much on the faculties of reason or emotion, but on properties of future human generations that prevent the faculties from being activated. "Future people . . . are faceless and impersonal . . . The details that make people at least interesting to each other personally are missing. We do not know what their life styles are, what they stand for, whether they think much of us, or whether they are concerned about people who live many generations after them" (204). Given that future people do not have the "capacity to interest," Care is skeptical about the ability of internal motivation to successfully move people to action.

In addition to emphasizing motivationally problematic aspects of future generations, Care recognizes that the motivation problem is caused by distance, which can be both spatial and temporal. Although Singer had raised the issue of (spatial) distance a decade before Care, Singer did so, according to my analysis, with regard to regulative obligations, claiming that spatial (geographic) distance is irrelevant to establishing the horizon of moral responsibility. Care, on the other hand, is concerned

with operative obligations. Goodpaster's distinction between regulative and operative obligations is not recognized by either Singer or Care, thus confusing the issue and making the differences between the two appear to be greater than they might actually be. What is more, because Care, like Hume, is focused on distance as such and not its particular manifestations, he is in an ideal position to compare spatial and temporal distance. This, in turn, enables him to recognize that the motivation problem—the problem, as we may now understand it, of making regulative obligations operative or at least somewhat so—is more severe for temporal than for spatial distance.

[T]he motivation problem I wish to explore is not unique to the policy context in which we deal with what morality requires for the world of the future. It may be that the problem typically arises when public policy calls for sacrifice, and the sacrifice is thought of as for the sake of people who are distant enough from us to be faceless and impersonal. Of course, the condition and plight (e.g., the destitution) of current people who are distant from us can often be revealed to us through the gathering of particular facts. Individual current people, at any rate, can (in principle) become known to each other. But the same opportunity to know future people in similar detail is not available to us. This, I think, affects our motivation to do (if not our understanding of) what morality requires for the world of the future. But it does not restrict the motivation problem to the context in which we are concerned with acceptable policy for the future. (198)

Finally, Care situates the motivation problem within the context of the common weal. He is, of course, aware that coercive, paternalistic mechanisms can be employed. But sensitive to the fact that morally required policies regarding distant future generations will demand great sacrifice by ordinary citizens, and that ours is a free society, he eschews such mechanisms, preferring instead to identify motives of the individual moral agent that can be used to create support for policies that will be acceptable to members of a free society.

Val Plumwood's contribution to illuminating the motivation problem is to further explore the socio-political implications of spatial and temporal distance. She situates her remarks in the context of discussing a fictitious republic, the EcoRepublic, modeled simultaneously after Plato's great utopia and contemporary polities. The central problem, Plumwood (2002, 71-74) believes, is that distance, which she calls "remoteness," prevents "societies . . . from dealing effectively with ecological problems" because they "dissociate decision-makers . . . from consequent ecological damage" and "distort . . . knowledge of and motivation to correct that damage." The chief remoteness condition that Plumwood analyzes is consequential remoteness.¹ Consequential remoteness occurs when the consequences of an action do not fall on those performing it, but instead fall on some other entity or group. When effects are spatially distant from decisions that cause them, it is easy to be unaware of and therefore unmotivated to eliminate negative effects. Consequential remoteness is often characterized as the NIMBY phenomenon wherein wealthy, politically empowered citizens procure the benefits of production while locating its negative impacts in others' backyards. Consequential remoteness impacts distant future generations to the extent that the adverse consequences of some of our decisions (for instance, those regarding nuclear-power generation and its waste products) may not take effect until far into the future. Moreover, consequential remoteness is the result of spatial and temporal remoteness insofar as the latter remoteness conditions allow effects

1. Plumwood identifies no less than seven distinct remoteness conditions: spatial, temporal, consequential, communicative, epistemic, technological, and spiritual. At least to me, it is not clear that all seven qualify as genuine remoteness conditions. To take one of Plumwood's examples, while an air conditioner indeed creates "thermal well-being in places of prominence and privilege by generating thermal ills it takes no responsibility for in remote or disregarded 'waste' places" (72-73), the remoteness condition at work is not technological (as she says), but consequential—the benefits of the technology accrue to one set of people while its negative effects accrue to another.

of actions to be (temporarily or spatially) distant from their causes. Because of this Plumwood thinks that ecologically sustainable societies will have to develop policies for eliminating remoteness conditions.

A[n anti-]remoteness principle of ecological rationality is that, other things being equal, an ecologically rational form of agency would minimise the remoteness of agents from the ecological consequences of their decisions (actions). The principle aims to provide agents with the maximum motivation to reach responsible ecological decisions, to correct bad ecological decisions, and to minimise the possibilities for ecojustice violations which systematically redistribute rather than eliminate adverse ecological consequences. (72)

In short, Plumwood thinks that eliminating conditions of consequential, spatial, and temporal remoteness that give rise to a motivational gap ought to be the primary goal of any ecologically rational and democratic polity.

As an example of such a polity, Plumwood considers and ultimately rejects autarchic bioregional communities (74-80). Although these sorts of communities promise to eliminate remoteness conditions by closing the gap between producers and consumers (thereby making the effects of economic decisions more immediately transparent to the societies' decision-makers), they fail on a number of grounds.

[P]roximity to local nature does little to guarantee . . . the transparency to inhabitants of ecological relationships and dependencies. The need to respect and maintain these relationships can still be obscured or overridden by other cultural factors, for example by the distorting and backgrounding force of anthropocentric cultural traditions, by the conditions of both general and ecological education, or by the intractability of local economic and social relationships. . . . Nor does smallness of scale guarantee the absence of politically-based kinds of remoteness. Even face-to-face autarchic communities can make themselves epistemically and consequentially remote from ecological consequences through opportunities to redirect ecological harms from privileged to marginalised citizens, onto the future, and onto other less powerful communities. (76-77)

Instead of bioregionalism, Plumwood appeals to a trans-regional if not global society that, for its economic structure, employs Johan Galtung's (1986) concept of self-reliance that allows for "international and planetary interdependence and interaction to take a 'horizontal rather than vertical' form that can defeat both remoteness and centrism" (79).

Dieter Birnbacher (2009) brings together much of the work on the motivation problem. He locates the problem within moral philosophy and explains how, given our Enlightenment heritage, it is particularly trenchant when applied to the distant future. He reviews motivational bases (that he labels "moral," "quasi-moral," and "self-interested") that might be appealed to, and discusses why they are insufficient in the case of distant future generations. He also discusses alternative means for acting on behalf of the future, through either the indirect motives or internal and external binding mechanisms like guilt and paternalism. In addition to providing much needed consolidation, Birnbacher recognizes the possibility of a motivational gap in the case of temporally distant other-than-humans: "In the following, I will focus on temporally distant generations of humans and leave aside the question of temporally distant animals and other non-human beings" (281). He does not, however, pursue the possibility as I do, and given the brevity of his remark, it is unlikely that he fully appreciates the implications of the motivational gap for the field of conservation biology.

3. The Skeptical Challenge

Are humans individually capable of performing morally required actions on behalf of distant future generations? Are human moral agents, in other words, capable of

transforming regulative moral obligations with regard to distant future generations into operative moral obligations? No skeptic himself, Robert Heilbroner (1974, 114-115) provides the preeminent skeptical response.

Humanity may react to the approach of environmental danger by indulging in a vast fling. . . . On what private, “rational” consideration, after all, should we make sacrifices now to ease the lot of generations whom we will never live to see? . . . [T]here seems no hope for rapid changes in the human character traits that would have to be modified to bring about a peaceful, organized reorientation of life styles. . . . Therefore, the outlook is for what we may call “convulsive change”—change forced upon us by external events rather than by conscious choice, by catastrophe rather than by calculation . . . nature will provide the checks, if foresight and “morality” do not.

Given the social and biological forces in play, Heilbroner concludes that the prospects for humanity are bleak: “I can see no realistic escape. . . . If then, by the question ‘Is there hope for man?’ we ask whether it is possible to meet the challenges of the future without the payment of a fearful price, the answer must be: No, there is no such hope” (136).

The skeptical challenge raised by Heilbroner is all the more difficult for American citizens because, as Care (1982) emphasizes, our society places preeminent value on the pursuit of individual goals and liberties. “Given the context in which we work, we [society’s leaders] are . . . mindful of the fact that ours is a free society, and in such a society it is best for the implementation of public policy to flow from general support for it on the part of the people, and not just from, say, legal coercion” (195). In a socio-political milieu as this, most citizens are simply not amenable to coercive measures that might influence the moral psychology of the individual members of American society.

The motivation problem consists in disproving the skeptical challenge by demonstrating that moral agents are indeed capable of acting on behalf of future

generations without catastrophic events or coercive measures forcing the issue. This involves the identification of motives that do, can, or should move an agent from accepting a morally binding statement, a regulative duty, to taking it into to her or his moral identity and acting on it as an operative duty.

4. Motivational Internalism and Externalism

Prior to discussing motives, I first need to review the metaethical debate over motivational internalism and motivational externalism.² I then discuss how motivational internalism is invariably assumed in talking about the problem of future generations.

Broadly speaking, motivational internalism is the view that motivation is internal to moral reasons for performing an action. The fact that a person “ought to do X” or, at least, that she or he believes or judges that she or he “ought to do X,” necessarily entails that she or he is moved to do it. The impulse can be strong or weak, depending upon whether moral facts or judgments provide overriding motivation or are defeasible, capable of being blunted or annulled by competing motives, weakness of the will, and so forth. The classic example of weak motivational internalism is provided by Kant (*Groundwork* 4.413) who believes that morally required acts that an agent arrives at through the exercise of practical reason include motivation to perform the action.³ “If reason infallibly determines the will,” he says, “the actions of such a being that are cognized as objectively necessary are also subjectively necessary . . .” If such were the

2. The following discussion is based largely on based on Rosati (2008). See also Miller (2003) and Smith (1994).

3. Cummiskey (1996) discusses Kant’s internalism and the difference for him between “justificatory reasons” and “motivational reasons.” See especially the Appendix, 161-174.

case, moral failure would be an impossibility for no gap between reason and action could emerge. But as even Kant realizes, the connection between *understanding* what morality requires and *doing* what morality requires can be severed.

However, if reason solely by itself does not adequately determine the will; *if the will is exposed also to subjective conditions (certain incentives) that are not always in accord with the objective ones*; in a word, if the will is not in itself completely in conformity with reason (as is actually the case with human beings), *then actions that are cognized as objectively necessary are subjectively contingent*, and the determination of such a will in conformity with objective laws is necessitation: that is to say, the relation of objective laws to a will that is not thoroughly good is represented as the determination of the will of a rational being through grounds of reason, indeed, but grounds to which this will is not by its nature necessarily obedient. (Ibid., emphasis added)

Whether or not a human moral agent performs a morally required action, then, depends on the agent choosing to perform the action dictated by reason instead of choosing not to perform it or to perform a different action toward which competing motives and behavioral dispositions incline her or him. So although Kant, in contemporary parlance, is an internalist about reason, he is a weak internalist, appreciative of the fact that knowing what morality requires and doing what it requires are two different things.

