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ENVS 691: My Environmental Ethic

THE GOOD NEIGHBOR ETHIC

This may appear to be a weirdly written document, given that it includes text meant to be read by a reader alone with text meant to be read aloud by this writer to a group of presumably interested fellow travelers. But given the fact that this writer was fairly well pleased with the original exposition of his attempt at an environmental ethic, and that exposition of his environmental ethic is a requirement for this assignment, he was little inclined to attempt a rewrite at this time. The time for a rewrite will certainly come, but too little time, study, thought, and meditation has been applied to the problem to justify the effort now.

Three sections follow. First is the text of the speech I (enough of the third-person references to myself) gave to J. Clifford Fox's environmental ethics class at Virginia Commonwealth University on Nov. 19, 2012. (Lest you think I was invited to speak, I was merely a student in the class on the first of four nights of student presentations.) The second section will be an attempt to apply my ethic to problems arising from what is loosely called climate change, or more technically referred to as anthropogenic global warming. The final section will be a conclusion and will address any problems with my ethic I care to admit to at this time.

THIS I BELIEVE
(Text of a talk given in class on Nov. 19, 2012)

I cannot admit to being thrilled at being forced to explicitly articulate an environmental ethic. But I have to articulate one regardless.

While most of you are being forced to do so just because of this class, I have deeper and arguably more precarious reasons for having to feel your pain this semester. Forming an environmental ethic will be—assuming my dissertation committee agrees—a central part of my Ph.D. work. I have nagging doubts as to my adequacy for such a pursuit, but I will not forswear the quest.

Do not get your expectations of me too high tonight. What I will offer is a rough draft, and it suffers from what plagues all first drafts. It will be poorly thought out, chaotically written, logically inconsistent, and intellectually and emotionally unsatisfying. I not-so-secretly fear that my final draft, if and when I reach that point, will not be much of an improvement. While I expect that it will feature some progress from my origin, I will not bet that my thoughts will have crept any nearer to a destination.

Initial conditions

My environmental ethic does not originate in a vacuum—at least not a cultural one. I think it is safe to say that I am a foundationalist. My foundation rests upon the assumption that there is a reality independent of my perception and understanding. For most of my career, focused as it was in the natural sciences, I was never challenged by anyone who did not share that assumption. More recently, however, my work has become vastly more interdisciplinary than I ever could have imagined when I first embraced biogeography 30 years ago. I have met many colleagues in the humanities and social sciences who endlessly debate the socially and linguistically constructed nature of reality and sometimes viciously deride the notion of an objective reality, but I stubbornly cling to my assumption. Over the course of my life I have found many reasons to do so.

For example, in my former life as a pole vaulter, I assumed there was something called "ground." My goal as a pole vaulter was not to land on this entity. Instead, my goal was to: 1) run fast with a long pole, 2) stick the pole in a hole, 3) ride the other end of the pole over an obstacle; and 4) land on a soft pad. I could usually fail at the first three tasks without much of an adverse effect, but once I got in the air near the obstacle I hoped to clear, I really, really—desperately—wanted to avoid contact with "ground." In truth, my pole-vaulting career ended in something of an epistemological exercise. In a series of ill-advised empirical tests, I discovered and rediscovered the existence of "ground," which I usually found by initial contact with my lower back, followed in quick succession by contact with the back of my head, arms, and legs. Years of encounters with pain, painkillers, and physical therapy serve as vivid reminders of those tests. "Ground" exists no matter what I call it, no matter in what language or whether in that language the subject is put before the verb or after in a typical sentence.

The reality of life (on Earth, at least) is that if I take to the air without adequate support, "ground" will find me. And once it does—whether I possess the gift of language or not, whether I have some logical construct in my mind to provide meaning and context for what I am about to experience—I will feel something we in the English-speaking world call pain.

I may never fully perceive or understand the objective reality that I assume exists. I am perfectly content knowing that I will never reach the edge of our solar system, much less our galaxy or universe; likewise I accept the fact that I can only indirectly witness the beginnings of time through the evidence left for us to discover in light from the very, very deep past. This is not to say that I am uninterested in these great mysteries of our existence. I am, but I find the universe around me much more interesting with puzzles left that I and others can attempt to solve and understand.

