

Enlightened Anthropocentrism and its Environmental Policy Implications

Emily Zankman

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Professor Cooper

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For more than twenty centuries, the dominant view in the Western Hemisphere has been that nature exists solely as a resource for humans. However, the current deteriorating state of the biosphere has prompted an environmental turn in ethics away from this traditional anthropocentric position. When facing the question of what ethic to adopt, we are troubled with what has been dubbed the “the environmentalist’s dilemma”. This dilemma can be displayed by Bryan Norton’s sand dollar story. On the beach one day, he encountered an eight year old girl who was collecting large amounts of sand dollars to bring home, dry out, and use for crafts. He believed that she should put most of the sand dollars (because they were still living) back into the lagoon, but he could not think of a compelling justification for his gut reaction. Asserting that sand dollars have moral standing and that it would be wrong for the girl to take any of them seemed too strong. On the other hand, maintaining that the girl should refrain from harvesting sand dollars at the point where her harvesting activities were approaching the maximum sustained yield seemed too weak (clearly there was no reason to think that the girl was endangering the population of sand dollars). Hence his dilemma: he wanted to advise the girl to keep a few sand dollars and put most of them back, but was unable to think of a way to justify this assertion (Norton 1991, 4-5). Similarly, most believe that there is something wrong with the systematic exploitation of nature for current benefit. However, it is difficult to provide the normative justification needed to justify action to policy makers (Norton 1991, 5-6).

Ethicists have responded to this dilemma by extending “moral standing” to more and more individuals in order to motivate policy-makers to take steps to reverse or at least slow ecosystem destruction. For the purposes of my thesis, I will treat moral standing, moral value,

and moral patiency as equivalent notions. I will say that an individual has moral standing, moral value, and/ or is a moral patient if its interests need to be taken into account by moral agents in decision making. The application of moral standing to more and more individuals can be thought of in terms of a continuum, ranging from less morally inclusive to more morally inclusive. The typical extensionist views, which I will explain and critique in this thesis, are the animal rights view, the respect for life view, and ecosystem holism. I will critique these views on two primary grounds: 1) implausibility and 2) impracticality. I will assert that a theory is implausible if it does not align with most people's current moral intuitions. I will say that a theory is impractical if it cannot be put into practice in a policy sense. For example, if we are instructed to recognize moral obligations to every organism and entity, we will be paralyzed when contemplating the implications of each decision on each organism. In other words, it would be extremely difficult to construct policies that honor moral obligations to every affected organism. The criteria of plausibility and practicality are justifiable criteria for the assessment of environmental theories because we need these theories to give concrete practical guidance when it comes to the actual political policymaking. An impractical and/ or apparently unreasonable theory simply cannot serve as a basis for actual decision-making when it comes to environmental policy.

As a solution to the inadequacies of the extensionist views, I will argue that we have abandoned the anthropocentric approach too quickly. A nuanced version of anthropocentrism, termed enlightened anthropocentrism (the view that when we attend to human well-being exclusively, including the well-being of future generations, we facilitate the health and integrity of ecological systems as well), gives us a better way of responding to the environmentalist's

dilemma because it is practical, plausible, and is grounded in solid philosophical principles. These principles, which I will explain in Section 3 of my thesis, are based on the idea of an overlapping consensus (Rawls 1). Through the majority of environmental ethics theories, there is a set of moral intuitions that is part of a core that most people share: these are the pillars of enlightened anthropocentrism: obligations to current generations, obligations to future generation, the full recognition of ecological goods and services, and the recognition of aesthetic value. Whatever deep comprehensive view one has about the environment and the moral standing of the entities in it, all parties should be able to agree on enlightened anthropocentrism for the purposes of policy-making. Thus, not only does enlightened anthropocentrism have practical advantages but the fact that it is based upon a set of widely shared moral intuitions gives it solid philosophical grounding as well.

Keeping this in mind, I will now provide a quick roadmap of my thesis. In the first section, I will begin by explaining the notion of anthropocentrism and noting why environmentalists have felt the need to respond by proposing increasingly morally extensive theories. Next, I explain and critique each theory on the extensionist continuum. In the third section, I will propose an enlightened anthropocentric approach in which each decision that has an environmental impact must take into account moral obligations to current and future generations, the full value of ecosystem services, and aesthetic value. Within this section, I will consider and respond to possible objections to an enlightened anthropocentrist theory. Afterwards, in the fourth section of my thesis, I will illustrate how this philosophical framework can be successfully translated into policy making. To do this, I will first outline the typical environmentalist's agenda. Then, I will examine agricultural practices in the Chesapeake Bay

watershed to demonstrate how, when taking into account all of the pillars of the enlightened anthropocentric ethic, policymakers can justify the pursuit of the applicable environmentalist policy objectives. Essentially, I will argue that approaching environmental ethics from an enlightened anthropocentric view captures a majority of the traditional values associated with the environmental movement without the counter-intuitiveness of the more inclusive approaches.

Section 1: Traditional Anthropocentrism

In traditional anthropocentrism, humans are both the subject and the object of environmental ethics; humans alone have moral standing (Rolston 42). Because of this, humans are entitled to manipulate the world to pursue their interests without regard for other organisms or natural things (Marietta 70). The interests of non-humans are only considered when they have instrumental impact on the well-being of humans (Botzler 309). It is important to note that most anthropocentrists would agree that there are normative reasons to show concern for animals. For example, most would say that animals should not be caused gratuitous pain. However, this is not because animals have any sort of moral standing, but instead because this act is either offensive to humans or the act may motivate humans to reproduce violent behavior on other humans.

One example of a traditional anthropocentrist is R. Dale Guthrie. As Richard Botzler notes, Guthrie asserts in *Perspectives in Biology and Medicine* that the human exploitation of nonhumans, as long as other humans are not forced to experience offensive acts, is a matter of taste; humans should have the freedom to assert dominance over nature as they please

(Botzler 310-11). In this narrow sense of anthropocentrism, environmental policies can be justified solely on the grounds that they benefit human individuals and human society (Katz 150).

Traditional anthropocentrism is problematic for a number of reasons. First, it has been argued that the restriction of moral concern to human beings is “arbitrary, unjust, and illogical” (Botzler 310). In response, anthropocentrists point to the unique capacities of humans to justify why they alone should receive moral consideration. For example, Immanuel Kant asserts that the ability to reason and the ability to develop and use language are the determining factors of moral standing. He states that human beings are the only individuals who meet this demarcation (Kant 312). On the other hand, opponents argue that there are “no morally relevant characteristics (rationality, consciousness, language) that all humans possess and no nonhumans possess” (Botzler 310). For example, infants do not yet have the capacity to reason-does this mean they do not have moral standing before they mature? Moreover, the renowned Koko the Gorilla draws from a sign language vocabulary of over 1000 words. Koko has learned and can use this language to communicate with humans- how can we prove that she does not do this rationally and thus is not qualified for moral consideration? Further, how is Koko different from a human who is deaf and has decreased mental capacity? Many animal rights advocates contest that it is not different and there is no such Kantian demarcation; the only feature that humans possess and no nonhumans possess is the quality of being human. They assert that those who believe that “we are entitled to treat members of other species in a way in which it would be wrong to treat members of our own species” are guilty of speciesism

(VanDeVeer 99; Singer 100). In other words, arbitrarily treating humans as superior to other species is a type of unfounded prejudice.

The next problem with traditional anthropocentrism is that it fails to recognize the value of many ecosystem goods and services. Bryan Norton, the pioneer of the enlightened anthropocentric view, states that one worry with traditional anthropocentrism is that it dictates value according to the extent to which humans care about the given object/ individual. This is problematic because this places a high premium on people's "gut" preferences and not much premium on well informed and contemplated preference decisions (Norton 1991, 5). For example, for a long time people did not care about wetlands; they thought only of their unappealing aspects such as mosquitos, snakes, mud etc. However, over time, people came to realize that wetlands protect from erosion and floods, filter pollution, and are significant sources of biodiversity. In this case, people initially put exclusive value on untutored or "gut" preferences. Only when they learned more about wetlands, were they able to make a contemplated preference decision that actually led to human benefit.