In contrast to motivational internalism, motivational externalism is the view that motivation is external to moral facts or moral judgments. In addition to establishing reasons for acting, which is a purely cognitive act, the moral agent must also possess the relevant desire or some other intrinsically motivating “pro-attitude” (Davidson 1963). Externalists also deny that there exists a necessary connection between apprehending a moral fact or accepting a moral judgment and being moved to follow it, arguing instead that although the connection may be based on some deep feature of human psychology it is nonetheless contingent. Where Kant provides the paradigmatic example of

motivational internalism, Hume is often described today as the classic externalist. He states that behind all action are feelings associated with the possibility of incurring pain and pleasure: the possibility of pleasure leads to an associative feeling of satisfaction (“warm feelings” or amiability) while that of pain leads to an associative feeling of uneasiness (disgust, aversion, or odiousness). Feelings of satisfaction and uneasiness, in turn, motivate us to avoid pain and incur pleasure. Morality consists in nothing but these feelings. On reason’s motivational power Hume (*Treatise* 2.3.3) famously comments that “[r]eason is, and ought only to be the slave of the passions, and can never pretend to any other office than to serve and obey them.”⁴

The contemporary debate between motivational externalists and motivational internalists is relevant to my purposes to the extent that the immediate task is to disprove the skeptic on motivation through the identification of motives that can or should move a moral agent to act on behalf of distant future generations. Interestingly, motivational internalism—although perhaps not Kant’s variety—is often assumed in conversations about future generations. For instance, *Moral Ground: Ethical Action for a Planet in Peril*, a recently published (2010) book on climate change and future ethics that includes essays from leading environmental philosophers, dignitaries and world leaders, takes motivational internalism as a self-evident axiom. The book’s editors boldly remark,

4. One may find the semantics of the internalism/externalism debate confusing or loaded as terms like “internal” and “external” are relative, requiring qualification to be made analytically precise. The issue centers on whether the property of being internal or external should be relative to consciousness or to moral reasons. Though “external motivation” may, as it is understood by some, refer to an external force, like when someone does something because she or he is tortured or a loved one’s life is threatened, in the contemporary metaethical debate it refers to motivation that is external to *reasons* for performing an action. Likewise, that feelings, which some understand to be no less internal to *consciousness* than reasons, are designated as “external” appears to be in deference to Kant, who regarded them so—as external to the essence of a rational being and its good will. Be that as it may, I follow the contemporary convention and designate moral feelings as external to reasons.

This book . . . is a call to people to honor their moral responsibility to the future . . . We have three immediate goals: (1) With the testimony in this book, we aim to demonstrate a global ethical consensus . . . that climate action is a moral responsibility . . . (2) With the essays in this book, we aim to *empower readers with* a wide variety of *arguments* demonstrating that we are called as moral beings to environmental action, so that no matter their religion, their worldview, or their position in life, readers will find *reasons* here—*good reasons, powerful reasons*—to respond. (3) Finally, we call people to take themselves seriously as moral agents, to reclaim the right to live the lives they believe in, to live as people of integrity—conscientious, compassionate, joyous and so to take away the ability of the powerful to destroy the Earth. (xvi-xvii, emphasis added)

The editors proceed to lay out a general argument for our obligation to avert future harms caused by climate change (xviii) and to organize the book’s essays according to the type of reasons (moral judgments) they offer: consequentialist, deontological, and virtue theoretic (xix-xxii). Clearly the editors think that moral judgments motivate. Once the reader accepts the arguments, they believe, she or he will experience some measure of internal impetus aimed at moving her or him from knowledge of moral responsibility to action. Otherwise the authors would not imply that providing “good” and “powerful” reasons would be sufficient to move people to action on climate change.

In the next section I explore whether reasons (moral judgments) alone provide sufficient motivation in the case of distant (human and other-than-human) generations. I need not take a stand on the externalism/internalism debate, however. For my purposes it is enough to appreciate that reasons and motives are not the same, and that even if reasons provide some degree of motivational force, not all reasons are motives.

5. Motives

Humans have at their disposal rationalistic, altruistic, and self-interested motivations that can be either direct or indirect. The distinction between direct and indirect motives concerns whether an act is intended to benefit a moral patient directly or is merely the by-product of an action aimed at some other beneficiary. Rationalistic motives are reasons or moral judgments that move an agent to action simply because they are required. Kant's categorical imperative is the exemplar of this type of motive. According to Kant, an act is moral if and only if it is done from a sense of duty. Altruistic motives consist of the emotions of love, care, compassion, empathy, solidarity, and so forth. Hume (*Enquiry* 9.1.222) famously calls them "fellow feelings" that, he says, "move some universal principle of the human frame, and touch a string to which all mankind have an accord and symphony." The self-interested motives are motives not aimed at some other moral patient, and they include the motives of reputation, personal gain, and the pursuit of individual goals. Now the distinction between types of motivation cuts across the direct-indirect dichotomy. In other words, rationalistic, altruistic, and self-interested motives can be either direct or indirect. I consider the direct motives as they apply to future generations in this chapter and the indirect motives in the next.

First, direct rationalistic motives are reasons that move a person to act for future generations simply because they are required. Journalist Raymond Gram Swing (1964, 136-137) recounts an incident that appears to fall under this category. During the 1921 famine in the former Soviet Union, Gram Swing toured a refugee camp of starving

peasants. By the time he had arrived, half of the camp's population was dead and an accelerating death rate was threatening to overtake the other half. Within plain view of the peasants, however, were bags of seed grain reserved for the following spring, guarded by a lone soldier. As Gram Swing recounts the event, he queried the group's patriarch as to why the starving peasants did not simply overpower the guard to get to the grain that would otherwise have kept them alive. The patriarch replied, "That is seed grain. We do not steal from the future."

Second, direct altruistic motives manifest as an abstract love of humankind. Many have doubted whether it is possible to love humanity as a whole. Henry Sidgwick (1877, 3.4.5) remarked long ago, "one cannot easily sympathize with each individual in a multitude." Hume (*Treatise* 3.2.1) likewise states that "In general, it may be affirm'd, that there is no such passion in human minds, as the love of mankind, merely as such, independent of personal qualities, of services, or of relation to ourself." But if it is possible to love humanity as a whole, a love of this sort can take on characteristics of the "Jellby fallacy." So named after the character Mrs. Jellby in Charles Dickens's *Bleak House*, the fallacy is committed when a person becomes so focused on distant, morally significant events that she or he gives no special consideration to her or his own kin, or she or he fails to notice more immediate moral concerns. Jeremy Waldron (2003, 340) describes the phenomenon thus: "[Mrs. Jellby] is the very image of the cosmopolitan moralist—preoccupied with the distant because it can so readily be made abstract, and ignoring the grubby reality of what is going on around her."

The third and last type of direct motives is the self-interested motives which, by definition, cannot be employed on behalf of distant future generations. If a person is trying to further her or his personal interests, then *eo ipso* she or he cannot directly be intending to further the interests of future generations, although she or he may do so incidentally.

Can either of the rationalistic or altruistic motives be employed to move a moral agent to action on behalf of future generations? The skeptic thinks not, pointing out flaws with each.

Placed against the more immediate and competing demands of the present and near future, the rationalistic motives, if they do exist, are generally too weak to effect action on behalf of posterity. This explains why we consider truly extraordinary cases like the Russian peasants.

The direct altruistic motives, which might provide a stronger motivational base than the rationalistic motives, are generally not available because of an “intergenerational sympathy horizon.” The problem, it appears, is that the altruistic motives are not synced with the object of moral concern, distant future generations. Distant future generations are necessarily abstract and general, beyond the ken of what we can know and experience close up. No amount of imagination—about what they will be like, what their needs and ideals will be, and so forth—can overcome this barrier. But the moral emotions, having evolved within the context of the family, the clan, and the tribe, are activated by particular and concrete experiences, by those threatened with death or harm under our eyes (Birnbacher 2009, 278; Joyce 2007). They are the victims of Hurricane Katrina,

casualties of shootings at schools like Columbine and Virginia Tech, and when the veil is temporally lifted, animals suffering under the inhumane conditions of industrial feedlot operations. Although the heritage of the Enlightenment has made possible the concept of regulative obligations and the expansion of moral principles to spatially and temporally distant moral patients, morality's evolutionary origins largely preclude the principles from becoming operative. Such a disconnect explains why citizens routinely come to the aid of victims of natural disasters while at the same time they falter when challenged to act on behalf of the faceless and the statistical. The faceless and the statistical fail to engage the altruistic faculties whereas the particular and concrete experience of suffering does so reliably.

6. The Motivation Problem and Biodiversity Loss

Because the motivation problem ultimately stems from a disconnect between the demands of an impartialist ethic and the human motivational faculties as they have evolved, it is not inherently anthropocentric. Though some degree of human chauvinism is perhaps inevitable—certainly empirical evidence bears this fact out—moral agents respond to particular and concrete instances of the suffering of other-than-humans almost as regularly as they do to particular and concrete instances of human suffering. Animal suffering, especially when experienced by companion and higher-intelligence animals, reliably generates feelings of shock, horror, empathy, and the like. It is the rare person who passes a wounded animal and doesn't experience some tinge of desire to help. While perhaps not everyone who witnesses such suffering is so moved as to become

advocates for animal rights, the experience nonetheless generates enough pressure that advocates are fairly common. In response to animal experimentation and consumption, and the existence of zoos and aquariums, legions of protectors like People for the Ethical Treatment of Animals have devoted their lives to minimizing or eliminating animal suffering. People are also devoted to rescuing animals, domestic and wild alike, in the wake of natural disasters. Hurricane Pets Rescue (<http://www.hurricanepetsrescue.org/>), for instance, is a non-profit nationwide disaster relief and animal welfare organization started in 2005 following hurricane Katrina, and Wildlife Rescue & Rehabilitation (<http://www.wildlife-rescue.org/>) is an organization devoted to providing assistance to wild animals in need of sanctuary.

If humans are not innately closed to the suffering of other-than-humans, then, a lack of concern about the biodiversity crisis cannot stem from human chauvinism alone. The problem, I submit, is that biodiversity is the scientist's way of talking about future generations of other-than humans, and future generations of other-than-humans are just as motivationally inaccessible as are distant future human generations. Both concepts are abstract and general and both fail to engage the altruistic faculties. That Americans do so little about biodiversity loss but regularly come to the aid of concrete and particular moral patients should therefore come as little surprise.

Thus overcoming temporal distance is or ought to be as much a concern for the person focused on distant human generations as it is for the conservation biologist worried about biodiversity loss. *Any* situation wherein a moral agent is capable of affecting the well-being of distant future moral patients generates the motivation

problem. Future other-than-humans and future humans are alike in this regard, both subject to remoteness conditions and both subsets of the problem of future generations.

7. Objections

Nonetheless, one may try to resist the skeptic's conclusion by citing empirical evidence of people acting on behalf of distant future generations. In a well-known study of environmental values in American culture, anthropologists Willett Kempton, James Boster, and Jennifer Hartley (1995, 95-102) conclude that concern for future generations is one of the strongest values guiding environmental behavior. A closer look at the study, though, reveals that the authors indiscriminately lump together first, second, and third generation descendents, all of which overlap present generations, with generations living in the distant future.

Furthermore, people extend their concern for descendants beyond the first generation. Several people volunteered that their concern was multigenerational (again, this was not one of our questions).

[Informant is discussing people whom he feels are not sufficiently concerned about the environment.] They're complacent, I guess. They figure that "It ain't gonna be in my lifetime." ... [pause] They don't figure that, that it might be in their kids' or grandkids' or [pause] great-grandkids'. It's gonna be in somebody's lifetime, that's for sure. —Walt (retired machinist)

It [global warming] probably won't affect me personally. I mean, I don't have that much longer to live. You know, thirty years down the road I'm going to be gone probably. I'm almost fifty. But the kids, my kids, and their kids, it will be a problem. In the not too foreseeable future, you know, it could be catastrophic... unless they do something and do it now.—Jenny (social studies teacher)

The above quotations suggest a value for environmental protection that *stretches far into the future*. (97, emphasis added)

Yet such a generalization is unwarranted, for respondents in the study are obviously envisaging future generations in terms of those who they can know or otherwise identify with, not the undifferentiated masses lying beyond the inner boundary of moral considerability.