Lest you think my ontological approach is intermeshed with my epistemological approach, I should point out that you are not wrong. They are inextricably linked. It should be obvious by now that I am also a scientific realist. I am a firm believer in evidence-based knowledge, preferably tested and retested using the tools of the scientific method. It matters little to me that our understanding of reality is a work in progress, that is merely a reality of our all-too-fallible approach to acquiring knowledge. Harry Hammond Hess, the originator of the theory of sea-floor spreading, summed the fallibility of scientists up nicely when he received the Geological Society of America's Penrose Medal in 1966.

"As a geologist who has often guessed wrong," Hess said, "I deeply appreciate the generosity of the Society in balancing my errors against deductions of mine not yet proven incorrect. I am pleased to come out with a positive balance."[1]

[1] Hess, Harry Hammond. "Response by Harry Hammond Hess, Penrose Medal." *Proceedings of the Geological Society of America* 1966 (1967): 85-86.

I find science to be the best approach toward understanding of reality. As error-prone as science can be, it offers a correction mechanism second to none among human approaches to knowledge: If a proposed explanation fails to pass an empirical test, it either has to be revised or it has to go.

Nevertheless, science is not the only approach to knowledge that offers something of value. I do not reject religious, mystical, or other approaches to better understanding ourselves and our role in and relationship with the world around us. Science is excellent at deriving answers to mechanistic questions of how the world around us works, but it often offers little or no guidance as to how we should interact with that world and its residents. While science can contribute to the development of our personal ethics—such as offering justification for the notion that we should treat those who are different from us as we would like to be treated ourselves—it does not actually encourage us to do so.

The Upshot

How should we interact with the world and its residents? That is a good question.

Prior to my enrollment in this class, I had given the question little thought. Since the start of the class, I admit to giving it insufficient thought. Yet this is not something that can be easily answered even in a few weeks of intense and undivided consideration. In my defense, however, humans have been evolving ethical concepts for thousands of years and have yet to completely agree on how we should deal with one another—even when we agree on what words to say, we too often disagree as to the extent we should live up to them.

My notion of an environmental ethic arises from Aldo Leopold's "The Land Ethic." The essay was published at the end of his seminal book, *A Sand County Almanac and Sketches Here and*

There, which was groundbreaking both in terms of his prose stylings as well as his environmental philosophy. Leopold's book consisted of three parts: the Almanac, twelve monthly essays on the life of his Wisconsin farm; the Sketches, a series of essays describing the evolution of his environmental thinking from a 19th-century youth who thought nature was put here to serve humanity to a 20th-century man who began to realize nature had intrinsic value in itself; and the upshot, a series of essays on ethics that lead up to what one scholar calls "the upshot of the Upshot"[2]—"The Land Ethic."

In that essay, Leopold presents a deceptively simple conception of an ecological ethic: "A thing is right when it tends to preserve the integrity, stability, and beauty of the biotic community. It is wrong when it tends otherwise."[3]

For Leopold (and for me) the biotic community includes humans as well as the other forms of life that inhabit this planet. But it also includes the non-living components of the environment in which we live, such as the soils, waters, mountains, or deserts that make up the landscapes in which we live. What guides me as I go through my life is how my actions affect the life and environments around me.

Interconnections

Some scholars argue that Leopold's views were ecocentric—that non-human entities, even non-living entities—have intrinsic values, i.e., value beyond what humans see in them; as such, non-human and non-living entities are morally considerable. In the sketch, "Thinking Like a

[2] Meine, Curt. "Building "The Land Ethic.'" In *Companion to a Sand County Almanac: Interpretive & Critical Essays*, edited by J. Baird Callicott, 172-85. (Madison, Wisc.: The University of Wisconsin Press, 1987), 173.
[3] Leopold, Aldo. A *Sand County Almanac and Sketches Here and There*. Special Commemorative Edition ed. (New York: Oxford University Press, 1987), 224-225.

Mountain," Leopold describes the moment where he had his epiphany, his realization that it is not all about us.