Another problem that arises when assessing preferences (in the traditional anthropocentrist framework) is that people most often look for what will have immediate and/or personal benefits rather than long term and/or social benefits/costs when making decisions. For example, it may have been in the short term benefit for BP to save costs by not taking proper precautions to prevent a future oil spill from occurring. However, the costs that BP may have saved were inconsequential in face of the economic, environmental, and social costs that occurred as a result of the oil spill.

To sum up, there are a number of reasons anthropocentrism has fallen out of favor: many believe that arbitrarily treating humans as superior to other species is a type of unfounded prejudice, anthropocentrism fails to recognize the value of many ecosystem goods and services, and under this framework, many people prioritize short term over the long term benefits/ costs. Essentially, anthropocentrism guides humans to see nature as exclusively a resource- the consequences of this attitude can be clearly seen in the environmental crises of today.

Section 2: The Extensionist Proposals

In response to the failures of the anthropocentric ethic, extensionists have proposed increasingly morally inclusive theories. In this section, I will lay out the various extensionist theories, including the animal rights view, the respect for life view, and ecosystem holism. Within these descriptions, I will explain why each theory is impractical and/ or implausible and therefore unable to be successfully implemented in a policy sense.

2.1: The Animal Rights View

The first step on the extensionist continuum is the animal rights view, which extends moral consideration beyond humans to certain animals- those that have the capacity to suffer. When discussing this view, I want to make clear that the animal rights philosophy (sometimes called animal liberation view) is unfortunately named. Not all of the animal “rights” thinkers actually believe that animals have rights; philosophers such as Peter Singer, as a utilitarian, believe that animals do not individually have rights but instead have the capacity to feel pleasure and pain, which gives them moral standing. However, the convention in other

philosophical works has been to designate the term animal “rights” to philosophers who believe animals have interests that must be taken into account; therefore, for all intents and purposes, I will follow this convention in my paper.

As stated above, one prominent animal “rights” theorist is Peter Singer. Singer asserts that certain animals should have moral standing because they have the ability to suffer and enjoy pleasure or happiness (Sagoff 60). He believes that if a being meets this criterion, “there can be no moral justification for refusing to take the suffering into consideration, and, indeed, to count it equally with the like suffering (if rough comparisons can be made) of any other beings” (Singer 96). Further, Singer asserts that in order to represent the interests of animals, humans must reject speciesism (Singer 100). Instead, he argues that animals have “utilities that ought to be treated on an equal basis with those of human beings” (Sagoff 60). Because each sentient being has equal utility value and deserves equal moral consideration, Singer professes that we must act in a way that is advantageous for the largest amount of sentient beings.

Singer has been challenged by other animal rights advocates. For example, Claude Evans states that although Tom Regan approved of the practical consequences of Singer’s theory, he disagreed with the application of utilitarianism to an animal rights ethic (Evans 4). According to Singer’s ethic, we would have to take a somewhat impartial attitude toward distinguishing the pain and pleasure of humans from that of animals. Singer does take into account the fact that human beings, because they can reflect on their own suffering (in a way that other animals cannot), may suffer more than other animals if the pain is slightly less. However, in cases of broader disparity, we are sometimes directed to remedy animal suffering

over human interests. For example, for Singer, we would not be able to experiment on most animals in order to develop vaccines for humans. When considering the plausibility of this directive, it would be counter-intuitive for humans to value animals' important interests over a humans' peripheral interest in all cases. Further, Regan asserts that Singer's utilitarian approach fails to value individuals, whether human or animal, properly since "utilitarianism's aggregative approach does not recognize individual rights" (Evans 4). Regan states that each *individual* that has inherent value has rights because it is a subject of a life (there is something that it is like to be the individual). He argues that Singer actually violates this principle; in a utilitarian mindset, the individual is expendable if the greater overall good results (Regan 106).

In my opinion, Regan's view improves upon Singer's animal rights position. However, Regan's approach fails to provide plausible guidance in cases where moral obligations to animals and humans conflict. For example, suppose there is a deadly disease that is killing millions of humans. If we could cure this disease by doing intrusive surgical research on one animal, would this be morally permissible? Regan, as a strict deontologist, would say no; he would assert that we have a moral obligation to not harm the individual animal. Therefore, Regan's ethic as well as Singer's would prove implausible and impractical for humans when it comes to negotiating tradeoffs in policy decisions.

Another animal liberationist, Donald VanDeVeer, seeks to solve this tradeoff dilemma by proposing a two-factor egalitarianism theory. VanDeVeer's theory takes two things into account: 1) the level and importance of each interest in a conflict of interests between two beings and 2) the relative psychological capacity of each being whose interests conflict

(VanDeVeer 116). In regards to the level/ importance of each interest, VanDeVeer enumerates three distinct types of interests: basic interests, serious interests, and peripheral interests. Something is a basic interest if a being cannot function in a minimally adequate way in its absence (i.e. food, water, oxygen) (VanDeVeer 112). Something is a serious interest if, though it is not necessary for survival, it is costly to the individual's well-being. For example, it may be in the serious interest of a lonely child to own a pet (VanDeVeer 114). Finally, something is a peripheral interest if it is not essential to survival or well-being but is instead based upon factors such as comfort, convenience, pleasure and/or taste (i.e. toys for a dog) (VanDeVeer 114).

VanDeVeer gives guidelines for practical action when these interests conflict: when there is an interspecies conflict of interests between two beings, A and B, it is morally permissible *ceteris paribus*:

- 1) to sacrifice the interest of A to promote a like interest of B if A lacks significant psychological capacities possessed by B
- 2) to sacrifice a basic interest of A to promote a serious interest of B if A substantially lacks significant psychological capacities possessed by B
- 3) to sacrifice the peripheral interest to promote the more basic interest if the beings are similar with respect to psychological capacity (regardless of who possesses the interests) (114)

As seen in his first directive, unlike Reagan and Singer, VanDeveer asserts that a basic animal interest can be subordinated to a human interest if the animal is significantly psychologically inferior to the human (VanDeVeer 114). VanDeVeer references the lifeboat case to illustrate this point. In January of 1974, a boat sank off the eastern coast of the United States. The captain of the boat refused to throw his dog off the lifeboat to make room for those still in the freezing waters. Everyone on the lifeboat, including the dog, was rescued while those in the

water died. In May 1975, the captain was indicted in federal court for manslaughter because he kept his dog on the lifeboat instead of saving the others. In this case, the basic needs of the humans and the dog conflicted. VanDeVeer asserts that it was right that the man was indicted; he believes that the human basic need for life should have taken precedence because dogs lack significant psychological capacities possessed by humans (VanDeVeer 117).

VanDeVeer argues that his view is not speciesist because not all interests of humans outweigh the interests of animals (VanDeVeer 115). For example, killing fish for food for survival would be permissible but killing fish for pleasure would not (VanDeVeer 114). Further, the psychological hierarchy does not necessarily favor human beings. Currently, it is a fact that humans almost always either match or exceed psychological capacity of any given animal when examined in neurological testing. However, if, for example, there were beings that were “physiologically like apes except for large brains and more complicated central nervous systems who had intellectual and emotional lives more developed than mature humans”, then in a conflict of like interests, the interests of the ape-like beings should take precedence over the interests of the mature human beings (VanDeVeer 114).

VanDeVeer qualifies this hierarchy with the weighting principle: the interests of a being with more developed psychological capacities take precedence over the interests of a being with a lesser psychological capacity in the collision of like interests only *up to a certain point* (VanDeVeer 114). In other words, “possession of a capacity beyond a certain degree may not count as a morally relevant difference” (VanDeVeer 120). VanDeVeer does not state the specific threshold that would entail (beyond the threshold) the equal treatment of animals and/

or humans. However, he does give the example that we should not give more weight to the preferences of a human with an IQ of 140 than the preferences of a human with an IQ of 120. (VanDeVeer 120). Still, this principle leaves us with a worrisome implication: that the interests of a highly intelligent chimpanzee (or even a neurotypical), for example, may be favored over a human with significantly reduced psychological capacities. This implication, clearly, would not resonate with policymakers. We may reach a point in the future where, as a matter of public policy, we will prioritize chimpanzees over humans, but we certainly are not there yet.