Ben Minteer and Robert Manning (1999), in a survey partly inspired by Kempton, Boster, and Hartley's 1995 study, note that among 612 Vermont households polled, the importance of creating a stewardship ethic to protect future generations scores the highest out of 17 possible environmental concerns that respondents were asked to rank. This result is especially noteworthy given that Minteer and Manning interpret their survey as evidence for a plurality of ethical values underlying public environmentalism in New England. But like the 1995 study, Minteer and Manning never clarify what generations are included in the category "future generations." Nor do they cite evidence that might clarify what respondents were thinking when they rated concern for future generations the highest. I suspect that like the first study, respondents in Minteer and Manning's study most often envisaged their immediate descendents when asked about future generations, and not those (faceless and statistical) humans living in the distant future, six generations or more hence. As should be clear by now, at least with regard to the faculties of moral motivation, the temporal details matter.

Regardless of questions about the validity of studies or surveys, the creation of state and national parks, wilderness areas and historic monuments, and future-oriented environmental legislation bespeaks of an abiding concern for future generations. So does the Great Law of the Iroquois which allegedly requires the governing members of the

league to take into account children seven generations hence (in which case the governing members would be considering the interests of two generations after the last generation that can be known). But in most if not all of these cases it is unclear whether distant future generations are the direct object of moral concern.

For instance, the Endangered Species Act of 1973 (ESA), considered one of the most future-oriented of all US environmental laws, reveals little with regard to those future humans who stand to benefit from its enactment. According to the law itself, “species of fish, wildlife, and plants are of esthetic, ecological, educational, historical, recreational, and scientific value *to the Nation and its people*” (sec. 2(a)(3) [16 USC. 1531], emphasis added). Yet “people” is temporally underdetermined—it could refer to only the present generation of Americans, to present and near-future generations of Americans, or to all future generations of Americans. The ESA’s legislative history is equally unrevealing. There too “future generation” is rarely quantified, and when it is, children (the second generation) are the only beneficiaries that are explicitly mentioned. A “Mr. Annunzio” (most likely US House of Representatives Democrat Frank Annunzio) remarks that

We have mistreated our wildlife—one of nature’s greatest gifts—and we’re paying a high price. We have made attempts to stop the ravage of wild animals, but unless we do more, the price we pay will be still higher. Already we have denied our children and all generations that follow the wonder of some of our animals. (Congressional Research Service 1982, 203)

After passage of the 1973 ESA, in his signing statement, President Richard Nixon writes:

Nothing is more priceless and more worthy of preservation than the rich array of animal life with which our country has been blessed. It is a many-faceted treasure, of value to scholars, scientists, and nature lovers alike, and it forms a vital part of the heritage we all share as Americans. I congratulate the 93d

Congress for taking this important step toward protecting *a heritage which we hold in trust to countless future generations of our fellow citizens*. Their lives will be richer, and America will be more beautiful in the years ahead, thanks to the measure that I have the pleasure of signing into law today. (Congressional Research Service 1982, 487, emphasis added)

It is thus questionable whether, at least in the case of the ESA, distant future generations, as opposed to the nation's children and grandchildren, are the direct objects of moral consideration.

On the other hand, although the constitution of the Iroquois Nations, from which the seventh-generation law is said to have come, never mentions a seventh generation, it may imply concern beyond present and immediate generations. "In all of your deliberations . . . Look and listen for the welfare of the whole people and have always in view not only the present but also the coming generations, even those whose faces are yet beneath the surface of the ground—the unborn of the future Nation" (The Constitution of the Iroquois Nations: The Great Binding Law 2011). Given the brevity of this injunction, it is hard to know exactly which generations are included under the category of future generations, particularly given the fact that the Iroquois hold a very different worldview with very different metaphysical assumptions than do members of Western society. The reference to "faces . . . yet beneath the surface" may support the claim that the generation(s) in question are those not overlapping current generations, to wit, the sixth and beyond. But the reference may not, and there is no way to know for certain based on the Iroquois constitution alone.

When people appeal to future-oriented environmental legislation to demonstrate concern for distant future generations, at minimum I hope to have shown that they are not

necessarily thinking of their remote descendents, but are more likely thinking of their immediate descendents. Provided the sheer number of examples that can be cited, however, the burden of proof surely lies on the skeptic to demonstrate that in each instance the object of moral consideration is near-future generations and not those coming after the fifth.

8. Conclusion

In this chapter I have discussed the motivation problem of future ethics. I began with a review of the literature, providing a sampling of awareness of the problem from Antiquity to the twentieth century. In the process I touched on a number of salient issues ranging from characteristics of the motivational faculties to properties of distant future generations to socio-political consequences of spatial and temporal remoteness. I then summarized the debate between motivational internalists and motivational externalists, demonstrating along the way how discussions of future generations invariably presume some form of internalism. I have argued that the motivation problem, at bottom, is caused by a disconnect between the human motivational faculties and the object of moral consideration, future generations. I have also argued that the motivational gap in the case of distant future human generations is one and the same as the motivational gap for distant future other-than humans. Finally, I concluded the chapter by rebutting objections to the skeptic's charge that people cannot act on behalf of distant future generations. As it stands, it appears that humans cannot directly act on behalf of distant human and other-than-human generations. If they are to respond to the biodiversity crisis, they will have

to rely on a form of motivation other than the direct moral motives. And as I discuss in the next chapter, the indirect moral motives promise just such a possibility.

CHAPTER IV

SOLVING THE MOTIVATION PROBLEM FOR BIODIVERSITY CONSERVATION

1. Introduction

In the previous chapter, I established that the motivation problem of future ethics involves both human and other-than-human future generations. For the two classes of moral patients, the direct motives are either ineffective (as in the case of the rationalistic motives) or unavailable (in the case of the altruistic motives). The task of this chapter is to investigate whether the indirect motives can be harnessed in the service of distant future generations. If so, the motivational gap can, at least in principle, be bridged.

I begin with a preliminary analysis of what a solution to the motivation problem will have to look like. I argue that because (1) the motivational gap is caused by a disconnect between the motivational faculties and abstract and general distant future generations, and (2) there is little reason to think that, within context of contemporary American society, the motivational faculties will change anytime soon, (3) a viable solution will have to take the lives of particular and concrete humans and/or other-than-humans as the object of motivational consideration. I then discuss whether the indirect motives can provide a suitable link between the objects of *motivational* consideration (individuals living in the immediate and near future) and the object of *moral* consideration (distant future generations of other-than-humans).

Regarding the indirect motives, I assess the indirect altruistic and self-interested motives, but not the indirect rationalistic motives.¹ The indirect self-interested motives, I contend, fail to provide sufficient motivation despite being in vogue with the scientific community. The indirect altruistic motives, on the other hand, show considerable promise. In particular, John Passmore's "chain of love" solution may provide just the theoretical resources needed to link the objects of motivational consideration to the object of moral consideration.

I conclude with a review of conservation education techniques of which biodiversity education is a subset. The central approaches strive either to raise awareness through the provisioning of factual information and basic concepts or to engage citizens through in situ conservation techniques. I argue that the latter approach is successful whereas the former is not because only the latter provides opportunities for engaging the motivational faculties. Although this result may be unsurprising to educators working in the field, discussions of conservation strategies rarely if ever identify the underlying causes of their success, something that I do.

2. An Outline of a Solution

Closing the motivational gap for biodiversity preservation requires the elimination of remoteness conditions that prevent an adequate response to the biodiversity crisis. If,

1. Indirect rationalistic motives are reasons that (a) move a person to act on behalf of members of current and near future generations simply because they are required but (b) also happen to benefit distant future generations. One can imagine, for instance, a person taking steps to preserve amenity values (of intact ecosystems, species preservation, etc.) not because doing so will benefit kith and kin, but simply because it is the right thing to do. If, under such a unique circumstance, the act has the added benefit of furthering the interests of distant future generations, then the motive giving rise to it is an indirect rationalistic motive. Because it is highly improbable that this type of motive could be employed with any sort of regularity to motivate a majority of the population, I disregard its possibility.

as I have argued, the motivational faculties, given their evolutionary heritage, are not synced to abstract and general future other-than-human generations (biodiversity), it follows that eliminating the motivational gap entails introducing into daily life experiences that concretize and particularize other-than-humans. When we particularize and concretize our neighbors; when we meet, witness, or interact with them; they have, as Care remarks (1982, 206), “the capacity to interest,” arousing in us a whole range of motivations—love, solidarity, compassion, companionship, identification, and reciprocation.

In addition to the capacity to interest, Jeremy Waldron (2003) emphasizes the element of recognition as an important ingredient of moral motivation. For conceptual fodder Waldron chooses the biblical story of the Good Samaritan.

And, behold, a certain lawyer stood up, and tempted him, saying, Master, what shall I do to inherit eternal life? He [Jesus] said unto him, What is written in the law? how readest thou? And he answering said, Thou shalt love the Lord thy God with all thy heart, and with all thy soul, and with all thy strength, and with all thy mind; and thy neighbour as thyself. And he said unto him, Thou hast answered right: this do, and thou shalt live.

But he, willing to justify himself, said unto Jesus, And who is my neighbour? And Jesus answering said, A certain man went down from Jerusalem to Jericho, and fell among thieves, which stripped him of his raiment, and wounded him, and departed, leaving him half dead. And by chance there came down a certain priest that way: and when he saw him, he passed by on the other side. And likewise a Levite, when he was at the place, came and looked on him, and passed by on the other side. But a certain Samaritan, as he journeyed, came where he was: and when he saw him, he had compassion on him, [a]nd went to him, and bound up his wounds, pouring in oil and wine, and set him on his own beast, and brought him to an inn, and took care of him. And on the morrow when he departed, he took out two pence, and gave them to the host, and said unto him, Take care of him; and whatsoever thou spendest more, when I come again, I will repay thee.

Which now of these three, thinkest thou, was neighbour unto him that fell among the thieves? And he said, He that shewed mercy on him. Then said Jesus unto him, Go, and do thou likewise. (Luke 10:26-37)

Waldron largely understands the “moral” of the Good Samaritan story as that of determining the scope of moral considerability. Because neighbors signify the extent of moral obligation, the lawyer wants to know how to distinguish neighbors from non-neighbors. What makes Jesus’s response to the lawyer so striking is that in Jesus’s time, Samaritans had been outcast by the Jews because they were considered half-breeds (having intermingled with the Assyrians) and apostates (accepting only the Pentateuch while rejecting the other books of the Bible and all of Judaism’s Oral Law) (The Jerusalem Publishing House, Ltd. 1989, 2002). The worst insult a hostile Jew could lodge at Jesus was to call him a Samaritan (who in turn was likened to a devil) (John 8:48). It is all the more remarkable, then, that Jesus tells the lawyer to “love thy neighbor as thyself,” irrespective of the lawyer’s neighbors’ ethnic and religious affiliations. In this context, the story of the Good Samaritan is most obviously interpreted as Jesus’s attempt to expand the ambit of moral responsibility beyond familial and culture relations, to perhaps each and every person on Earth (although the “Earth” that Jesus imagined to exist was much more limited in scale than the planetary-scale Earth that we now conceive ourselves to share). All people, in virtue of their humanity, are our neighbors. Should we be in a position to help another, we are obligated to do so.

But Waldron rejects the usual impartialist understanding, claiming instead that the story of the Good Samaritan is significant for what it implies about recognition and proximity, particularity and concreteness.

I have emphasized proximity, and in that connection we may consider the importance of *sight* in the way the parable is presented—the immediate visibility of the predicament of the man who fell among thieves. The priest “saw” him, the

Levite “came and looked on him,” and the Samaritan “when he saw him, he had compassion on him.” . . . The suffering and injury they could see was close enough to make a direct appeal to their sympathy: it was there, *in their face*, so to speak. If the man was conscious, then they would have been close enough to hear his plea for help, or at least see it in his eyes; and they would know he knew that they were the ones in a position to help him when it appeared no one else could or would (and that he knew that they knew, etc.). [I]t is a fact of our common humanity that these appeals . . . depend only on the sheer fact of one human being confronting another and mouthing a cry for help. (Waldron 2003, 350, emphasis in original)

Physical proximity encourages a person to act on behalf of others. Through the concrete and particular encounter of need, a person’s altruistic faculties become engaged. Physical proximity involves more than just an appeal to sympathy, however. It also involves intentionality. The priest, the Levite, and the Samaritan were mutually in a position to come to the aid of the hurt stranger, and all three recognize—viscerally and existentially—a person in need. Contrariwise, the person in need had the conscious expectation of assistance that accompanied his plea for help. Although Waldron, on my account, reduces regulative obligations to operative obligations, his analysis nonetheless brings to fore the importance of intentional recognition in moral motivation.