> My own conviction dates from the day I saw a wolf die. We were eating lunch on a high rimrock, at the foot of which a turbulent river elbowed its way. We saw what we thought was a doe fording the torrent, her breast awash in white water. When she climbed the bank toward us and shook out her tail, we realized our error: It was a wolf. A half-dozen others, evidently grown pups, sprang from the willows and all joined in a welcoming mêlée of wagging tails and playful maulings. What was literally a pile of wolves writhed and tumbled in the center of an open fist at the foot of our rimrock.
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> In those days we had never heard of passing up a chance to kill a wolf. In a second we were pumping lead into the pack, but with more excitement than accuracy; how to aim a steep downhill shot is always confusing. When our rifles were empty, the old wolf was down, and a pup was dragging a leg into impassable slide-rocks.
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> We reached the old wolf in time to watch a fierce green fire dying in her eyes. I realized then, and have known ever since, that there was something new to me in those eyes—something known only to her and to the mountain. I was young then, and full of trigger-itch; I thought that because fewer wolves meant more deer, that no wolves would mean hunters' paradise. But after seeing the green fire die, I sensed that neither the wolf nor the mountain agreed with such a view.[4]

To be honest, I had known of Leopold's work for decades—ever since I was an undergraduate at LSU-Shreveport—and that I should read *A Sand County Almanac*, but I had waited more than two decades since my graduation in 1983 to get around to cracking the cover. Even so, I had begun developing my own ecocentric ideas before discovering his.

Some of them arose from my half-assed study of Taoism, an ancestral religion of mine that emphasizes the interconnectedness of everything. Consider the 25th chapter of Taoism's foundational work, Lao-tzu's *Tao Te Ching*:

[4] Leopold, *A Sand County Almanac*, 129-130.

Every being in the universe
is an expression of the Tao.
It springs into existence,
unconscious, perfect, free,
takes on a physical body,
lets circumstances complete it.
That is why every being
spontaneously honors the Tao.

The Tao gives birth to all being,
nourishes them, maintains them,
cares for them, comforts them, protects them,
takes them back to itself,
creating without possessing,
guiding without interfering.
That is why the Tao
is in the very nature of things.[5]

While I was growing up, I developed a close, personal relationship with nature. The distractions that all-too-often distance us from the natural world—as in those parts of the world that we have not yet transformed into the concrete-and-steel monstrosities or the slashed, tilled, and burnt lands that too often testify to our presence—were few. Personal computers—much less, computer games—were nonexistent; ARPANET, the ancestor of the Internet, was just being conceived; and cable television was taking its sweet time arriving in Shreveport, La., where I grew up. Nature was always close, and for those parts of it that weren't, gas was cheap. I explored fields and woods near my home. My parents took me on trips to see landscapes far away, eastward to Georgia and down along the Gulf Coast, more often north into the mountains of Arkansas and west into the deserts of Arizona and New Mexico.

In time, I managed to see all of the contiguous United States and Hawaii; Canada, Mexico, Venezuela, Bermuda, and Grenada; Indonesia; the United Kingdom and Ascension Island; the North and South Atlantic Oceans, North and South Pacific Oceans, Indian Ocean, Hudson Bay,

[5] Lao-tzu. *Tao Te Ching: A New English Version*. Translated by Stephen Mitchell. (New York: Harper & Row, 1988), 27.

Gulf of Mexico, Caribbean Sea, and the heart of the Sargasso Sea. These travels have expanded my awareness of and appreciation for the diverse terrestrial and aquatic ecosystems of the world. I cannot escape my sense of personal connection with and personal responsibility to these ecosystems.

If I accept either Leopold's Western notion of the interconnectedness of all things, or I accept Lao-tzu's Eastern notion of the interconnectedness of all things, or I accept the evidence I have gathered during my five decades of travel on this Earth, or if I accept it all—as I do—it is impossible for me to argue for anything other than the moral considerability of all living things as well as the non-living environments that support them.