However, I think the animal rights view overall (Van DeVeer's version) is the most plausible form of the extensionist project. I will not take a stance on whether the theory as a whole succeeds or not. However, adopting this view would make it harder to be an environmentalist. As Mark Sagoff in "Animal Liberation and Environmental Ethics: Bad Marriage, Quick Divorce" states, "the environmentalist would sacrifice the lives of individual creatures to preserve the authenticity, integrity, and complexity of ecological systems" while the animal rights advocate "must be willing, in principle, to sacrifice the authenticity, integrity and complexity of ecosystems to protect the rights, or guard the lives, of animals" (Sagoff 63).

Aldo Leopold echoes the idea that the environmentalist's duty goes beyond the individual creature in *A Sand County Almanac* when he introduces the idea of thinking like a mountain. Through his experiences, he implies that to think like a mountain is to establish an appreciation for the intimate interconnectedness for all the elements of an ecosystem. Leopold calls on us to realize that in some cases, protecting individual animals can have devastating effects for the ecosystem. For example, under the animal rights view, killing deer in response

to deer overpopulation is not permissible. However, if some deer are not killed in overpopulated areas, overpopulation has detrimental effects on the health of the vegetation in the area. As Leopold states, “just as the deer herd lives in mortal fear of its wolves, so does a mountain live in mortal fear of its deer” (Leopold 140). Further, in this case, not only does the land suffer if the directive of animal rights advocates is followed, but it is also counter-productive because the very deer the animal liberationists are trying to protect end up dying off in even larger numbers due to lack of food.

Additionally, another troublesome implication of protecting each individual animal is that it counsels for an intervention that is un-ecological in spirit. In other words, if an animal’s ability to suffer creates a human obligation to mitigate this suffering, the animal rights view instructs us to interfere constantly in nature. Not only would this be overly cumbersome, but our environmental interferences may have grave consequences for other organisms, species, and/ or the ecosystem as a whole. It is extremely difficult, and in a lot of cases impossible, to estimate the full ecological consequences of our actions before they are conducted. Therefore, it would be impractical and implausible to intervene in nature in this way.

2.2: Respect for Life View

The next most inclusive category on the extensionist continuum is the respect for life position which expands the class of moral patients to all living things. Gary Varner has perhaps the most developed respect for life view, which he titles biocentric individualism. He begins his essay “Biocentric Individualism” by highlighting and critiquing the view of another respect for life advocate, Paul Taylor. Varner explains that, according to Taylor, we must extend a Kantian

ethic of respect to non-conscious individuals because “conscious or not, all are equally teleological centers of life in the sense that each is a unified system of goal-oriented activities directed toward their preservation and well-being” (Varner 91). In other words, Taylor asserts that each individual has a good of its own which should be preserved and promoted as an end in itself. However, Taylor also states that we are justified in violating plants’ and some animals’ rights for the sake of surviving and furthering culturally important needs of humans as long as we do minimum harm. This hierarchical structure causes humans to value their peripheral needs over other plants’ and some animals’ most basic interests. Not only is this anthropocentric, but Varner also points out Taylor’s directive to value human cultural needs over plants’ and animals’ basic interests contradicts Taylor’s biocentric egalitarianism (Varner 91).

Varner attempts to remedy the inadequacies of Taylor’s view by laying out his own respect for life theory: biocentric individualism. He begins by giving two basic arguments for his belief that plants (defined as non-conscious organisms) have moral standing (Varner 91). His first argument serves as a counter to the prevailing mental states theory. The prevailing mental states theory holds that something (X) is in an individual’s interest if the individual desires X or if the individual would desire X if he/she was sufficiently informed and impartial across phases of his or her life (Varner 92). Varner asserts that the theory is inadequate because it neglects the possibility that X can serve some biologically based need of the individual, even if the individual is not aware of it. He gives the example of mariners carrying citrus fruit in order to prevent scurvy but not knowing that it is actually the 10 mg ascorbic acid that is in the citrus fruit that prevents scurvy. It would be incorrect to say that ingesting the acid was not in the

mariners' interest because the individual did not desire it or the individual was not sufficiently informed of the existence of the acid (this had not even been discovered). Varner then argues that if not all needs/ interests are consciously desired then un-conscious needs for plants should be classified as interests as well (Varner 92-3). They need light, water, etc. to survive and therefore it is in their interest to get these resources.

Varner's second argument comes from G. E Moore's conclusion that beauty contributes to the world's intrinsic value (Varner 95). His argument is that "if we admit that a world of non-conscious living things is in itself better than a world devoid of all life, then it follows that however much better it is to be both conscious and alive, the mere existence of non-conscious life adds something to the goodness of the world" (Varner 95). From this, Varner concludes that non-conscious life must have intrinsic value.

Although Varner argues that all non-conscious life has value, he also states the need to value some interests over others. He explains that interests are hierarchically structured "when the satisfaction of one requires the satisfaction of the other, but not vice versa" (Varner 96). For example, the need to eat on a day-to-day basis and the desire to succeed professionally are hierarchically structured. It takes numerous years to succeed professionally, and this cannot be done if you do not satisfy the daily desire to eat. Contrarily, satisfying each particular desire to eat can be done without "satisfying the long term desire to succeed professionally" (Varner 96). Varner states that what the philosopher Bernard Williams called "ground projects ("a nexus of projects... which are closely related to [one's] existence and which to a significant degree give a meaning to [one's] life") and categorical desires ("one that answers the question: Why is life

worth living”) generally hold this kind of hierarchical relationship with the satisfaction of particular day to day desires (Williams 12; Varner 96).

Next, Varner states that a plausible assumption about interests that are clearly hierarchically structured is “generally speaking, ensuring the satisfaction of interests from similar levels in similar hierarchies of different individuals creates similar amounts of value, and the dooming of interests from similar levels in similar hierarchies of different individuals creates similar levels of disvalue” (Varner 96). By this, he does not mean that certain interests are more valuable than others, but instead that interests in each broad category generally have this relationship. From this, he derives two principles. The first principle is “generally speaking, the satisfaction of ground projects is more important than the satisfaction of non-categorical desires” (Varner 97). The reasoning behind this is that, as shown above, the satisfaction of ground projects requires the satisfaction of many day-to-day desires, but not vice versa. Therefore, under the assumption that the satisfaction of interests within each type generates similar amounts of value, satisfying ground projects creates more value than satisfying day-to-day desires. The second principle is “generally speaking, the death of an entity that has desires is a worse thing than the death of an entity that does not” (Varner 97). To illustrate this, Varner states that “the only interests plants have in common with conscious organisms are biological interests” (Varner 98). In other words, plants have basic survival needs such as water and sunlight, but do not have ground projects such as the desire to succeed professionally. The fact that plants do have biological interests does hold value. However, conscious individuals (both those with the capacity to form ground projects and those without) have the ability to form and satisfy desires in addition to having biological needs. Since the ability to form and satisfy

desires, as demonstrated above, generates more value than day to day biological interests, the interests of conscious individuals should be prioritized over the interests of non-conscious beings (Varner 98).

In my opinion, Varner's view is the most complete of the respect for life positions because it gives a formula that seeks to justify the priority of conscious organisms over non-conscious organisms. However, the theory is still not of practical value because even if you do recognize these hierarchies, it would still be too hard to make environmental decisions. If every single organism deserved our moral consideration every time we did something, our lives would be unbearably morally complicated. For example, if an individual decided to gargle Listerine in the morning, she would have to take into moral consideration the organisms in her mouth that the Listerine would kill. She may decide that the gargling of salt water would be a less destructive option- but should this really be a moral issue? Or, if another individual goes to water his plants, he may arrive at a moral standstill as to if he should give the plant the nutrients it needs and risk killing insects that may be living in the soil. When trying to make decisions from the respect for life view, it is extremely difficult to negotiate all the tradeoffs that will ultimately arise when morally relevant organisms' interests conflict.