To further emphasize the role that physical proximity plays in activating the moral emotions, notice that the priest and the Levite too were affected by the condition of the wounded stranger. As Waldron acutely observes, the strangers had to go out of their way to *not* help, which in and of itself demonstrates the power of proximity. “[B]y chance there came down a certain priest that way: and when he saw him, he *passed by on the other side*. And likewise a Levite, when he was at the place, came and looked on him, and *passed by on the other side*.” Even though the priest and the Levite ultimately did not aid the stranger, the very concrete and particular experience of coming upon him

forced them, in all likelihood, to contend with a variety of competing impulses ranging from fear, anger, distress, hard-heartedness, voyeuristic desire, and so forth. Assuming a person has normally functioning motivational faculties, when her or his attention is focused on another's situation through physical proximity, she or he has to make a concerted effort to shift attention away from the one in need and back to the business at hand (Waldron 2003, 343-344). It is for this reason that, Nel Noddings (2003, 47) explains, the one who is prepared to care for others "dreads the proximate stranger, for she cannot easily reject the claim he has on her. She would prefer that the stray cat not appear at the back door—or the stray teenager at the front. But if either presents himself, he must be received not by formula but as individual."

Thus, given that there is little cause to believe that human psychology will change within the context of contemporary American society anytime soon, motivating Americans on behalf of future generations of other-than-humans (biodiversity) will require conservationists to create and preserve conditions that activate the motivational faculties. This entails that they introduce into daily life experiences that render extant other-than-humans motivationally interesting. Conservationists will need to bring concrete and particular other-than-humans into our physical proximity so that we are moved to act on their behalf. It will require us to learn about them in specific terms, entering into face-to-face encounters whenever possible so as to develop intentional relationships with them. What are their lives like? What details about them will arouse our interests? However, even if it is necessary to particularize and concretize extant other-than-humans, it is not sufficient. A particular and concrete other-than-human does

not an other-than-human future generation make. To get from individual living members of a species to their abstract and general future generations, the indirect moral motives are required.

3. Indirect Moral Motivation

Recall that the indirect motives are motives that benefit a moral patient as the by-product of an action aimed at some other beneficiary. If, in the case of contemporaneous beneficiaries, a moral agent intends to help one person (by nursing them back to health), but as a result of her or his action benefits others (the person's children perhaps), then with regard to the latter beneficiaries (the children), the original motivation is indirect. Although, like the example just given, indirect motivations can be accidental, they do not have to be. One can easily imagine a case where someone cares for one person with the conscious desire that she or he, in turn, cares for someone else, as when a psychologist cares for a patient who then is better able to care for her or his family. In the case of temporally distant future generations, the indirect motivations that matter are those aimed at members of current and near-future human and other-than-human generations that as a side-effect benefit distant other-than-human generations (biodiversity). If a transitivity as this is possible, the indirect motives hold the most promise for reliably moving a moral agent from the acceptance of her or his regulative obligations to acting on them, thereby rendering the regulative obligations operative. Of the two candidates, I consider the indirect self-interested motives first and the indirect altruistic motives second.

One of the most popular strategies in conservation today is to appeal to the indirect self-interested motives. This approach aims to forge a conceptual link between long-term self-interest and biodiversity preservation. In a recent editorial in the Ecological Society of America's *Frontiers in Ecology and the Environment*, for instance, Susan Ruffo and Peter Kareiva (2009, 3) remark:

The idea of "ecosystem services"—identifying and quantifying the resources and processes that nature provides for people—gives us a framework to measure nature's contribution to human well-being, and to understand the cost of its loss. It provides a credible way to link nature and people that goes beyond emotional arguments and points us toward practical solutions. This is why, now more than ever, we need to embrace ecosystem services as a basis for conservation and for making sure people are taken care of as we alter, exploit, manage, and protect nature.

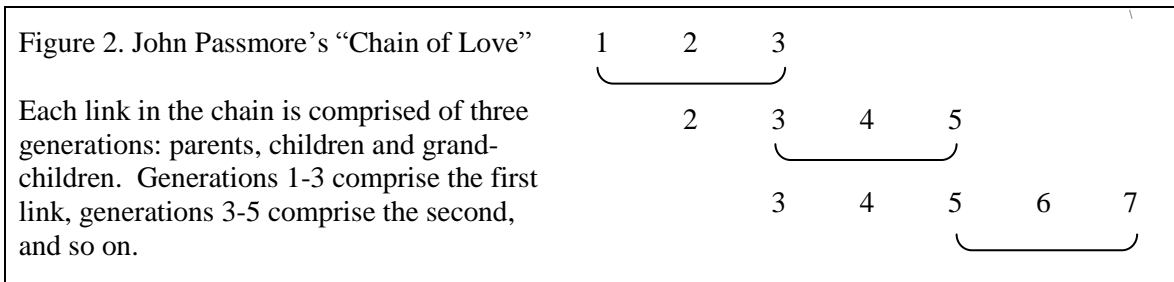
Notwithstanding the egoism and economism underlying their recommendation, Ruffo and Kareiva's strategy of appealing to long-term self-interest is insufficient for much the same reason that direct moral motivation is—people regularly sacrifice long-term self-interest when it is placed against the concrete and immediate demands of the present and near future. Recall Hume's injunction that "Contiguous objects must have an influence much superior to the distant and remote. . . . Talk to a man of his condition thirty years hence, and he will not regard you. Speak of what is to happen to-morrow, and he will lend you attention" (*Treatise* 2.3.7). The link between long-term self-interest and preservation is all the more obscure in the case of self-interest and biodiversity loss given that for most American citizens, the connection between one's long-term self-interest and ecosystem services is neither meaningful nor apparent within the context of daily life. If there was a way to link short-term self-interest to ecosystem services through the identification of tangible and immediate benefits of biodiversity, then perhaps the indirect

self-interested motives could be engaged to move people to action. But until such particular, concrete, and immediate benefits are rendered visible, there is little reason to place stock in the indirect self-interest motives.

The indirect altruistic motives, on the other hand, are focused on one's immediate descendents or extant other-than-humans. In caring for these proximate objects, the hope is that a person will additionally benefit the object of moral concern, to wit, distant future generations.

One of the more compelling models of an indirect altruistic motivation aimed at future generations is John Passmore's "chain of love."² Passmore's idea (1974, 88 ff.) is that despite the existence of an intergenerational sympathy horizon, the motive of love can extend a generation's concern four generations into the future (approximately 80 years). "Men do not love their grand-children's grand-children [the fifth generation]. . . . But in [directly] loving their grandchildren [the third generation] . . . they hope that those grand-children, too, will have grand-children to love. They are concerned, to that degree, about their grand-children's grand-children." Because each subsequent generation is the same in this regard, the welfare of generations coming after the fifth will also be cared for. In this way chains of love, linked together in units of three (parents, children, and grand-children), run to and through posterity.

2. Another model is provided by Visser't Hooft (1999). Rather than focusing on moral patients, Visser't Hooft focuses on establishing a tradition of valuing intrinsically valuable goods.



As Figure 2 illustrates, because the direct object of motivational concern is restricted to one's grand-children (the third generation) and one's grand-children, in turn, are directly concerned for their grand-children (the fifth generation), the activity of caring for one's immediate descendents generates an uninterrupted chain of concern extending indefinitely into the future. Moreover, because the chain of love ultimately relies on a parent's affection for her or his children and grandchildren, a love that is both an innate response and learned behavior (Arrondel and Masson 2001), it is reasonable to think that future generations can be protected.

Passmore's chain-of-love strategy is entirely anthropocentric, focused solely on caring for future human generations. Yet the degree to which included in our responsibilities to our children and grand-children is the responsibility to pass on a world not bereft of other-than-humans, to that degree other-than-humans will be cared for. In this way a transitivity of caring extends not only through chains of human generations but across species lines. Insofar as one of our obligations is to leave our children and grand-children a world replete with biodiversity, we indirectly manifest care for future generations of other-than-humans.

There is another sense in which Passmore's chain of love may be employed. If, as I have argued, present generations have obligations not just *regarding* future

generations of other-than-humans, but *to* morally considerable future generations of other-than-humans, then there exist both anthropocentric and nonanthropocentric reasons for overcoming the motivational gap. A nonanthropocentric application of the chain of love would focus on creating links of caring between human moral agents and other-than-human moral patients by bringing other-than-humans into closer proximity to their human caretakers. Once these bonds of care are established, there ought to be ample motivation for humans to preserve the conditions that preserve the lives of their other-than-human neighbors. The principal way to do this, of course, is by maintaining species' habitats.

Yet because the nonanthropocentric application of the chain of love crosses species boundaries, the transitivity that drives the human-to-human chain is not available. Caring for other-than-humans will not lead them, in turn, to care for their descendents any more than they already do. There is no built-in mechanism to kick start an interspecies concatenation of love. Despite this shortcoming, though, caring for extant other-than-humans by preserving their habitat has the added benefit of preserving the conditions that will engender and preserve the lives of future other-than-humans. So although, in the nonanthropocentric case, there is a human element that can never be eliminated—each generation of humans will have to learn to preserve life-engendering conditions for extant other-than-humans—preserving such conditions will in turn preserve the conditions that make possible the lives of future generations of other-than-humans (biodiversity).

To sum up, the indirect altruistic motives appear to provide a bridge for traversing the motivational gap. Unlike the indirect self-interested motives, the altruistic motives can be activated by bringing other-than-humans into closer proximity to moral agents. With the help of techniques like Passmore's chain of love, the act of caring for one's grandchildren or maintaining the habitats of extant of other-than-humans has the added benefit of caring for future generations of other-than-humans. So long as the objects of motivational consideration remain particular and concrete, there is reason to think that the motivation problem can be solved.

4. Biodiversity Education

Though any number of approaches to changing conservation behavior exist, including material incentives and disincentives and community-based social marketing, the most central approach continues to be environmental education.³ The purpose of this section is to explore, in broad outline, educational strategies aimed at changing behavior regarding biodiversity preservation. Two caveats are in order. First, at least within the literature on environmental education, biodiversity education is rarely considered independently of general conservation education.⁴ As a result, challenges unique to moving people to action on behalf of future other-than-humans may be hidden from view.

3. Material incentives and disincentives function as external binding mechanisms aimed at changing the moral psychology of a target audience. Community-based social marketing is a recently developed pragmatic approach to changing behavior that, on a case-by-case basis, seeks to identify barriers to pro-environmental behavior and then design a strategy for overcoming these barriers through the application of psychological tools (McKenzie-Mohr 2000; McKenzie-Mohr and Smith 1999).

4. The literature on environmental and conservation education is immense. A good place to start is Corbett (2006), Coyle (2005), Jacobson (2009), and Jacobson, McDuff, and Monroe (2006). Kassas (2002) provides a fairly uninformative discussion of biodiversity education. See also Wals (1999).

Second, although behavior-change campaigns occur outside of the US educational system (K-12 and college), the US educational system remains the predominate means for shaping the behavior of America's youth. It is therefore reasonable to begin a discussion of biodiversity education by focusing on formal education. Undoubtedly, a full account would consider educational strategies outside of the academic setting.

Environmental education can mean different things to different people. Kevin Coyle (2005) points out that there is no scientific overview or summary report of the status of environmental education in the United States. Moreover, environmental education is often confused with environmental-based education, which seeks to improve overall academic performance and critical thinking skills by using the environment as the setting for traditional "core subjects" like science, mathematics, language arts, and so on. Whatever else it includes, environmental education centrally involves a sequenced series of learning outcomes that lead to environmental literacy: the thorough understanding of an environmental subject that involves both developing skills and the ability to apply them in concrete situations (Ibid., 54-58).