Inconsistent applications

It would be lovely for me to go from an inclusive concept of moral considerability to an ethic that begins with "First, do no harm." I cannot. One of the main things I have noticed from three decades of studying the natural world is that almost no organism exists without harming another. This is especially true in the animal world in which we can only survive by consuming something else—it may be animal flesh or plant matter, but it frequently means something must be harmed to keep us alive, warm, sheltered, and clothed. (Vegetarians get no free pass here.)

So, if doing no harm is impossible, is having a workable environmental ethic equally impossible? No. What we need is an ethic that allows us to meet our needs, but that gives us pause when we consider wasting the natural world to satiate our desires. Leopold recognized the problem:

> All ethics so far evolved rest upon a single premise: that the individual is a member of a community of interdependent parts. His instincts prompt him to compete for his place in that community but his ethics prompt him also to co-operate (perhaps in order that there may be a place to compete for).

> The land ethic simply enlarges the boundaries of the community to include soils, waters, plants, and animals, or collectively: the land. …
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> In short, a land ethic changes the role of *Homo sapiens* from conqueror of the land-community to plan member and citizen of it. It implies respect for his fellow-members, and also respect for the community as such.[6]

Leopold did not become some mystic who strained water so as not to accidently swallow insects that might have been swimming in it. At the end of his life he maintained a farm, harvested trees as he needed for fuel, and hunted game for food. He reaped the bounty of his land—but he also took care of it to ensure that that bounty would last long past the premature end of his life in 1948. As he wrote, "A land ethic of course cannot prevent the alteration, management, and use of these 'resources,' but it does affirm their right to continued existence, and, at least in spots, their continued existence in a natural state."[7]

Herein lies the problem. Objectively, "… alteration, management, and use …" of natural resources generally implies that we will interfere in their natural development and harm the animals, plants, landscapes and seascapes that we harvest or modify to suit our needs and wants. We have to use our judgment, guided by economics—we cannot escape that—but also by the best science at our disposal, along with what Leopold calls "… our love, respect, and admiration for the land, and a high regard for its value."[8]

If we are using our judgment, does that not mean we have abandoned an ecocentric approach in favor of an anthropocentric approach? I think not. Leopold defined an ethic, in an ecological sense, as a "… a limitation on the freedom of action in the struggle for existence."[9] Despite our tremendous power to alter ecosystems, we in fact have little control over the actions of other organisms. Dogs will roll in the grass and acquire a brown, leafy camouflage for their white

[6] Leopold, *A Sand County Almanac*, 203-204.
[7] Leopold, *A Sand County Almanac*, 204.
[8] Leopold, *A Sand County Almanac*, 223.
[9] Leopold, *A Sand County Almanac*, 202.

fur—and bring the leaves it in the house. Great white sharks will bite things that look like seals on the surface of the water. Trees will grow through cracks in the sidewalk. And tapeworms, well, the less said, the better.

We do control our own behavior, however, and that logically is where our ethical effort should be focused. This fact does not necessarily make an environmental ethic anthropocentric.

In using our judgment, we will at times make decisions that inflict harm on other organisms. Sometimes that harm is direct, such as when we sacrifice another organism in order to make food, shelter, clothing, or tools for ourselves. That is unavoidable. It has been unavoidable since the evolution of herbivory, carnivory, and parasitism. My environmental ethic does not prevent such sacrifice, but—and this is the key—it does not permit such sacrifice whenever and wherever we choose to demand it. Some reckoning must be made of our need or want against that of those from whom we demand the sacrifice; the sacrifice must be justified before it should be made.

For example, I have no problem with eating meat. I am concerned, however, with unsustainable culling of wild animal populations and the global transformation of natural landscapes to raise the domestic animals we need to feed the beast that is ourselves. I am concerned with culling methods that inflict unnecessary pain on the animals we sacrifice.

Frankly, though, many hunters are equally concerned with such matters. Whether or not their skill matches up to their aspirations, most aim to dispatch their prey in a way that minimizes their final suffering. In my youth, I studied bowhunting. I learned the ideal kill shot for a deer was in the chest, just above the heart, where severing any number of numerous large blood vessels causes a rapid drop in blood pressure and loss of consciousness. It may sound brutal, and it arguably is, but a skilled hunter with a well-placed shot likely causes the deer less fear and

suffering than having bits of flesh ripped away by pursuing wolves or starving to death on an overbrowsed range. Finding that I did not have the needed skills to dispatch prey with minimal suffering, I began to take a different weapon on my hunting forays—a camera.