An even deeper problem with the respect for life view is its inadequacy as an environmental ethic. As seen in the animals rights view section, the problem with individualist theories is that they have "implications that do not comport with the environmentalist agenda" (Varner 99). For example, biocentric individualism cannot justify the directive to preserve the remaining natural areas, for "if we compare a woods and a cultivated field, or an old growth

forest and a managed timber lot, they may look equally valuable from a biocentric individualist stance” (Varner 99). Finally, the fact that there is a hierarchy seems to contradict the idea of moral community in itself; if everything has moral standing, how can you argue that one organism’s moral standing is of more value than another organism’s moral standing and thus should be preserved? Respect for life advocates would need a moral angle for the hierarchy, which would contradict their own principles.

2.3: Ecosystem Holism

The final view on the extensionist continuum is ecosystem holism, which extends moral standing beyond individuals to entire collections such as species and ecosystems. Holmes Rolston III is an example of an environmental holist. In his ethic, Rolston explains why he extends moral standing in each case. First, Rolston believes that organisms have moral value because they defend themselves (Rolston 167). For example, when a bison rubs up against a tree, and the bark breaks the bison’s skin, the bison’s wound scabs over- it defends its own health. Second, Rolston believes that species (as a collection of individuals) have value and are real entities because they are “coherent, ongoing forms of life” and they defend themselves against extinction (Rolston 129). Third, Rolston attempts to identify the good that ecosystems defend in order to justify the extension of moral obligation to ecosystems. He acknowledges that if we have duties to something, we must identify what acts count for or against the interest of the entity that we have a duty towards. For example, we may ask: is it in the pond’s interest to have lily pads? Rolston uses ecosystem function to answer this question. He asserts that, essentially, if something is part of the flow of energy and recycling of nutrients in a way that

preserves the function of the system then it is for the good of the ecosystem. However, the entity in question must not damage the ecosystem's capacity for self-renewal. Following the lily pad example, if the lily pads disrupted the natural processes of the pond and hindered its functioning, the lily pads could be considered bad and removed. Also, Rolston states that the good that ecosystems defend is their creative capacity to create new organisms (ability to serve as an engine for biological change). If the lily pad reduces biodiversity in the pond or diminishes the pond's ability to create new species, it should be considered bad and removed.

In his theory, Rolston includes a vague semblance of a hierarchy. He asserts that we must value whole ecosystems over their parts. But, sometimes this means that we "rescue individual animals in trouble, where they are the last tokens of the type" (Rolston 135). In other words, parts must be saved if they preserve the integrity of the whole.

There are a number of problems with these holistic views. First, Rolston's holistic approach has the same issues mentioned in regard to the respect for life views. It is hard to live a life that recognizes moral obligations to every individual and system. These obligations will inevitably conflict and Rolston offers no guidance as to how to prioritize obligations beyond valuing the whole over parts. Second, it is difficult to identify the duty we have toward ecosystems when defining the boundaries of ecosystems is arbitrary. For instance, one could identify the Washington and Lee campus as an ecosystem. It has a number of organisms and species that interact with each other in the biotic community. Or, one could draw the line at a specific classroom at Washington and Lee being an ecosystem. Ecosystems can be constant, or elastic, or persistent, or have inertia, which makes it difficult to categorize them as one larger

entity and impossible to determine what is in their interest (Rolston 159). Even if we could individuate ecosystems, it would still be extremely difficult to determine what is in an ecosystem's best interest. For example, imagine the decision to add a new species of fish to a pond. On one hand, the addition of a new species would increase diversity and perhaps have some fertilization benefits for the pond. On the other hand, perhaps this species of fish would not get along well with an existing species in the pond. How are we to determine whether it is in the best interest of the pond to add this species of fish or not? Finally, extending moral obligation to this degree would be extremely counter-intuitive for policy makers. The directive to preserve the whole over its parts would place the good of the ecosystem over the good of humans.

Essentially, in addition to inconsistencies within the theories of animal liberation, respect for life, and ecosystem holism, each theory is problematic on a practical level because of its draconian policy implications. By proposing a non-anthropocentric ethic, many extensionists hoped to give a non-instrumental moral justification for policy proposals and general pro-environmental practices. However, as they soon found, the extension of moral standing to entities other than humans is counter-intuitive for policymakers as well as difficult to implement in practical terms. Instead, environmental laws and policies have continued to be "motivated and explained by its advance of various human interests, especially health, welfare and safety (but also property rights, aesthetics and cultural/ historical values)" (Minteer 5). In response to this insight, in the next segment of my thesis, I will propose an enlightened anthropocentric ethic which captures the majority of the traditional values associated with the environmental movement without the counter-intuitiveness of the more inclusive approaches.

Section 3: Enlightened Anthropocentrism

Enlightened anthropocentrism is the view that when we attend to human well-being exclusively, including the well-being of future generations, we facilitate the health and integrity of ecological systems as well. This theory goes far beyond traditional anthropocentrism in that it does not exclude the possibility of extensionist motivation for policies. In other words, it does not require us to reject the claim that moral standing can be extended to organisms or entities beyond humans. However, it recognizes that proposed policies are most appealing to policy-makers (and best for the environment as a whole) when they align with the currently existing world-views and will be effective if put into practice. The enlightened anthropocentric view has had a multitude of interpretations and applications. However, in my thesis, I will propose a particular brand of enlightened anthropocentrism that protects the environment while chiefly appealing to human interests/ needs. This enlightened anthropocentric approach is governed by four main principles, which define our relationship with the environment. First, we must recognize our moral obligations to present human beings in an environmental context. Second, we must take into account the well-being of future generations and be aware that the stability and health of future generations are directly affected by the decisions that we make today concerning the environment (Botzler 311). Third, we must decipher and take into account the full value of the various ecological services provided by ecosystems (such as clean air). Finally, we must recognize that nature has aesthetic value. In this section, I will elaborate on each of these principles and explain why each is important to the enlightened anthropocentric viewpoint.

Before I introduce the first principle of enlightened anthropocentrism, I want to re-emphasize that this theory does not say that extensionist outlooks are incorrect. On the contrary, there are some core ideas about what we owe to each other as human beings that are generally accepted by most environmentalists, even extensionists- this core is enlightened anthropocentrism. If extensionist ideas are made to be or become more practical and plausible in the future, their principles can be layered on top of this core. In other words, the acceptance of enlightened anthropocentrism does not foreclose on the possibility of extending moral standing beyond humans in the future. Instead, it provides us with a set of normative guidelines that appeal to most peoples' current moral intuitions and can be put to practical use in a policy sense right now.

Furthermore, enlightened anthropocentrism will still recognize obligations to animals, plants, ecosystems, etc. This will not necessarily be because each has moral standing, however, but rather because any obligations we have to animals, plants, ecosystems, etc. are ultimately grounded in a more fundamental obligation to preserve the world for future generations. If we act in opposition to ecosystem health, then there will eventually be negative consequences, for both humans and nonhumans (Norton 1991, 240). However, if we conduct human activities in a way that promotes the flourishing of nonhumans, this will not be the case (Norton 1991, 243).

3.1: Obligations to One Another

Keeping this in mind, I will now introduce the first principle of enlightened anthropocentrism: recognizing our obligations to contemporary generations. The historical problem of environmental ethics is that it has not been an "applied ethics": one that can be

plausibly implemented in real world situations and policies. However, this enlightened anthropocentric outlook transforms environmental ethics from a theoretical to a practical discipline, akin to medical ethics. Just as doctors have obligations to their patients, so too do the environmental policy makers have the obligations to current and future generations. Enlightened anthropocentrism will allow us to adopt the biomedical ethics principles of respect for autonomy, nonmaleficence, beneficence, and justice. Here, I will apply the same principles as medical ethics for two reasons. First, these principles articulate the moral obligations we have towards one another in all areas of practical life. Second, environmental ethics and medical ethics emerged as disciplines around the same time, in the early seventies. However, medical ethics has far surpassed environmental ethics in terms of practical impact. In 1970, there were virtually no hospitals with ethics committees. Today, there are virtually no hospitals without ethics committees. Further, every president since Jimmy Carter has had a biomedical ethics advisory committee. On the contrary, environmental ethics has had no comparable successes of this kind. Biomedical ethics has shown how its philosophical principles can be put into practice and therefore will serve as my model.