But while the target outcome of environmental education may be environmental literacy, it has a long history of being equated with the delivery of facts and simple concepts to raise awareness about salient environmental issues. The classic expression of this approach comes from William Stapp et al. (1969, 31) who declare that "[e]nvironmental education is aimed at producing a citizenry that is knowledgeable concerning the biophysical environment and its associated problems, aware of how to help solve these problems, and motivated to work toward their solution." To be sure, no

inherent link between knowledge, awareness, and motivation is implied in the authors' statement. However, immediately following the statement the authors outline four major objectives of environmental education, three of which are cognitive, focused entirely on understanding humanity's relationship to the non-human environment or on explaining how citizens can solve environmental problems. The fourth objective is to instill

[a]ttitudes of concern for the quality of the biophysical environment which will motivate citizens to participate in biophysical environmental problem-solving. The word "attitude" used in this context implies more than simply the knowledge of a body of factual information. Instead it implies a combination of factual knowledge and motivating emotional concern which result in a tendency to act."(Stapp et al. 1969, 31)

But in reducing motivation to attitudes, the authors have just pushed the problem one step back. Even if attitudes are a combination of knowledge and motivating emotional concern, the educator is still tasked with having to inculcate motivating emotional concern, for which the authors provide no guidance. This absence, combined with the emphasis on cognition in the previous three points, leads to the conclusion that the authors assume that with knowledge so comes motivation or, at a minimum, that instilling motivation is unproblematic—two assumptions I hope to have cast doubt on.

The first International Workshop on Environmental Education, which grew out of the United Nations Conference on Human Environment in 1972, declares (UNESCO 1975, 15) that the primary goal of environmental education is "[t]o develop a world population that is aware of, and concerned about, the environment and its associated problems, and which has the knowledge, skills, attitudes, motivations and commitment to work individually and collectively toward solutions of current problems and the prevention of new ones." Although no link between knowledge and motivation is implied, the

authors of the workshop follow their statement with a six-point list of environmental education goals that mimics Stapp et al.'s original statement. This is unsurprising, for William Stapp was the chief organizer of the UNESCO workshop. And like the original statement about attitudes, nothing is said with regard to how the educator can help individuals acquire the necessary motivation to participate in the protection of the environment.

The Talloires Declaration, an action plan put forth by the organization University Leaders for a Sustainable Future and signed by over 400 university presidents and chancellors in over 50 countries, lists as its first priority (of ten) "Increas[ing] awareness of environmentally sustainable development" (University Leaders for a Sustainable Future 2011).

Regarding law, The National Environmental Education Act of 1990 (Pub. L. no. 101-619, 104 Stat. 3325) states in section 4(b)(1) that the primary mission of the Office of Environmental Education is "to improve understanding of the natural and built environment, and the relationships between humans and their environment." However, nowhere in the wording of the Act is the need to motivate the American public, to encourage pro-environmental behavior, or to instill the appropriate attitudes ever mentioned. The Act does mandate the establishment of the National Environmental Education Foundation (NEEF), housed within the Environmental Protection Agency (EPA), and NEEF explicitly discusses translating environmental literacy into pro-environmental behavior and action (The National Environmental Education Advisory Council 2005). Despite lip-service paid to motivation, attitudes, behavior, and action,

however, the foundation—not to mention all of the aforementioned statements of the goal of environmental education—never adumbrates steps or techniques that might be employed to move a person from knowledge and awareness to action.

Finally, a meta-analysis of environmental programs in the US reveals that, at the time of the study, out of 700 programs, 543 addressed knowledge, 124 addressed attitudes, and only 42 addressed pro-environmental behavior (Pomerantz, 1990-1991).

Thus, environmental educators have generally thought that raising awareness about environmental issues leads to a change in attitudes toward the environment which ultimately leads to changes in behavior. Models such as this are called “awareness-to-action models” (Jacobson 2009, 30) or “linear-progression models” (Kollmuss & Agyeman 2002, 241), and they assume that people are fundamentally rational, not controlled by unconscious motives or weaknesses of will. They are also broadly internalist (although not Kantian) about moral motivation, assuming that knowledge alone is sufficient to move a person to action.⁵ For instance, according to a highly influential awareness-to-action model, Icek Ajzen & Martin Fishbein (1980) claim that behavior is ultimately the result of (1) evaluative beliefs about the consequences of an action, (2) normative beliefs about how others would view the performance of an action, and (3) motivation to comply with the normative beliefs. J. M. Hines, H. R. Hungerford, Audrey N. Tomera (1986), building on Ajzen and Fishbein’s model, provide a meta-

5. The astute reader will noticed a shift in language. In my earlier discussion of motivational internalism I referred to moral judgments and moral facts, not knowledge, as providing an impulse to perform an action. Notwithstanding differences in jargon, environmental educators employ facts and simple concepts as premises of an implied moral argument whose central conclusion or summary judgment is that “people ought to solve environmental problems,” or some other such maxim. For this reason, as awareness-to-action models bear out, educators’ understanding of knowledge is, in fact, internalist.

analysis of pro-environmental behavior research. They conclude that among the six primary variables associated with pro-environmental behavior, cognitive factors figure most prominently. Although the majority of awareness-to-action models include some non-cognitive component, the models see knowledge acquisition (of facts and basic concepts) as the primary determinant of pro-environmental behavior.

Assuming motivational internalism, it makes sense that environmental educators would view pro-environmental behavior in terms of moving people from awareness to action. Yet awareness-to-action models have been discredited since the early 1970s. H. R. Hungerford and T. L. Volk (1990) demonstrate that awareness and environmental knowledge are not sufficient for long-term behavioral change. The National Environmental Education & Training Foundation/Roper research studies also reveal that although 50 to 70% of adults have heard something about most major environmental subjects (including biodiversity loss), mere environmental awareness has a negligible impact on attitudes about environmental stewardship, which in turn lead to environmentally sustainable behavior (Coyle 2005, 54). Julie Ann Pooley and Moira O'Connor (2000, 717-718), in a study of the role that the affective and cognitive domains play in predicting pro-environmental attitudes, conclude that although "attitudes toward specific environmental issues may be predicted by both cognition (beliefs) and affect (emotions or feelings) . . . affect by itself does contribute significantly . . . to the attitude prediction, even after cognition is taken into account."

It is unfortunate that none of these studies directly focuses on biodiversity education and conservation. However, at a more general level the reliance on knowledge

or awareness to drive change is surprising given that everyday experience demonstrates that altering minor habits can be very difficult, even when the new behavior has obvious advantages over the old one. It is no wonder that, despite broad exposure to the biodiversity crisis, support to halt the loss of biodiversity remains shallow. Unlike high-profile environmental issues such as water safety, air pollution, energy sustainability, urban sprawl, and so forth, the temporal component of biodiversity preservation presents unique challenges, challenges hidden from view in most environmental education programs.

If the ultimate goal of environmental literacy is behavioral change, educational programs and policy need to move beyond the awareness-to-action approach, focusing on the affective capacities underlying behavior. It is precisely these capacities—love, care, solidarity, compassion, identification, reciprocation, and so forth—that can be harnessed to move people to act on behalf of distant generations of other-than-humans. But to activate them biodiversity educators will have to introduce students to concrete and particular other-than-humans, encouraging the two groups to enter into intentional, face-to-face encounters whenever possible. Fortunately the seeds of such an approach may already exist with in situ conservation education programs.

In situ conservation education programs have a long history in the US, dating back to American Transcendentalism and nineteenth century romantic nature cults. Today they most often take the form of place-based immersion programs where students learn outside of the built environment. Currently there are three well-established and highly regarded national organizations for outdoor education: the Student Conservation

Association, the National Outdoor Leadership School, and Outward Bound. In a combined study and meta-analysis of the impact that participation in these three programs have had on people, Stephen Kellert (1998) concludes that immersion exerts a major influence on the personal and intellectual development of the participants as well as on their environmental interests. He further concludes that experiences like this lead to

[v]ery pronounced and persistent changes . . . in attitudes toward nature. . . . Most respondents reported far greater respect, affinity, appreciation, and sense of humility and spiritual connection with the natural world as a consequence of their outdoor experience. Most professed a stronger commitment to conservation and stewardship of the environment, a desire to learn about nature, and interest in supporting environmental causes and organizations.” (59-60)

Unfortunately, Kellert also notes that despite changes in attitudes toward nature, “the actual degree of change in conservation behavior was limited, particularly diminishing over time since program participation” (Ibid.). Despite the apparent variation between pro-environmental attitudes and behavior, place-based immersion programs show the most promise for placing students in conditions wherein their altruistic motives might be activated. It remains to be seen whether immersion programs can be adapted to focus on changing behavior for biodiversity conservation.

Although place-based immersion programs may encourage conservation behavior, there is little discussion of the underlying causes for their success. Most of the reasons provided are anecdotal. For instance, John Haskin (1999), recounting his experience of taking Brooklyn sixth graders to the mountains, many of whom had never left the New York City area, remarks, “Environmental education creates opportunities where students can have a direct experience with what is, for many, a separate reality. . . . These students did not need a lecture on forest ecology All they needed was to be in the woods.”

Jane Elder (2002), in talking about how to best communicate the value of biodiversity, says to “Make it real, not conceptual or abstract” and “localize whenever possible.” Even Pooley and O’Connor fail to explain the reason pro-environmental behavior is correlated with the affective domain of human psychology. But the reason *in-situ* conservation approaches are successful, I contend, is that they provide a suitable environment in which the indirect moral motivations can be activated. Obviously this claim requires empirical verification. All else being equal, though, it provides the best explanation for the observed correlation.

5. Conclusion

The purpose of this chapter has been to provide a tentative exploration of whether the indirect moral motives can be employed on behalf of distant future other-than-human generations (biodiversity). If they can, there is some hope for bridging the motivational gap. I began by reviewing conditions that will have to obtain if people are to reliably act on behalf of future generations. This involves particularizing and concretizing present and near-future human and other-than human neighbors, as well as entering into intentional relationships with them whenever possible. When we interact with our neighbors, they become motivationally interesting, stirring in us a whole range of motivations. But, as I pointed out, acting on behalf of concrete and particular humans and other-than-humans is not the same as acting on behalf of abstract and general distant future generations. To get from the former to the latter, the indirect motivations are required. After considering and ultimately rejecting the indirect self-interested motives, I

considered the indirect altruistic motives. John Passmore's chain of love solution, in particular, may provide a way to link together chains of love that extend care for one's children and grandchildren, or care for living other-than-humans, to distant future other-than-human generations (biodiversity). Then, subsequent to establishing that it is possible to care for biodiversity as such, I provided an overview of environmental education strategies. While environmental education has historically focused on providing facts and simple concepts in the hope that these will be sufficient to give rise to pro-environmental behavior, research overwhelmingly demonstrates that awareness-to-action models are flawed. While the provisioning of information may be a necessary first step, it is not the last. In addition to providing knowledge, environmental educators will also have to employ a variety of techniques for engaging the altruistic faculties of students. This is already done, I have suggested, by place-based immersion programs. Yet because immersion programs generally do not have specific conservation goals, in particular the preservation of biodiversity, they will have to be tailored to the specific needs of biodiversity education and the unique motivational challenges posed by temporal remoteness.