I realize, too, that modifying the land—development—is often a necessary "evil." I live in a house on what had been a farm. Prior to that it had been a forest. On one hand, I mourn the loss of both, and I hope that what remains of both in my section of Mechanicsville, Va., will survive. But I enjoy the hurricane-ravaged weeping willow that towers over one corner of my back yard, the arbor vitae in the opposite corner, and the assortment of maples, pears, and mulberries throughout the rest of it. I look forward to planting a garden and raising some of my own food for a change, and for having room for a composter as well as to hold materials I have long preferred to recycle rather than throw away. While there is an environmental cost to the development of the land upon which my house rests, I can do what I can to ensure that I and my family honors the nature that was forced to make room for my home.

I can understand the need for more drastic development, too. In 1996 I went on an dendrochronological expedition to Indonesia. Our goal was to find and develop tree-ring chronologies to help reconstruct patterns in the Asian and Australian monsoons. Toward the end of the expedition, I found myself in the mountains of southwestern Sumbawa on the grounds of what was to become the Batu Hijau mine. The mine, owned and operated by a subsidiary of the Colorado-based Newmont Mining Company, was planned as an open-pit mine from which copper and gold would be extracted. The landscape was beautiful: lush, though not terribly old (thanks to the Tambora eruption of 1815) forest full of tall trees, lianas, and tree ferns; exotic animal life, including hornbills, monkeys, and flying foxes; raging montane streams and cool nighttime breezes. The compound in which I stayed was as idyllic a tropical getaway as I could

imagine, but for one distressing fact—it would eventually become the spoil pit for the materials removed from the surrounding mountains to get to the gold. The acid mine waste would be pumped into the trench off on the Indian Ocean side of the island, and a spectacular beach community along Alas Strait—between Sumbawa and Lombok, Sumbawa's neighbor to the west—would be converted into a port to export the ore removed.

It would have been easy to condemn the planned development, but I had already seen much of Indonesia and understood how desperate the nation was for cash to improve the lives of the millions of people who lived there. I understood that the world needed copper and gold—with copper, ironically, the most important of the two commodities to be extracted from those mountains. And I spent several nights in long and frank discussions with the site manager, Gerry Clark, about what was to be done. Many of the Indonesians working on the site were unbothered about the impending sacrifice of this spectacular island environment. Gerry, on the other hand, understood what was at stake, and he appeared—no, he was—haunted by what he would have to do. He justified the project by saying, "The world needs copper and gold," a statement I could not disagree with, but one in which I think we both took little comfort in.

We cannot save everything—I doubt Leopold would expect us to be able to—but we can, in living his ethic to the best of our ability, avoid such destruction of the natural environment when we can and minimize the extent of that destruction when we cannot.

The Parting Shot

What will it take to fully apply my environmental ethic? First, we need to broaden our criteria for development decisions. Leopold admonished us to "… quit thinking about decent land-use as

solely an economic problem."[10] Too many people, particularly those in power, only think in terms of economic problems. Even worse, their command of economic theory does not appear to be particularly strong. They just shout their favored slogans more loudly and more rapidly than those who tend to think before they speak. Such shouting has led to disastrous policy in the past and will likely lead to even bigger disasters in the future. How many more times will the Atlantic Ocean need to tumble down the escalators of the South Ferry subway terminal before we learn to think beyond short-term profit and loss?

We also need better, and unending, education. I believe we have a duty to learn how the natural world works—even if the results of that learning contradict economic ideas spouted off as articles of faith rather than hypotheses to be tested. If we can waste hours watching such tripe as *Honey Boo Boo*, we can attempt to divert a bit of that time watching non-sensationalized science and nature programming.

Even better, we can commit to experiencing nature directly rather than through the filter of a liquid crystal display. It is one thing to watch a gray jay on a television or computer screen. It is quite another to see one land on a spruce bough, just out of reach, and serenade you as you, from your mountain-top vantage point, take in the magnificent, glacier-scoured Maine landscape that surrounds you.