The first principle of enlightened anthropocentrism in regards to recognizing obligations to one another is respect for autonomy. At its core, autonomy is “personal rule of the self while remaining free from both controlling interferences by others and personal limitations, such as inadequate understanding, that prevent meaningful choice” (Beauchamp 68). In other words, the chooser must act intentionally, with understanding, and independently of outside influences in order to make an autonomous decision. When these three requirements are met,

an individual can act according to his or her own “freely-self chosen and informed plan” just as an autonomous government can control its policies and territories (Beauchamp 68).

However, being autonomous is not the same as being respected as an autonomous agent. To respect an autonomous agent is to “recognize the person’s capacities and perspective, including his or her right to hold views, to make choices, and to take actions based on personal values and beliefs” (Beauchamp 71). Kant famously uses this principle in his directive to never use a person merely as a means. Instead, he asserts that you must recognize the autonomous goals and worth of each individual (Beauchamp 71). Similarly, Mill used this principle when he argued that social control is necessary only when an individual’s action causes serious harm to another individual or group of individual (Beauchamp 72). For the purposes of this thesis, I will adopt a combination of these two conceptions and say that to respect an individual’s autonomy means to recognize the goals and worth of the individual as well as to not subject him or her to controlling constraints as long as his or her actions do not pose a threat of serious harm to others.

To conceptualize respect for autonomy, imagine two situations. In the first situation, one person buys a farm and decides to fill in his wetlands, as all of her neighbors have done. In the second situation, a person buys a farm and decides to fill in his wetlands, but all of his neighbors value wetlands and do not fill them in. Objectively, the person’s decision in the first situation would be worse than the person’s decision in the second situation. In the first situation, all wetlands in the area would be lost and the land would lose biodiversity along with all the other environmental benefits that wetlands provide (filtration etc.). On the contrary, in

the second situation, the biodiversity and environmental benefits of the wetlands would be maintained in the area. Therefore, we do not necessarily need to prioritize wetland protection if only one person in the community wants to fill the wetland on his property in; this may be a waste of our resources. Instead, we can respect his ability to make an autonomous decision about the existence of his wetlands. However, if more landowners in the area follow suit, wetland preservation may become a priority. This is not to say that we do not need to be proactive about issues; it would be better if all landowners valued the diversity that wetlands add to their property. However, if forced to choose, we should prioritize the decisions that we need to make right now to protect vulnerable areas/ populations.

The second obligation to contemporary generations is one of nonmaleficence, or the principle of doing no harm (Beauchamp 120). Just as doctors are required to express this in the Hippocratic Oath when they swear they will never use treatment to injure or wrong a person, so too should environmental policymakers pledge to do no harm to their constituents (Beauchamp 120). Injury and harm, in this sense, would be construed as “the thwarting, defeating, or setting back of the interests of one party by the invasive actions of another party” (Beauchamp 126). For an environmental ethic, anything that one does in the environment that harms other people (destroying biodiversity, introducing carcinogens into the environment, etc) would qualify as harm. For example, currently in Rockbridge County, there is a big problem with farmers allowing their cattle to defecate in streams. This results in high levels of coliform bacteria in the water, which has made children sick when they play in the water downstream. Under the principle of nonmaleficence, the Rockbridge County farmers would have the obligation to fence in their cattle away from the stream to prevent this from happening.

Another example would be that we have the obligation to take actions to reduce global warming as it poses a great threat to the livelihoods of both current and future generations through rising sea level threats, the exacerbation of major storm events, the forced migration and destruction of different species, etc. We are largely responsible for the acceleration of global warming, and therefore must attempt to make up for past harms as well as prevent future ones under the principle of non-maleficence.

Serving as the complement to non-maleficence, the principle of beneficence requires us to contribute to others' welfare by taking positive steps to help others (Beauchamp 194). Beneficence is applied in cases where obligations to further the important and legitimate interests of others arise (Beauchamp 194). For example, in what is known as the Green Revolution, the western developed countries developed agricultural practices that included using fertilizer and planting hybrid seeds that have disease resistance. They then shared these practices with people in the developing world and increased these countries' agricultural productivity. Because sharing this information had great potential benefits, the western countries were obligated under the principle of beneficence to share this knowledge. Similarly, whenever a country has an environmental disaster, we are required under the principle of beneficence to provide aid (if possible).

There are many ways in which to approach these environmental issues. When deciding whether and how to take action, two principles must be taken into account: the provision of benefits and the balancing of benefits and harms (Beauchamp 195). The balancing of benefits and harms is essential because "the moral life does not permit us simply to produce benefits

without creating risks or to prevent or remove harm without creating risks” (Beauchamp 195). Beneficence does take into account utility: what will be best for the most people. However, this is only one principle of many. When paired with the directives that we must respect the autonomy of others and do no harm, the principle of beneficence is protected from the frequent criticism of utilitarianism: that it allows the interests of many to override individual interests and rights (Beauchamp 195).

It is important to note that when weighing the benefits and harms of certain environmental decisions, we must adopt a theory of contextualism. The theory of contextualism states that when maximizing goods in particular subsystems, we must recognize that these subsystems also participate in a larger context (Norton 1991, 238). Decisions must be made in a way that protects the “complex processes of nature” so that both human activities and nonhuman processes have time to adapt (Norton 1991, 189). Because each of our actions have the potential to disrupt natural processes, we must make sure that policies are not overly interfering or restrictive but instead prioritize actions as we approach certain environmental limits (Norton 1991, 241). We see this concept illustrated above in the wetland-filling example. Essentially, a practice by an individual landowner is not necessarily problematic unless many people are engaging in the same practice. Therefore, although an action may not be the best for the environment, we should prioritize banning or reducing actions that have graver negative impacts.

The next principle is justice: when making environmental decisions, policy makers must not make decisions that favor certain areas over others but instead aim to distribute

environmental benefits and risks equally. Currently, environmental justice is an area of great concern. Often, “developing nations, as well as minorities and the poor within industrialized countries, have suffered disproportionately from environmental risks, such as nearby toxic waste dumps, incinerators, and nuclear reactors” (Botzler 57). One most notorious example of environmental injustice against African Americans occurred in Texarkana, Texas. Patsy Ruth Oliver, “a former resident of Carver Terrace, a polluted African-American suburb of Texarkana, began to notice dark patches of gunk seeping up through withered lawns, around puddles, and into the cracked centers of streets” (Shrader Frechette 207). Additionally, the area’s inhabitants had a strangely large number of medical problems. One year after the residents of Love Canal, New York, discovered leaking dioxin barrels under their homes, Carver Terrace’s case finally emerged to the public. When the US demanded that large chemical companies identify their hazardous waste sites, the Koppers Company of Pittsburgh identified Carver Terrace as one of their sites. For more than 50 years, Koppers “had used creosote (a known carcinogen) to coat railroad ties” (Shrader-Frechette 207). Then, in 1961, Koppers closed its operation in Carver Terrace, bulldozing over its facilities (and creosote tanks). Afterwards, poor families eagerly bought these cheap plots of land without realizing the dangers it would bring them. When Koppers finally admitted to their unsafe practices, the EPA investigated the area and identified the soil as contaminated. However, they did not interview any of the residents and instead declared that there was “no immediate health risk to citizens” (Shrader-Frechette 207). In response, the area’s inhabitants formed the Carver Terrace Community Action group and found out that the EPA had done two other studies on this area and found high levels of contaminants, but did not inform the residents of the risk (Shrader-Frechette 207).