CHAPTER 5

CONCLUSION

1. Summation

The primary purpose of this dissertation has been to explain the difference between two sets of reactions. On the one hand, Americans routinely come to the aid of human victims of disaster while on the other, despite the deepening crisis, they are less and less moved to help threatened and endangered species. My contention is that the difference in reactions is best explained by looking at the nature of the motivational faculties. The rationalistic and self-interested motives are largely unavailable in the case of distant future generations. Given their evolutionary heritage, the altruistic faculties are activated when an object of moral concern is sufficiently proximate to render it concrete and particular. Under such circumstances, average persons with average motivational sets can be counted on to respond to others in need—be they humans or other-than-humans—with an outpouring of love and support and self-sacrifice. But concern for species loss is concern for abstract and general other-than-human future generations. Like distant future human generations, future other-than-human generations lie beyond the ken of what we can know and experience close up and therefore, unsurprisingly, fail to engage to altruistic faculties. The result is a vast motivational gap between knowledge and action. Understood thus, it is hard to justify the continued emphasis in environmental education on the mere provisioning of facts and simple concepts. While necessary, this sort of approach is clearly not enough. In addition to raising awareness, biodiversity

educators will have to pay attention to conditions that engage or fail to engage the motivational faculties. Until they do, continued inaction on the biodiversity crisis is all-but-guaranteed.

Of course the work herein is preliminary. I have only just begun the process of consolidating research on moral motivation and future generations—research that often conflates motivation with the scope of moral responsibility—and synthesizing it with the long tradition of environmental education in the US. I have also not said enough about how, once moved, the average American can help stanch biodiversity loss. It is not as if, upon being moved to act, people can directly respond to the crisis, as when they rush to the aid of human victims of natural disasters. Solving the problem of biodiversity loss requires that conservation biologists identify and recommended appropriate courses of action. Conservation biologists, in turn, require a sympathetic socio-politico environment in which to present their findings. At least in the US, however, the current milieu is profoundly unsympathetic. In the face of a weak economy and record high unemployment, conservation biologists will no doubt continue to receive a chilly reception in the halls of Congress. Biodiversity be damned, Americans need jobs and (short-term) financial security. I also need to say more about how I would implement an agent-centered approach to changing conservation behavior, how this would affect environmental education laws and policies, and so forth.

Be that as it may, upon being motivated Americans can act on the biodiversity crisis in the same way they act on other issues of significance—they can practice biodiversity conservation locally, purchase biodiversity-friendly products, provide

financial support for biodiversity conservation initiatives, and perhaps most importantly, vote for biodiversity-friendly state and federal representatives. Should our political appointees not hear or desire to act upon our wishes, we can come together in solidarity to employ tried and true techniques of persuasion including protests, sit-ins, letter-writing campaigns, and so forth. But none of this can or will happen until biodiversity educators employ techniques for engaging the motivational faculties on behalf of distant future human and other-than-human generations. In the next section I therefore provide a laundry list of recommendations aimed at solving the motivation problem. I conclude with a brief meditation on biodiversity loss and conservation education in the twenty-first century.

2. Recommendations

First, biodiversity educators, conservation biologists, and environmental legislators once and for all need to give up the idea that their primary task is to inform the public about the biodiversity crisis. While such a prioritization may have been appropriate when the field of conservation biology was born in the 1980s, a fundamental lack of information is no longer the principle obstacle to overcome. The central challenge today is to eliminate or bridge the motivational gap between knowledge and action.

Second, educators, scientists, and politicians need to quit appealing directly to the value of species and/or biodiversity. Because concern for species loss is a concern for generations of temporally distant abstract and general other-than-humans, such appeals

will necessarily fall on deaf ears (cold hearts more accurately). Instead, they need to become agent-centered, responsive to the conditions that activate peoples' altruistic faculties. While the language for communicating about distant future generations is quantitative and statistical, the altruistic faculties respond to qualitative properties of concrete and particular moral patients. So even though the ultimate object of moral consideration is temporally distant, communication about threatened and endangered species ought to be couched in terms of those who are living now and in the near future. In other words, teachers ought not to bury the introductory student under a mountain of facts and statistics, but instead should focus on the concrete lives of particular other-than-humans, physically introducing the two groups to each other whenever possible. It is unclear, without further empirical study, what aspects of the lesser charismatic species like mollusks, lichen, and so forth will render them interesting. It is also perfectly imaginable that some species can never be made interesting. Presumably, though, a large number species, especially charismatic keystone species, are or can be made interesting enough to us so as to engage can the altruistic faculties. Despite the fact that some people may be like the priest or the Levite in the Good Samaritan parable, passing by on the other side of the street, as it were, to avoid confronting the tragedy of biodiversity crisis, at a minimum a greater number of people than at present who confront the suffering and injury of other-than-humans can be moved to behave more like the good Samaritan, coming to the aid of others in need regardless of their, ethnic, religious, *or species* affiliation.¹

1. This claim screams for empirical verification. For this reason I have stated it as weakly as possible.

Third, strategies that link the objects of motivational consideration (extant and near future humans and other-than-humans) to the object of moral consideration (future generations of other-than-humans), need to be explored further. One way to do this is by adapting pre-existing environmental education programs, particularly in situ programs, to biodiversity education. Unfortunately, in the current economic climate, most schools don't have the political will or funds to enroll a substantial number of students. Since the No Child Left Behind Act of 2001 (Pub. L. no. 107-110, 115 Stat. 1425) with its emphasis of quantified test scores was signed into law, schools across the country have had even less opportunity to integrate environmental education into the new exam-friendly curriculum (Groom, Meffe, and Carroll 2006, 680). For the foreseeable future, place-based immersion programs will be the exception to the more common, classroom-based environmental education programs.

Another way to link objects of motivational consideration to the object of moral consideration is, as I have done with Passmore's chain of love, by mapping strategies originally developed in response to the motivation problem for humans onto the motivation problem for other-than-humans. Given that (1) the actions of moral agents living today affect temporally distant humans as much as temporally distant other-than-humans and (2) the consequences of temporal remoteness is the same for both groups, namely, un-activated altruistic faculties, (3) it is reasonable to infer that a solution to the problem as it pertains to humans can be successfully mapped onto a solution for the problem of biodiversity loss.

Fourth, not only should linking strategies be developed in education, but they should also be reflected in environmental policy. As I discussed in the last chapter, neither the National Environmental Education Act nor the National Environmental Education Foundation (NEEF) provides strategies for moving people from knowledge and awareness to behavior and action. Moreover, of the many issues to be addressed by environmental education, NEEF emphasizes the need for a clean and healthy environment and resource sustainability, rarely if ever mentioning the importance of preserving biodiversity.

Fifth and finally, where primary and secondary education offers some opportunity for in situ educational experiences, there are almost no chances for working adults to engage these sorts of activities. The National Education Advisory Council, an advisory panel to the EPA, is cognizant of this problem, emphasizing in their latest report that “[t]he primary challenge ahead is to raise the level of environmental literacy, of the American citizenry *as a whole* and to ensure the environmental literacy *of each successive generation*” (2005, 3, emphasis added). Of course, educators will have to do more than just raising environmentally literate adults. American wage earners are almost entirely restricted to learning about threatened and endangered species through mainstream media. Given the inherent remoteness of media and the immunity to advertising and pitched messages, environmental or otherwise, which people acquire through overexposure, it is almost certain that a large number of working adults will have little motivation to alter their behavior in deference to temporally distant other-than-humans. For adults, conservation education has truly failed.

3. Biodiversity Loss and the Future of Conservation Education

Regrettably, I am skeptical about whether the current structure and approach of environmental education in the US will move enough people to action quickly enough to avoid catastrophic biodiversity loss. The speed with which species are disappearing seems to be far greater than the time it is taking the American populace to acquire an appreciation for and an ability to act upon the needs of threatened and endangered species. Moreover, if the benefits of place-based immersion programs are temporary as Stephen Kellert's (1998) findings likely demonstrate, then the prospects for successfully employing such programs to generate long-term motivation are even bleaker.

It appears that preserving species in sufficient numbers requires more than the addition of a few educational or policy initiatives. If, as individuals and as a nation, we decide that preserving the maximum number of species possible ought to be a top priority, then in all likelihood we will have to overhaul that main elements—political, economic and perhaps even metaphysical—of American society. In mind, I have a society where other-than-humans and humans are more fully integrated, interacting and negotiating with each other on a daily basis. Certainly one should not get too up-close and personal with some of the larger threatened and endangered species like bears or lions. But “interaction” can entail mere recognition of and a healthy respect for the other at a distance. I have, for instance, interacted with moose and bears in Alaska, and with quite a few bobcats in my backyard in recent years. While I do not come out to greet the bobcats in physical person, we have nonetheless studied each other (with glass separating

us) at a distance on numerous occasions. Creating a more fully integrated and biologically diverse society will also require that members of society develop a tolerance for entities that we perceive to be “pests” and “nuisance species” as well as the preservation of small and medium predators in urban, suburban, and exurban environments—two very commonplace recommendations. The cosmopolitan, ecological vision, which has been portrayed by many others, is of a society that becomes green from the inside out, welcoming other-than-humans into our neighborhoods and our lives. But how can we pass through this bottleneck, from the currently biologically destructive situation to a biologically neutral or benign situation? It seems that there are only two ways. We can allow a biologically depauperate planet to be “forced upon us by external events rather than by conscious choice, by catastrophe rather than by calculation” and hope to learn from the lesson (Heilbroner 1974, 114-115). Or we can collectively muster the will to apply coercive, paternalistic mechanisms to change behavior. But as Norman Care (1982) has remarked, doing so will be all the more difficult in society like ours that places a preeminent value on individual freedom.

This dissertation ends where it began. Rapid population growth coupled with staggering demands placed on the Earth’s resources has given rise to a sixth mass extinction. The sheer number of people living today and the type of activities that members of Western society are involved are together propelling the entire world along a biologically destructive path. William Beebe, one of the great conservationists of the twentieth century, is surely correct that “when the last individual of any race of living things breathes no more, another heaven and another Earth must pass before such a one

can be again” (1906, 18). It remains to be seen, however, whether the extinction crisis will be, as Edward O. Wilson (1984, 121) describes it, “the folly our descendents are least likely to forgive us.” One can only hope that motivational techniques, be they at the level of the individual or at the level of society or both, can be employed quickly enough to avoid learning the truth of Wilson’s prediction.

APPENDIX

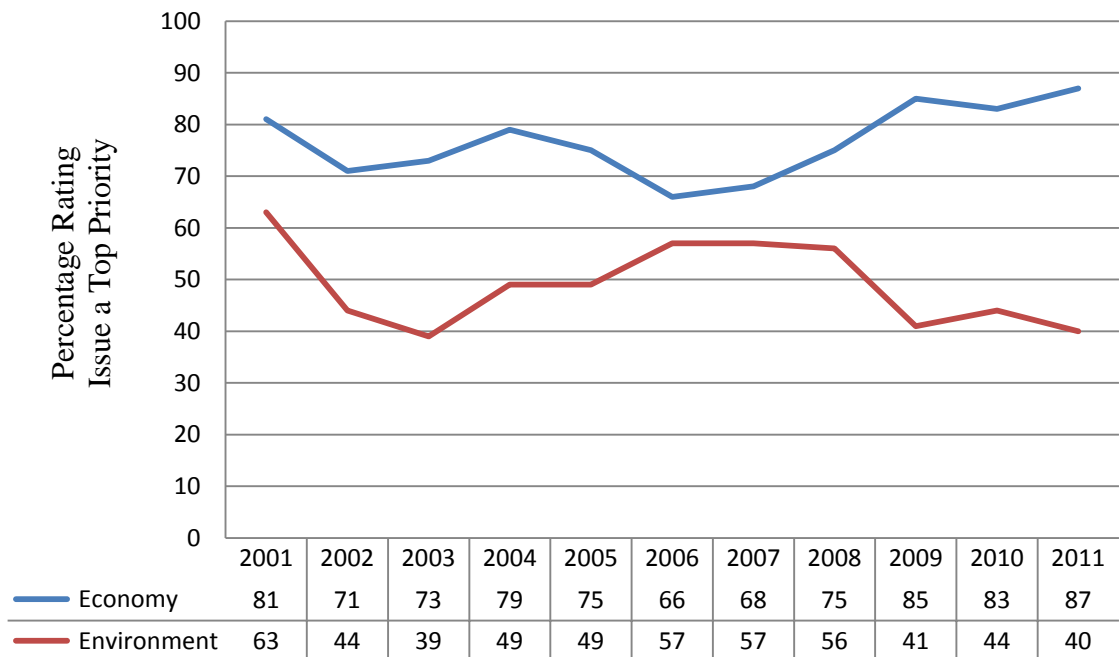
ATTITUDES OF AMERICAN VOTERS

Table A.1 American Attitudes on Biodiversity

Topic	Year		Difference
	1996	2002	
Heard about the loss of biodiversity or biodiversity	19%	30%	+11%
Thinks that the rate of extinction is a serious problem	25%	19%	-6%
Believes that it is ok to eliminate some species	49%	32%	-17%
Believes that protecting jobs is more important than saving habitat for plants and animals	49%	38%	-11%