Above all, we can commit to developing one of our greatest characteristics: empathy. If we can learn to think and feel what our fellow humans think and feel and reach out to them in their time of need—and we can—we can learn to think like a mountain. And if we learn to think like a mountain, we may avoid repeating some of the environmental mistakes of our past.

[10] Leopold, *A Sand County Almanac*, 224.

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I was a volunteer in the Ecological Society of America's Public Affairs office in Washington, D.C., in the late 1980s when the current alarm over anthropogenic global warming was first sounded. I knew then we needed to do something about it—it was long past time to take steps to head off the problem anyway. We have known we needed to be much more efficient in our energy usage since the Arab Oil Embargo of 1973. I remember the gas lines and the energy crisis that followed. As the 1970s wore on, we had to turn down the thermostat in winter, turn up the thermostat in the summer—which made life damn near unbearable for me in Louisiana—and we started buying smaller, more energy efficient cars.

But we quickly forgot the lessons we should have learned then.

In the 1980s, the reduced demand from our conservation efforts led to a collapse in the price of petroleum. The oil glut led to low prices, near destruction of the domestic oil industry, and renewed demand for gashogs—big cars, big trucks, big bass boats—and more spread out development as Americans continued their flight out of the cities into the suburbs, and the suburbs began to feature bigger and bigger houses that required more and more energy to heat

and cool. While we bathed ourselves in the abundant and cheap crude, our carbon emissions went up and some began to notice it was having an effect on the global environment.

I remember when James Hansen told Congress that we were warming the climate in 1988. Some of us took notice. Others did not, and many preferred to take potshots (sometimes cheap, sometimes not) at Hansen's biggest promoter in Congress, then-Sen. Al Gore. We signed a treaty to do something about it, we repudiated it, and we created a cottage industry—now a global industry—in denial. We are told, and many of us believe, that scientists and environmentalists are part of a vast conspiracy hell-bent on destroying what Paddy Chayefsky described, through the words of his character Arthur Jensen in the screenplay for the movie *Network*, as "… the international system of currency that determines the totality of life on this planet!"[11]

In the 24 years since we have fought vicious intellectual battles over the quality of the science involved. We have fought two wars in the Persian Gulf to—no matter what others claimed—protect our oil supply. We have drained our Treasury to maintain military commitments as well as pay off the foreign leaders who control the tap. We have wrecked some of our most beautiful natural landscapes by removing the tops of mountain to feed coal-fired power plants, and now we wreck geologic strata and the aquifers they contain to do the same to natural gas-filled plants.

While the world figuratively burns all around us, our political leaders fiddle dangerously with the future of the world as we know it, seizing upon any excuse to avoid taking the steps needed to head off global environmental catastrophe. Our emissions continue to rise, and potentially civilization- and ecosystem-ending tipping points loom just over the time horizon.

[11] Chayefsky, Paddy. "Network." Revised screenplay. Jan. 14, 1976.

Climate change: Ethical aspects

James Garvey devotes an entire—and entirely enjoyable—book to the discussion of ethical aspects of climate change.[12] In it, he addresses a number of relevant issues, including uncertainty; responsibility; and the adequacy of our response. I will now apply my environmental ethic to examples from each of these three areas to see what kind of action it recommends we ought to take.

Uncertainty

One of the main arguments climate change skeptics advance against taking steps to reduce greenhouse emissions is the uncertainty argument. They claim we do not know enough about humanity's role in changing the climate to justify such steps. Some even go so far as to suggest the evidence suggests natural phenomena, not humans, are to blame. Some go even farther, leaking documents that are not yet intended for public consumption yet—and misinterpreting what the documents say in an effort to discredit the science.[13]

Given my ethic, I have to say it is unconscionable for any reputable scientist to make the argument that uncertainty is too high to warrant aggressive action. Maybe I should revise this: it is unconscionable for any reputable scientist or political leader to make that argument. The quest for fossil fuels has long forced deals with various devils, some of the human variety, some of more figurative varieties. We need not look to climate change or its effects on natural ecosystems to conclude this. How many innocent lives have been lost the past 20 years in wars in Afghanistan and Iraq? These wars owe their existence in part to our need to ensure a steady