The Carver Terrace case is a prime example of environmental injustices being inflicted on a poor and politically disenfranchised group. These types of unjust practices have been unfortunately common both at home and abroad (where it is sometimes worse). For example, after the US banned many chlorinated hydrocarbons, the US and multinational chemical companies merely began to ship them abroad (Shrader-Frechette 209). Under an enlightened anthropocentric ethic, these domestic and international monstrosities should not occur. When there are groups of people who are poor and/or politically disenfranchised, the principle of justice calls upon us to give them equal consideration and treatment in environmental decisions and equal access to environmental goods (Beauchamp 272).

3.2: Obligations to Future Generations

The enlightened anthropocentric approach goes beyond our obligations to present people. The environmental problems of today are unique from previous first and second generational problems because their largest effects will be felt by future generations. These problems are particularly disconcerting because their magnitude will depend on a “large number of small but incremental decisions made in the present” (Norton 1987, 440). Future generations will not be able to participate in the decisions to incur the risks, nor will they reap the benefits of the current wasteful activities (Norton 1987, 440). This raises serious issues of inter-generational equity (Norton 1987, 441)

It is undisputed that our actions today, as we near environmental thresholds, will have implications for future generations. However, the more difficult question is: why do we have an obligation to these future generations? Standard theories of inter-generational equity have

often concluded that obligations to proximate generations differ greatly from obligations to more distant generations (Norton 1987, 444). There is a tendency to think that in order to have an obligation to someone, you must be able to take up the perspective of this person to determine what he or she would need. Adopting someone else's perspective is increasingly difficult when that person does not currently exist and will not exist for X number of generations (if ever). However, as obligations become increasingly more difficult to determine, we do know that future generations will require the basic constituents of a flourishing human life: access to food and clean water, political voice, "particular forms of personal relation, physical health, autonomy, knowledge of the world, aesthetic experience, accomplishment and achievement" and so on (O'Neill 25). Thus, the focus should be on these types of goods when making environmental decisions.

Furthermore, the aforementioned belief that our obligations to proximate generations differ from obligations to more distant generations is problematic for environmentalists and contrary to their current practices; environmentalists currently pursue actions with an eye to future generations without significant regard to proximity (Norton 1987, 445). For example, in the case of storage of radioactive wastes materials, "environmentalists have insisted on measures that would store radioactive wastes for the duration, measured in millennia, of their toxicity to humans" (Norton 1987, 445). Second, in regard to global warming, although serious effects will not be felt for two more generations, environmentalists have insisted on current remedial action (Norton 1987, 445). If we act in a way that destroys the functionality of systems in the future, environmentalists believe that we have wrongly deprived future generations of their well-being (Norton 1987, 445). I recognize the fact that policy makers do

take into account the interests of future generations does not answer the question of why they ought to do so. This is a very important debate; however, I do not have room in this thesis to address this issue; instead, I will assume that environmentalists ought to recognize obligations to future generations. I will treat Norton's Axiom of Future Value as true: "The continuance and thriving of the human species (and its evolutionary successors) is a good thing, and every generation is obliged to do what is necessary to perpetuate that good" (Norton 1987, 445).

In order to apply this thinking to policymaking, we need some kind of filter (that corresponds to contextual and hierarchical thinking) to separate environmental problems that have intergenerational implications and those that do not. John Rawls, in *A Theory of Justice*, suggests a moral filter that he calls the "veil of ignorance" (Norton 1987, 446). The premise of this theory is that there is a group of self-interested individuals who do not know their gender, class, economic status, etc. but will have to live in a society after they choose the society's general rules. For our purposes, I will add that there is also an intergenerational veil in which individuals do not know which generation they will live in. If these individuals accept the concern that "land use practices and other activities of modern humans, which are distinguished by enormous technological capabilities and growing populations, may alter bioregional systems so rapidly that there will be significant and detrimental impacts of the well-being of society", then it follows that, out of the fear that they may live in a later generation, the individuals will want to design society in a way that minimizes environmentally harmful actions (Norton 1987, 446). The individuals would choose a society that would try its best to "delineate parameters and thresholds, based on the best models of biology, ecology,

climatology, and so on” and impose constraints that would limit individual behaviors that accelerate destabilizing environmental conditions (Norton 1987, 446).

This is the type of outlook we must adopt to make obligations to future generations plausible. We must recognize that we need to preserve the option for our future generations (our children, grandchildren, etc.) to live in a world where they can have a fruitful and healthy existence.

3.3: Ecosystem Goods and Services

This brings us to the third principle of enlightened anthropocentrism. In order to honor our obligations to current and future generations, decision makers must recognize the full value of ecosystem services. Already, environmentalists recognize the value of goods that can be easily measured and bought/ traded such as timber, seafood, biomass fuels, natural fibers, etc. However, an enlightened anthropocentric ethic would expand concern beyond these traditional goods to include ecosystem services. Ecosystem services are the “conditions and processes through which natural ecosystems, and the species that make them up, sustain and fulfill human life” such as ozone protection, water filtration, and pollination (Daily 3). Humans are dependent on these ecosystem services for their existence, and many are irreplaceable (and some are replaceable only at great cost). For example, if the ozone layer is depleted, there will be disastrous consequences for humankind; we cannot synthesize more ozone to replace what we have destroyed. However, the majority of humans conduct daily activities without a conscious consideration of these natural services. Therefore, it is necessary for policy makers to make policies that protect essential ecosystem services.

Once highlighted, the importance of ecosystem services is typically accepted. For example, think of the question: would you like to go outside and breathe in fresh air or be trapped indoors because the air is so thick with pollution that it is detrimental to your health to breathe it in? Obviously, one would like to have the option go outside and breathe in fresh air. However, the more difficult problem is deciding how to delegate value to these services. While ecosystem goods are harvested and traded (and thus have economic value), ecosystem services not only produce these goods, but also provide more intangible functions, such as cleansing, recycling, and renewal (Daily 3). Take the capacity of wetlands to filter water for example. How can we compute a market value that will enable us to take the service of wetland filtration into account? Right now, we do not have to pay for the filtration; however, if we do not enact and enforce policies to protect wetlands, we will have to pay a lot of money to create filtration systems (if this is even possible). Furthermore, although there may be technological innovation, “it is unlikely to compensate for a massive depletion of fundamental resources as productive land, fisheries, old-growth forests, and biodiversity” (Daily 1).

When viewing these essential services in a policy context, we must first agree on how we interpret the services. One may interpret them in a broader sense, including their aesthetic value. Or, one may view ecosystem services in a narrower sense, interpreting them as the services that ecosystems provide that have economic value. Environmental economists tend to think of ecosystem services in the latter way (and so will I) in order to create concrete valuation systems for policy purposes. This is not to deny that the value of ecosystem services goes beyond mere economic value. Contrarily, environmental economists attempt to convert the value of ecosystem services into monetary terms in order to give practical reason to protect the

variety of other values associated with ecosystem services. Once quantified, we can determine which actions we need to take in order to maintain ecosystem services at critical capacity (Sarkar 163).

I also wish to highlight that there are many different ways ecosystem services can be valued. Unfortunately, I do not have the space to explore non-market valuation techniques and explain how they are conducted. Therefore, I do not take a stance on whether certain valuation techniques are better or worse than others. I only wish to say that in the field of environmental economics, this valuation can be and is accomplished in order to inform policy decisions.

3.4: Aesthetic Value

The final characteristic of enlightened anthropocentrism is the recognition of aesthetic value. Environmentalists find the goal of protecting conventionally beautiful parts of nature relatively straightforward. However, while it is important to preserve and protect nature that is beautiful or sublime, we should also strive to protect those entities traditionally deemed unappealing. It is more difficult to motivate this type of protection. As Leopold states “there are those who are willing to be herded in droves through ‘scenic’ places; who find mountains grand if they be proper mountains with waterfalls, cliffs, and lakes. To such the Kansas plains are tedious” (Carlson 13).