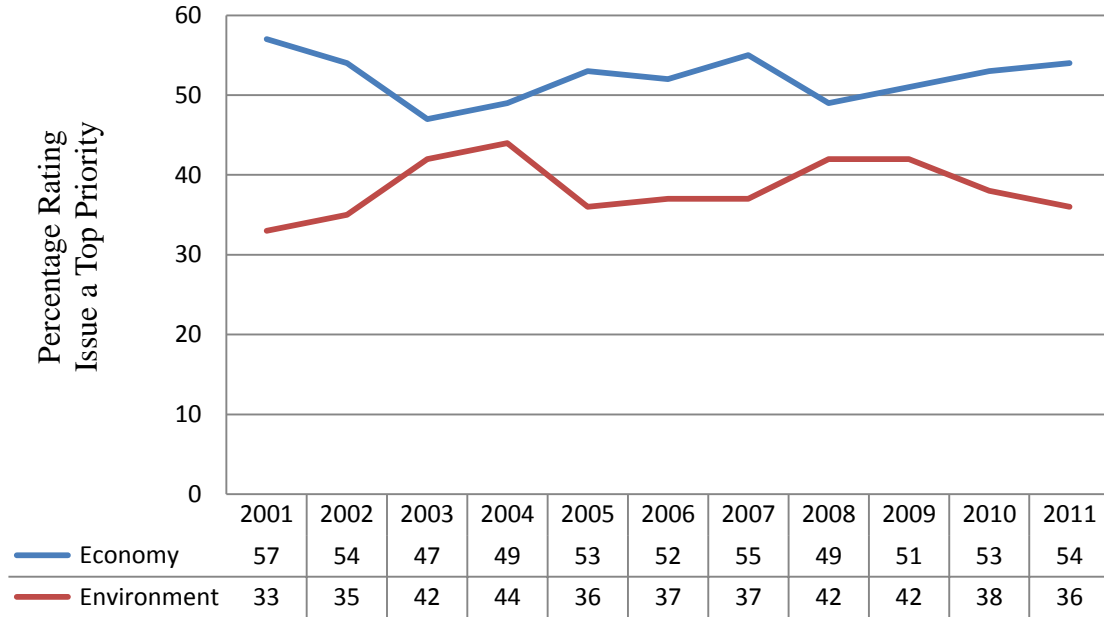
Source: Polls commissioned by the Biodiversity Project and conducted by Belden Russonello & Stewart, Research and Communications. The 1996 survey was a national survey of 2,005 American adults, conducted February 29 through March 12 with a margin of error plus or minus 2 percentage points at the 95% level of confidence. The 2002 survey was a national survey of 1,500 American adults conducted January 2 through 16 with a margin of error of plus or minus 3.1 percentage points at the 95% level of confidence.

Table A.2 Pew Research Center, National Priorities, 2001-2011



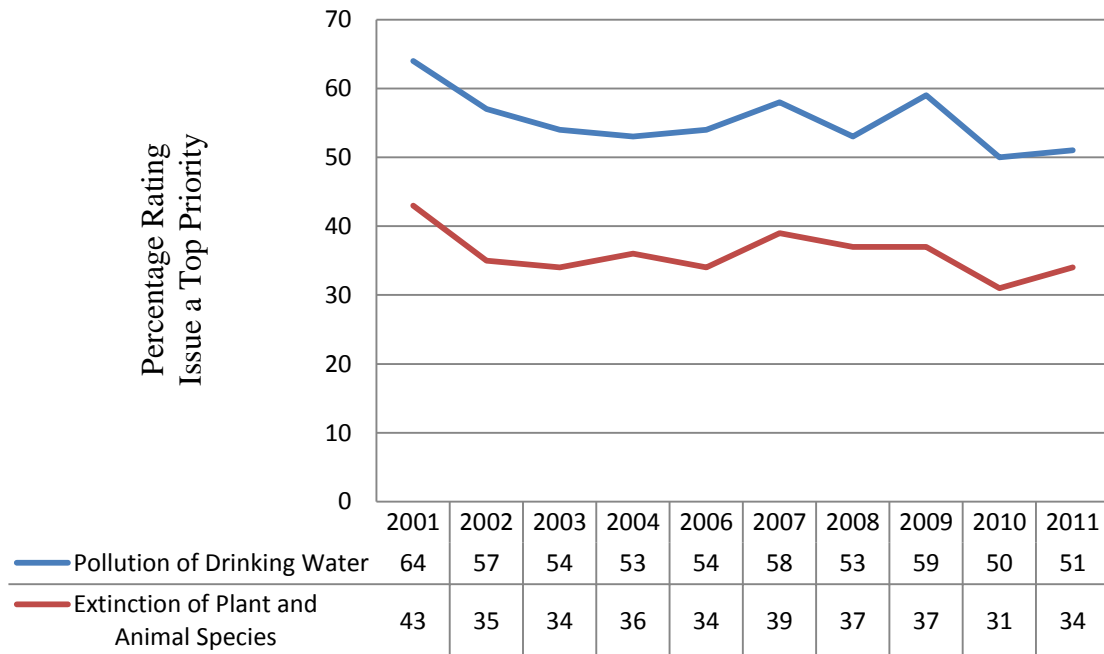
Source: The Pew Research Center: For the People & the Press, <http://people-press.org/>.

Table A.3 Gallup Poll, National Priorities, 2001-2011



Source: The Gallup Organization, <http://www.gallup.com/home.aspx>.

Table A.4 Gallup Poll, Concern for Extinction, 2001-2011



Source: The Gallup Organization, <http://www.gallup.com/home.aspx>.

REFERENCE LIST

- Ajzen, Icek, and Martin Fishbein. *Understanding Attitudes and Predicting Social Behavior*. Englewood Cliffs, NJ: Prentice-Hall, 1980.
- Aristotle. *On Rhetoric*. Translated by George A. Kennedy. New York: Oxford University Press, 1991.
- Arrondel, Luc, and Andre Masson. "Family Transfers Involving Three Generations." *Scandinavian Journal of Economics* 103, no. 3 (September 2001): 415-443.
- Beebe, C. William. *The Bird: Its Form and Function*. New York: Henry Holt and Company, 1906
- Belden & Russonello Research and Communications. *Communicating Biodiversity: Summary of Focus Group Research Findings*. Focus Group, Washington, DC: The Biodiversity Project, 1995.
- . *Human Values and Nature's Future: Americans' Attitudes on Biological Diversity: An Analysis of Findings from a National Survey*. National Poll, Washington DC: The Biodiversity Project, 1996.
- Belden Russonello & Stewart Research and Communications. *Americans and Biodiversity: New Perspectives in 2002*. National Poll, Washington DC: The Biodiversity Project, 2002.
- Birnbacher, Dieter. "What Motivates Us to Care for the (Distant) Future?" In *Intergenerational Justice*, by Axel Gosseries and Lukas H. Meyer, 273-300. Oxford: Oxford University Press, 2009.
- Bradshaw, Corey J.A., Navjot S. Sodhi, Barry W. Brook. "Tropical Turmoil: A Biodiversity Tragedy in Progress." *Frontiers in Ecology and the Environment* 7, no. 2 (March 2009): 79-87.
- Britannica Concise Encyclopedia, Encyclopedia Britannica, Inc. "Baby Boom." 1994-2010. <http://www.answers.com/topic/baby-boom> (accessed June 11, 2011).
- Callicott, J. Baird. "Moral Considerability and Extraterrestrial Life." In *Beyond Spaceship Earth: Environmental Ethics and the Solar System*, edited by Eugene C. Hargrove, 227-259. San Francisco: Sierra Club Books, 1986.

- Care, Norman S. "Future Generations, Public Policy, and the Motivation Problem." *Environmental Ethics* 4 (1982): 195-213.
- Chapman, Arthur D. "Numbers of Living Species in Australia and the World." Report. Toowoomba, Australia: Australian Biodiversity Information Services, September 2009.
- Chatterjee, Deen K. "Moral Distance: Introduction." *The Monist* 86, no. 3 (2003): 327-332.
- Congressional Research Service. *A Legislative History of the Endangered Species Act of 1973, as Amended in 1976, 1977, 1978, 1979, and 1980*. Washington, DC: Government Printing Office, 1982.
- Corbett, Julia B. *Communicating Nature: How We Create and Understand Environmental Messages*. Washington, DC: Island Press, 2006.
- Coyle, Kevin. *Environmental Literacy in America*. Washington, DC: National Environmental Education & Training Foundation, 2005.
- Cummiskey, David. *Kantian Consequentialism*. New York: Oxford University Press, 1996.
- Davidson, Donald. "Actions, Reasons and Causes." *Journal of Philosophy* 60, no. 23 (1963): 685-700.
- Elder, Jane. "Talking About Biodiversity." In *Ethics for a Small Planet: A Communications Handbook on the Ethical and Theological Reasons for Protecting Biodiversity*, 107-108. Madison, WI: Biodiversity Project, 2002.
- Galtung, Johan. "Towards a New Economics." In *The Living Economy: A New Economics in the Making*, edited by Paul Ekins, 99-109. London: Routledge & Kegan Paul, 1986.
- Gardiner, Stephen M. "The Pure Intergenerational Problem." *The Monist* 86, no. 3 (2003): 481-500.
- Golding, Martin P. "Ethical Issues in Biological Engineering." *UCLA Law Review* 15, no. 267 (1968): 443-479.
- . "Obligations to Future Generations." *The Monist*, no. 56 (January 1972): 85-99.

- Goodpaster, Kenneth E. "On Being Morally Considerable." *Journal of Philosophy* 75, no. 6 (June 1978): 308-325.
- Gram Swing, Raymond. "*Good Evening!*": *A Professional Memoir*. New York: Harcourt, Brace & World, Inc., 1964.
- Groom, Martha J., Gary K. Meffe, and C. Ronald Carroll. *Principles of Conservation Biology*. Sunderland, Massachusetts: Sinauer Associates, Inc., 2006.
- Hargrove, Eugene C. "Religion, Ethics, and the Culture War." Unpublished Manuscript, 2011.
- Haskin, John. "Environmental Education in the United States: Teaching in the Present, Preparing Students for the Future." *International Symposium on Environmental Education Conference*. Tokyo, Japan, 1999.
- Heilbroner, Robert L. *An Inquiry into the Human Prospect*. New York: W. W. Norton & Company, Inc., 1974.
- Hines, J. M., H. R. Hungerford, and A. N. Tomera. "Analysis and Synthesis of Research on Responsible Pro-Environmental Behavior: A Meta-Analysis." *Journal of Environmental Education* 18, no. 2 (1986-1987): 1-8.
- Hume, David. *A Treatise of Human Nature*. Edited by L. A. Selby-Bigge. Oxford: Clarendon Press, 1896.
- . *An Enquiry Concerning the Principles of Morals*. Edited by Tom L. Beauchamp. Oxford: Oxford University Press, 1998.
- Hungerford, H.R., and T.L. Volk. "Changing Learner Behavior through Environmental Education." *Journal of Environmental Education* 21, no. 3 (1990): 8-21.
- IUCN. *IUCN Red List of Threatened Species*. Vers. 2010.4. <http://www.iucnredlist.org> (accessed March 16, 2011).
- Jacobson, Susan K. *Communication Skills for Conservation Professionals*. 2nd edition. Washington, DC: Island Press, 2009.
- Jacobson, Susan K., Mallory D. McDuff, Martha C. Monroe. *Conservation Education and Outreach Techniques*. New York: Oxford University Press, 2006.
- Jonas, Hans. *The Imperative of Responsibility: In Search of an Ethics for the Technological Age*. Chicago: University of Chicago Press, 1984.