[12] Garvey, James. (2008). *The Ethics of Climate Change: Right and Wrong in a Warming World.* New York, Continuum.
[13] Connor, Steve. "Bid to Heap Blame on Sunspots for Climate Change Has Backfired." *The Independent* (2012). Published electronically 14 December. http://www.independent.co.uk/environment/climate-change/bid-to-heap-blame-on-sunspots-for-climate-change-has-backfired-8418195.html.

petroleum supply from Arabia and the Persian Gulf. (Even the Afghan war owes its genesis to oil: Osama bin Laden was mad at the U.S. for stationing troops in Saudi Arabia, and those troops were in Saudi Arabia to protect one of our main oil suppliers.) Aside from military personnel and victims of terrorist attacks, there are innocent victims here at home, too. The vast amount of money spent (or borrowed to spend) on the wars, and the even vaster amount of money spent importing oil from the region, has sapped the strength of our domestic economy. Our development of these resources has damaged our environment, such as from acid mine drainage from coal mining in West Virginia and the massive release of crude oil released into the Gulf of Mexico from the Deepwater Horizon disaster. These are certainties.

As they say in the Twelve Step community, if your use of a substance causes you problems, you have a substance problem. We have a fossil fuel problem—even if we disregard climate change. Greater conservation would reduce the harm to our fellow humans and reduce the destruction of our environment in the quest for increased fossil fuel production. It would also fix, or at least lessen, the climate change problem. This, too, is a certainty.

So, even if there was uncertainty over the connection between greenhouse gas emissions and climate change—not that there is—there is plenty of certainty elsewhere that our fellow humans and species and the ecosystems in which they live are harmed by our rapacious demand for fossil fuels in other ways. I understand that some fossil fuel development is necessary, but had we not been so profligate with the resource, especially in the decades since we began to recover from the 1970s energy crises, much less development would be necessary and much less harm would be done.

Responsibility

While some dispute the human role in changing the climate through our greenhouse gas emissions, there is one global environmental problem that can only be explained as the result such emissions. That problem is ocean acidification. Not all the carbon dioxide emitted into the atmosphere by the combustion of fossil fuels stays there. Some of it dissolves into the oceans and other surface waters. This dissolved carbon dioxide reacts with water to form carbonic acid. The more carbonic acid forms, the more acidic the waters become.

This increased acidity has a major deleterious effect on marine organisms. It makes it harder for animals who make shells from calcium carbonates to extract those carbonates from the water. It may also help dissolve existing shell material. The chemistry is easy to understand as well as demonstrate—with baking soda (a carbonate) and vinegar (an acid). The baking soda quickly and vigorously dissolves away, making the reaction a popular one to use in grade school demonstrations of volcanic eruptions. In ocean systems, shelled organisms affected by ocean acidification may be more vulnerable to predators. Coral reefs may erode away and corals die as the hard carbonate skeletons that form the backbone of the reefs are etched away. Organisms that depend on coral reefs or shellfish reefs for attachment sites or shelters lose favorable habitat for their survival, too.

There are no uncertainties about ocean acidification. We know that acidity has increased by 30 percent since the beginning of the Industrial Revolution.[14] We cannot explain that increase on sunspot activity, land-use changes, poor siting of weather instruments or any other excuse climate deniers come up with to convince us there is no problem. We and our carbon dioxide

[14] Raven, John, Ken Caldeira, Harry Elderfield, Ove Hoegh-Guldberg, Peter Liss, Ulf Riebesell, John Shepherd, Carol Turley, and Andrew Watson. "Ocean Acidification Due to Increasing Atmospheric Carbon Dioxide." 60 + viii. London: The Royal Society of London, 2005.

emissions are the problem. The effects of this problem are real, they are global, and they affect marine ecosystems in shallow water, in deep water, in the tropics, and at the poles.