In response to this challenge, Allen Carlson distinguished the typical means of appreciation of the “beautiful” from a deeper appreciation of nature which he coined positive aesthetics (Carlson 2). Positive aesthetics is the notion that all nature holds positive aesthetic value (especially wild nature) (Carlson 6). In order to discover the positive aesthetic value of all

types of nature and have a proper aesthetic appreciation, we must “know how it is to be seen” (Carlson 9). We already do this in art; for example, if we look at Van Gogh’s *The Starry Night*, it may seem serene or subdued. In order to fully appreciate it, we must know that it is post-impressionist and we must know something about post-impressionist painting. It requires “the kinds of knowledge given by art history and criticism” (Carlson 225). Similarly, if we are to look at wetlands, in order to recognize their positive aesthetic value, we must have knowledge of their history, their ecological/ scientific significance, the organisms that comprise them, etc. When we understand the complexities of these traditionally unappealing but essential parts of nature, we develop an aesthetic appreciation for them.

Moreover, if we accept that the aesthetic imperative is to “protect and preserve what is recognized as possessing aesthetic value” (Carlson 16) and we accept that all nature has positive aesthetic value then, then under positive aesthetics, we find reason to protect all of nature, including those entities traditionally deemed unappealing (Carlson 205). I recognize that this notion is controversial; however, for the purposes of my thesis I will not digress into this debate but instead accept the aesthetic imperative as true and the notion of positive aesthetics as a valid motivator for environmental concern. Further, obviously, the positive aesthetics view will have to be supplemented by principles that establish aesthetic priorities. These principles are demanded by practical considerations- we cannot protect everything, so we need to prioritize. However, this issue takes us beyond the scope of this project, so I will not discuss it here.

One may object to any appeal to aesthetic value on the grounds that we do not know what will be valued in the future. However, we know that experiences in nature have the capacity to transform our values and be “used as a means to criticize ecologically irrational desires (such as destructively consumptive views of nature)” (Minteer 9). Further, we know that future human centered aesthetic appreciation for nature can further motivate environmental protection. Therefore, as mentioned earlier, rather than dictating the experiences that future generations will have, we should preserve as many options as possible as long as they are consistent with the pursuit of the well-being of contemporary humans. Perhaps future generations may have higher ideals about human relationships and interactions with nature. For example, if future generations should turn out to be radical extensionists, then they can act on that basis. But, we should not sacrifice the well-being of current generations for the possibility that future generations may have radically different values. Taking all of this into account, we should err on the side of caution as much as possible when protecting the worth of entities that cannot be assigned a value in terms of the other three components of enlightened anthropocentrism (Sarkar 56).

Now that I have outlined the principles of enlightened anthropocentrism (obligations to current generations, obligations to future generation, the full recognition of ecological goods and services, and the recognition of aesthetic value) I will move to illustrate how this philosophical framework can be successfully translated to policy making and fulfill the majority of traditional environmentalist goals.

Section 4: The Environmentalist Agenda

Today's environmentalists pursue policies in line with typical environmental aims. The environmentalist agenda includes but is not limited to the prevention of pollution, preservation of biodiversity, preservation of ecosystem health, achievement of environmental justice, preservation of wilderness, prevention and mitigation of global climate change, prevention of the overharvesting of resources, and sustainability. Unfortunately, I do not have the space to address all of these policy aims in this thesis and show how enlightened anthropocentrism instructs us to pursue and allows us to accomplish each. However, I will use the example of the nutrient enrichment from manure in farm operations in the Chesapeake Bay watershed which will allow me to specifically address how enlightened anthropocentrism can help us achieve the applicable environmentalist aims.

The Chesapeake Bay watershed, which includes parts of Delaware, Maryland, New York, Pennsylvania, West Virginia, and the entire District of Columbia, is the largest and most productive watershed in the United States (Cestti 1). Agriculture takes up nearly one quarter of the watershed's land area: there more than 87,000 farms and 6.4 million acres of cropland in the Bay. Unfortunately, the farmers of these lands have become so focused on the optimization of production that they have not taken into account all the societal and environmental costs of their actions (Tillman 172). Agriculture has become the "largest single source of nutrient and sediment pollution to the Bay and its Rivers" ("Agriculture"). The type of pollution that I will examine, which accounts for one half of the overall pollution level, comes from the manure and litter of farm animals ("Agriculture"). First, I will lay out the problems

that surplus of manure and litter on the farms cause. Then, I will show how enlightened anthropocentrism instructs us to take certain actions to achieve the environmentalist policy aims of preventing pollution, preserving biodiversity, preserving ecosystem health in the sense of a reliable delivery of ecosystem goods and services, and ensuring environmental justice. I will demonstrate that enlightened anthropocentrism allows us to pinpoint clear damages and make the normative justification of policy action relatively straightforward. This is not to say that there will be no difficult policy judgments under enlightened anthropocentrism.

Enlightened anthropocentrism is pluralistic both in the sense that it employs a plurality of moral principles and in the sense that it appeals to value beyond morality such as aesthetic value.

Any theory that is pluralistic in this way is bound to encounter tradeoffs in practical policy contexts. Fortunately, in the Chesapeake Bay case, enlightened anthropocentrism gives us relatively clear guidance as to what policy decisions to make.

4.1: The Environmental and Societal Issues

There are a number of problems resulting from the use of the manure and litter of farm animals on farms in the Chesapeake Bay watershed. First, manure and litter are often applied to crops as a form of fertilizer. However, when too much is applied, excess nutrients (particularly nitrogen and phosphorous) as well as bacteria and pathogens can travel via runoff and groundwater into nearby waterways. An overabundance of nutrients results in eutrophication, a term meaning an increased rate of organic matter/ nutrients supplied by an ecosystem (Ernst 54). Eutrophication can not only cause public health problems but also exacerbate the growth of algae and create massive algae blooms (Boesch 303). The algae

blooms cloud the water and block life-supporting sunlight from aquatic grasses and other living resources (Ernst 54). Further, when phytoplankton in the Bay dies, it sinks to the bottom of the Bay and decomposes- this process consumes significant amounts of oxygen and further hinders the life-supporting abilities of the bay (Ernst 55). As a result, the Bay experiences anoxia (lack of oxygen) and hypoxia (dissolved oxygen concentrations lower than required by indigenous organisms) (Boesch 304). These conditions make the Bay hostile to a majority living organisms in the Bay and leads to widespread destruction of submerged vegetation, fish, oysters, blue crabs, etc. For instance, in 1999, over 200,000 fish were killed as a result of oxygen depletion (Ernst 56).

Beyond this, the algae blooms can be extremely toxic to both fish and humans. In 1997, *Pfiesteria*, a toxic microorganism, led to the death of tens of thousands of fish in the bay as well as human illness. Human symptoms from *Pfiesteria* included headaches, muscle aches, trouble with memory, and lesions on patients' lower extremities (Ernst 57-8). The physical maladies proved to be temporary, but the long term neurological consequences are still unclear (Ernst 48).

Furthermore, it is commonplace in the Chesapeake Bay watershed to find tens and thousands of chickens being raised in one house. Because of the close quarters, there is an extremely high risk for disease. As a result, farmers add large amounts of antibiotics to the chicken feed to try to prevent this from happening. Unfortunately, some of the antibiotics are found in the manure and as a result can end up in streams and groundwater. As a result, new,

antibiotic-resistant strains of bacteria emerge which can result in human and chicken diseases for which we do not have a cure (Tillman 174).

4.2 Justification of Environmentalist Aims

In response to these issues, there has already been an ambitious effort to reduce the inputs of nutrients that result in over-enrichment through both managerial and structural changes (Boesch 303). These efforts are made with the typical environmental goals in mind of preventing pollution, preserving ecosystem health, and ensuring environmental justice. In this section, I will examine each of these aims, show how enlightened anthropocentrism motivates action, and give examples of the types of policy actions that can be justified by this framework.

4.2a: Preventing Pollution

Perhaps the most applicable environmental aim to the Chesapeake Bay test case is the goal of preventing pollution. Drawing from Section 3 of my thesis, there are a variety of principles that motivate the prevention of pollution in the enlightened anthropocentrism framework. Most specifically, recall two of the principles of our obligations to current generations: non-maleficence and beneficence. These principles require us to not only avoid harm but also to take positive steps in order to help others. Because we have pinpointed clear damages that result from pollution, it follows that landowners have the obligations to 1) not pollute and 2) take positive steps in order to reduce pollution.