- Joyce, Richard. *The Evolution of Morality*. Cambridge, MA: MIT Press, 2007.
- Kant, Immanuel. *Groundwork of The metaphysics of morals*. Vol. 4: Practical Philosophy. The Cambridge Edition of the Works of Immanuel Kant, translated by Mary J. Gregor. New York: Cambridge University Press, 1996.
- Kant, Immanuel. *Idee zu einer allgemeinen geschichte in weltburgerlicher Absicht*. Vol. 8, in *Werke (Akademie-Ausgabe)*, 15-31. Berlin: Reimer, 1912.
- Kassas, Mohamed. "Environmental Education: Biodiversity." *The Environmentalist* 22, no. 4 (2002): 345-351.
- Kavka, Gregory. "The Futurity Problem." In *Obligations to Future Generations*, edited by R. I. Sikora and Brian Barry, 186-203. Philadelphia: Temple University Press, 1978.
- Kellert, Steven R., and Victoria Derr. *A National Study of Outdoor Wilderness Experience*. New Haven, CT: Yale University, 1998.
- Kempton, Willett, James S. Boster, and Jennifer A. Hartley. *Environmental Values in American Culture*. Cambridge: MIT Press, 1995.
- Kolbert, Elizabeth. "Enter the Anthropocene—Age of Man." *National Geographic*. March 2011. <http://ngm.nationalgeographic.com/2011/03/age-of-man/kolbert-text> (accessed March 23, 2011).
- Kollmuss, Anja, and Julian Agyeman. "Mind the Gap: Why Do People Act Environmentally and What Are the Barriers to Pro-Environmental Behavior?" *Environmental Education Research* 8, no. 3 (August 2002): 239-260.
- Light, Andrew, and Holmes Rolston III. "Introduction: Ethics and Environmental Ethics." In *Environmental Ethics: An Anthology*, edited by Andrew Light and Holmes Rolston III, 1-11. Malden, MA: Blackwell Publishing Ltd, 2003.
- Mass, Peter. *The Sixth Extinction: A Website about the Current Biodiversity Crisis*. 2011. <http://www.petermaas.nl/extinct/index.html> (accessed May 13, 2011).
- May, Meredith. *Bay Area Nonprofits Brace for 2010 Shakeout*. March 1, 2009. <http://www.sfgate.com/cgi-bin/article.cgi?f=/c/a/2009/03/01/MN0K165OA5.DTL&hw=nonprofit&sn=001&sc=1000> (accessed March 4, 2009).
- McKenzie-Mohr, Doug. "Fostering Sustainable Behavior Through Community-Based Social Marketing." *American Psychologist* 55, no. 5 (May 2000): 531-537.

- McKenzie-Mohr, Doug, and William Smith. *Fostering Sustainable Behavior*. Gabriola Island, BC: New Society Publishers, 1999.
- Miller, Alexander. *An Introduction to Contemporary Metaethics*. Cambridge: Polity Press, 2003.
- Minteer, Ben A., and Robert E. Manning. "Pragmatism in Environmental Ethics: Democracy, Pluralism, and the Management of Nature." *Environmental Ethics* 21, no. 2 (1999): 191-207.
- Moore, Kathleen Dean, and Michael P. Nelson. *Moral Ground: Ethical Action for a Planet in Peril*. San Antonio, TX: Trinity University Press, 2010.
- MSNBC.com. *NBC Nightly News with Brian Williams, Weekend Edition*. May 29, 2011. <http://www.msnbc.msn.com/id/3032619/#43205006> (accessed May 29, 2011).
- Newport, Frank. "Americans: Economy Takes Precedence Over Environment." *Gallup*. March 19, 2009. <http://www.gallup.com/poll/116962/Americans-Economy-Takes-Precedence-Environment.aspx> (accessed April 11, 2011).
- Noddings, Nel. *Caring: A Feminine Approach to Ethics & Moral Education*. 2nd edition. Berkeley: University of California Press, 2003
- Noss, Reed F. "Indicators for Monitoring Biodiversity: A Hierarchical Approach." *Conservation Biology* 4, no. 4 (December 1990): 355-364.
- Oxfam. "Oxfam Launches Appeal for Massive South Asian Floods." www.oxfam.org.uk. August 8, 2007. <http://www.oxfam.org.uk/applications/blogs/pressoffice/2007/08/08/oxfam-launches-appeal-for-massive-south-asian-floods/> (accessed April 25, 2011).
- Parry, M.L., O.F. Canziani, J.P. Palutikof, P.J. van der Linden, and C.E. Hanson (Eds.). *Climate Change 2007: Impacts, Adaptation, and Vulnerability. Contribution of Working Group 2 to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*. Cambridge, UK, and New York: Cambridge Univ Press, 2007.
- Partridge, Ernest. "Future Generations." Chap. 26 in *A Companion to Environmental Philosophy*, edited by Dale Jamieson, 377-389. Malden, MA: Blackwell Publishing Ltd., 2003.
- . "Introduction." In *Responsibilities to Future Generations*, 1-16. Buffalo, NY: Prometheus Books, 1981.

- Passmore, John Arthur. *Man's Responsibility for Nature: Ecological Problems and Western Traditions*. New York: Scribner, 1974.
- Pearce, Fred. *With Speed and Violence: Why Scientists Fear Tipping Points in Climate Change*. Boston: Beacon Press, 2007.
- Piper, Ross. *Extinct Animals: An Encyclopedia of Species That Have Disappeared during Human History*. Westport, CT: Greenwood Press, 2009.
- Plumwood, Val. *Environmental Culture: The Ecological Crisis of Reason*. New York: Routledge, 2002.
- Pomerantz, Gerri A. "Evaluation of Natural Resource Education Materials: Implications for Resource Management." *The Journal of Environmental Education* 22, no. 2 (Winter 1990-1991): 16-23.
- Pooley, Julie Ann, and Moira O'Connor. "Environmental Education and Attitudes: Emotions and Beliefs Are What Is Needed." *Environment and Behavior* 32, no. 5 (September 2000): 711-723.
- Primack, Richard B. *Essentials of Conservation Biology*. 5th ed. Sunderland, Massachusetts: Sinauer Associates, 2010.
- Rosati, Connie S. "Moral Motivation." *The Stanford Encyclopedia of Philosophy*. Edited by Edward N. Zalta. Fall 2008. <http://plato.stanford.edu/archives/fall2008/entries/moral-motivation/> (accessed 01 23, 2011).
- Routley, Richard, and Val Routley. "Nuclear Power-Some Ethical and Social Dimensions." In *And Justice for All*, edited by Tom Regan and Donald VanDeVeer, 116-138. Totowa, NJ: Rowman and Littlefield, 1982.
- Ruffo, Susan, and Peter M. Kareiva. "Using science to assign value to nature." *Frontiers in Ecology and the Environment* 7, no. 1 (2009): 3.
- Sidgewick, Henry. *The Method of Ethics*. 2nd edition. London: Macmillan and Co., 1877.
- Singer, Peter. "Famine, Affluence, and Morality." *Philosophy and Public Affairs* 1, no. 3 (Spring 1972): 229-243.
- Smith, B.D., et al. "Lipotes vexillifer." *IUCN Red List of Threatened Species. Version 2010.4*. 2008. www.iucnredlist.org (accessed April 12, 2011).

- Smith, Michael. *The Moral Problem*. Malden, MA: Wiley-Blackwell Ltd., 1994.
- Solomon, Susan, Gian-Kasper Plattner, Reto Knutti, and Pierre Friedlingsteind. "Irreversible climate change due to carbon dioxide emissions." *Proceedings of the National Academy of Sciences of The United States of America* Volume 106, no. 6 (February 2009): 1704-1709 .
- Stapp, William B., et al. "The Concept of Environmental Education." *The Journal of Environmental Education* 1, no. 1 (Fall 1969): 30-31.
- The Columbia Encyclopedia. *Cro-Magnon man*. 2008.
http://www.credoreference.com/entry/columency/cro_magnon_man (accessed June 20, 2011).
- The Constitution of the Iroquois Nations: The Great Binding Law*. 2011.
<http://www.indigenousepeople.net/iroqcon.htm> (accessed June 24, 2011).
- The Jerusalem Publishing House, Ltd. "Samaritan." *The New Encyclopedia of Judaism*. 1989, 2002. <http://www.answers.com/topic/samaritan> (accessed June 2011, 28).
- The National Environmental Education Advisory Council. "Setting the Standard, Measuring the Results, Celebrating Successes: A Report to Congress on the Status on Environmental Education in the United States." Washington, DC, 2005.
- Turvey, Sam. *Witness to Extinction: How We Failed to Save the Yangtze River Dolphin*. Oxford: Oxford University Press, 2008.
- Turvey, Samuel T., et al. "First human-caused extinction of a cetacean species?" *Biology Letters* 3 (2007): 537-540.
- United Nations Environmental, Scientific, and Cultural Organization (UNESCO). "The International Workshop on Environmental Education, Belgrade." *Final Report, ED-76/WS/95*. Paris: The International Education Programme, 1975.
- University Leaders for a Sustainable Future. *Talloires Declaration*. 2011.
http://www.ulsf.org/programs_talloires.html (accessed June 23, 2011).
- Visser't Hooft, Hendrik P. *Justice to Future Generations and the Environment* . Dordrecht, Neth.: Kluwer Academic Publishers, 1999.
- Waldron, Jeremy. "Who is My Neighbor?: Humanity and Proximity." *The Monist* 86, no. 3 (2003): 333-354.

- Wals, Arjen E. J., ed. *Environmental Education and Biodiversity*. Wageningen, Ned.: National Reference Centre for Nature Management, 1999.
- Warnock, G. J. *The Object of Morality*. London: Methuen & Co Ltd, 1971.
- White Jr., Lynn. "The Historical Roots of Our Ecologic Crisis." *Science* 155, no. 3767 (March 1967): 1203–1207.
- Wilson, Edward, O. *Biophilia*. Cambridge, MA: Harvard University Press, 1984
- . *The Diversity of Life*. Cambridge, MA: The Belknap Press of Harvard University Press, 1992.
- World Wildlife Fund International. "Living Planet Report 2010: Biodiversity, biocapacity and development." *www.panda.org*.
http://wwf.panda.org/about_our_earth/all_publications/living_planet_report/living_planet_report_graphics/ (accessed March 28, 2011)
- Yeager, David Scott, Samuel B. Larson, Jon A. Krosnick, and Trevor Thompson. "Measuring Americans' Issue Priorities: A New Version of the Most Important Problem Question Reveals More Concern About Global Warming and the Environment." Poll, Stanford University, Mountain View, CA, 2010.
- Yorkshire Post. "I cried when the floods came to Hull, but these people have nothing left." <http://www.yorkshirepost.co.uk>. August 8, 2007.
http://www.yorkshirepost.co.uk/news/features/i_cried_when_the_floods_came_to_hull_but_these_people_have_nothing_left_1_2466372 (accessed April 25, 2011)
- Zalasiewicz, Jan, et al. "Are We Now Living in the Anthropocene?" *GSA Today* 18, no. 2 (2008): 4-8.
- Zalasiewicz, Jan, Mark Williams, Alan Haywood, and Michael Ellis. "The Anthropocene: a new epoch of geological time?" *Philosophical Transactions of the Royal Society A* 369, no. 1938 (March 2011): 835-841.