According to my environmental ethic, these ecosystems are morally considerable and we have an obligation to not harm them, or harm them as little as possible, in our effort to meet our needs. Then only way to meet that obligation to eliminate or reduce the impact of ocean acidification is by reducing carbon dioxide emissions.

Adequacy

On a rare Friday night off at the end of the Fall 2012 semester, I left my home to go to a class get-together. I was driving through what is for me a relatively new neighborhood – I had lived here for a bit less than six months, so this was my first Christmas season in the area. As I made my way to the main road, I passed candidates for the local Tacky Lights Tour. The light displays were tasteful enough, but several of the homes had hundreds, possibly thousands of lights strung around their homes and yards along with (in at least one case) two-story tall inflatable snowmen and other, fortunately smaller, inflatable Christmas characters.

The greenhouse gas emissions that are generated to power Christmas light displays are a prime example of what Garvey referred to as "luxury emissions."[15] They are not necessary to meet any basic human need in the food, shelter, warmth, or clothing complex.

I have always been uncomfortable with such ostentatious displays of Christmas joy. On one hand, if they are tastefully done, there is a certain aesthetic appeal. They symbolize the happiness Christians feel as they commemorate the birth of their savior. On the other hand, the light displays serve no useful purpose and their grandiosity seems to run counter to the example of humility revealed in the Gospel's account of the circumstances of Christ's birth.

[15] Garvey, *Ethics of Climate Change*, p. 81.

Christmas light displays have been with us a long time, and I am certain that the technology used now is more energy efficient than that available in my youth, but the kind of display that was small and restricted to one short season has become more common—in this neighborhood, I have seen fairly large, electrically demanding displays commemorating Halloween and Thanksgiving.

We could reduce our seasonal greenhouse emissions significantly by emulating Christ's reputed humility and eliminating—at least reducing—these holiday displays. I would think Christ would appreciate the gesture on behalf of the long-term health of his creation much, much more.

But would such a response be adequate? Probably not. We need more fundamental changes—reducing suburban sprawl; better (and better used) mass transit; more energy efficient buildings, homes, and electronic appliances and other devices. It is but a gesture, a neighborly gesture toward the rest of our fellow travelers on this planet, as inadequate as bringing a meal to a family who just lost a mother in their time of grief. It will not bring the deceased back. It will not fill the void that has just been ripped through their lives. Nevertheless, it is an important gesture symbolically. For them, they will have some comfort in knowing we care. For us, we spend at least a bit of time considering someone else's needs instead of our wants and reaffirm our vital connection with our community.

I am not sure Leopold's figurative mountain would be comforted one way or another by our Christmas light gesture. But if it forces us to reaffirm our connection with that mountain, the gesture will have tremendous benefit.

The Closing Argument

Some have critiqued my claim for the ecocentricity of my ethic, arguing that weak anthropocentrism is the best we can hope for, as we can never truly feel empathy of anything other than humans because we cannot truly think like a bottlenose dolphin or even like a mountain. I am not sure that is much of a criticism. Right now I am listening to news reporting about the Stony Point school massacre. I am a father of two children, both in school, and I hope I will never be forced to think the thoughts the parents of the 20 children killed are having to think now. Nevertheless, I feel I can competently empathize with those parents.

My attempts at empathy will not fully replicate what they are feeling now and what they will feel later, but that does not mean that I am only capable of an egocentric approach. I am capable of an ethical outlook that embraces more than myself. Much of my life has been spent trying to develop an ethical outlook that embraces more than myself—it embraces other people, other species, even other places such as mountains. If I am capable of achieving some growth in this regard, I suspect other humans are, too. The fact that many of my fellows fail to do so does not represent an incapacity for such growth as much as it reflects a lack of effort to achieve it.

We can learn to do—to be—better.

Nevertheless, there is a problem with my ethic in that I cannot come up with rigid guidelines for what we ought to do. Much of getting through life demands compromise. Even in ecology, growth is usually accompanied by some form of destruction, such as the death of a prey animal in the jaws of a predator or the loss of shade-tolerant species from an area during forest succession. Our existence exacts some toll from the environment that sustains us.

But we have the ability to make sure the toll is something the environment can afford.