Measures that farmers can take in order to prevent and reduce nutrient pollution include:

1. Nutrient Management Plans

The first step in nutrient reduction is a comprehensive nutrient management plan. In order to ensure proper nutrient levels and properly apply manure and litter to cropland, farmers must “establish realistic yield goals for crops, translate those goals into nutrient requirements, test soils to determine how much additional nitrogen phosphorous, potassium, etc. are needed, credit the nutrient content of manure to the totals needs, and time application of nutrients to the plants growth requirements” (Cessti 19). When all of these factors are taken into account, field specific recommendations can be given.

Already, the Maryland Nutrient Management Act of 1998 requires that agricultural operations with annual incomes greater than \$2,500 or more than eight animals create and implement nitrogen and phosphorus based nutrient planning (Pennsylvania and Virginia have similar requirements) (Cessti 19). Studies by the Division of Soil and Water Conservation of Virginia Polytechnic and State University showed that the implementation of these plans allowed farmer to reduce nitrogen fertilizer application by 37 to 106 kilos per hectare as well as increase farm profits by \$400 to \$7300 and reduce nitrogen losses by 23 percent (Cessti 20). However, Nutrient Management Plans are inadequate by themselves. While it is important to utilize waste up to a certain critical point, measures must be taken to in order to reduce inevitable nutrient runoff. An effective system will provide for the “collection, channeling, storage, and treatment of the runoff, while minimizing discharge by diverting clean water sources away from the barnyard” (Cessti 16).

2. Tree Planting or Riparian Forest Buffer

One way to treat the runoff is by planting Riparian buffer strips. Riparian buffer strips “consist of an area of trees, usually accompanied by shrubs and other vegetation that is down slope of crop fields and adjacent to a body of water” (Cessti 20). These strips provide a multitude of benefits. First, the strips can filter and slow runoff: tree roots can remove up to 50 percent of nutrients and pesticides, 60 percent of certain pathogens, and 75 percent of sediment before they reach the water ways (Cessti 21). Second, canopy and shade can keep the water cool, retain dissolved oxygen, encourage the growth of diatoms, nutritious algae, and aquatic insects as well as improve air quality by filtering dust from wind erosion, construction, or farm machinery (Cessti 21). Third, they can provide food and habitat for fish and wildlife, reduce soil erosion, and reduce noise and odor. Studies show that Riparian forest can cause reductions of 30 to 98 percent of nutrients, sediment, pesticides, and other pollutants (Cessti 22).

3. *Cover crops*

Cover crops such as wheat, rye, oats, sweet clover and barley can also absorb excess nutrients. Further, they can benefit farmers “by retaining nutrients for future crop needs, reducing soil compaction, increasing organic matter in the soil”, helping block out harmful weeds, absorbing excess nitrogen after crop harvest, and preventing erosion during winter months (Cessti 13). These crops can contain 1-2 percent nitrogen, .5-.75 percent of phosphorus, and 3-5 percent potassium (Cessti 14).

4. *Terraces*

Terraces “consist of an earthen embankment, a channel, or a combined ridge and channel built across the slope of the field” (Cessti 14). Like cover crops, these can also intercept surface runoff and trap pollutants (Cessti 14). They can also slow runoff speed, reduce volume of

runoff, and assist in the collection of runoff (Cessti 17). However, this is not a popular practice in the Chesapeake Bay due to its high costs- these may only be appropriate when fields have at least an 8 percent slope (Cessti 14).

5. Diversions and Grassed Waterways

Diversions and grassed waterways are similar to a terrace, but direct surface water somewhere away from an area or into a pond. These are particularly good because the vegetative lining acts as a filter for debris and pollutants (Cessti 16).

6. Poultry Mortality Composting

Another important component of the daily management responsibilities of a poultry producer is proper disposal of dead birds. Until recently, common disposal methods included disposal pits, trench burial, incineration, and rendering. Now, they have just begun to put dead poultry in composts. This actually can be used as a nutrient source for crops. Further, studies have shown that compost releases nitrogen much more slowly and over longer periods of time than chicken litter (Cessti 19).

7. Restricting animals from streams and relocate livestock facilities away from streams

Farmers can control grazing by fencing livestock out of water bodies, providing alternative watering facilities for livestock, and practicing rotational grazing (Cessti 22).

8. Adjusting animal diets to reduce surplus nutrients in animal manure and poultry litter

It has been shown that additives such as phytase, an enzyme that aids in the digestion of phosphorous in poultry and swine, can decrease phosphorus levels in manure (Ernst 61).

It is difficult to determine which of the above eight processes are most effective. It depends greatly on local conditions such as topography, climate, cropping systems, maintenance, proper site selection, and proper installation. Furthermore, these processes are often used in conjunction with other complimentary processes. For example, some practices may be more effective at managing phosphorous levels (e.g. filter strips) while some may be better at managing sediment (e.g. terrace systems). Therefore, it is important to examine and assess the circumstances and conditions of each farm to determine the best combination of practices for each in the Nutrient Management Plan (Cessti 25). Although, the important point is that under the enlightened anthropocentric framework, farmers are under significant moral obligation to prevent and reduce nutrient pollution by any combination of measures.

However, even though enlightened anthropocentrism provides solid normative justification for the moral obligation to adopt better land use practices, there may still not be enough being done to address the issue of nutrient pollution. This may be because these changes are expensive and/or farmers are often reluctant to alter their practices. Further, due to the Chesapeake Bay watershed area's strong emphasis on property rights, many of the farmers who resist being forced to adopt these practices do so on the grounds that their rights as property owners are being infringed upon. In this case, enlightened anthropocentrism also provides the deliberative framework for wrestling between property rights and these obligations to protect the Bay through the principle of respect for autonomy. If it turns out that the landowners are subjected to overly controlling constraints based on economic factors, there is another remedy. The state can introduce incentives to alter land practices through

taxes, subsidies, etc. By aligning the landowner's personal benefit with the overall social benefit, enlightened anthropocentrism can carry more political thrust.

4.2b: Preservation of Ecosystem Health

The preservation of ecosystem health is another key environmental aim. Here, I will define ecosystem health as the ability for ecosystems to reliably deliver goods and services. Again, the principles of maleficence and beneficence guide us to prevent the diminishment of ecosystem health as well as take positive steps to restore and promote ecosystem health- there are clear damages to humans as well as animals, plants, and other organisms when an ecosystem's ability (in this case the Chesapeake Bay) to deliver goods and services is hindered. As mentioned in the issues section, in the Bay, nutrient contamination has resulted greatly degraded the environmental quality of the Bay. But how are we to measure this degradation? One way to do so is to track the impacts on certain species in the Bay. Here, I will look at oysters and aquatic grasses to show how the damage done to the bay has damaged the capacity for the bay to reliably deliver goods and services which in turn has resulted in clear damages to humans.

Oysters have long been valuable in the Bay for both commercial fisherman and their filtration capacities (Ernst 19). A single oyster can filter two gallons of water in one hour. By removing sediments from water and depositing them as waste at the bottom of the Bay, oysters provide clean water for other resources in the Bay (Ernst 20). Unfortunately, in the last 50 years, the decline of the Bay's health has been mirrored by the decline in the oyster population. In the 1950s, a typical annual harvest could exceed 35 million pounds (Ernst 19).

Now, a typical harvest is less than 600,000 pounds- a 98 percent decrease from the mid 1950's (Ernst 20). This has led to a significant decline in the cleanliness of the Bay's water as well as has resulted in large losses for commercial fisherman.

Another group of indicator species of the Bay's environmental health are the aquatic grasses. Aquatic grasses can only grow where light is able to penetrate the water's surface. Historically, the Bay was the perfect habitat for the growth of underwater grasses- the amount of grasses that the Bay would support if it was at its maximum health is 600,000 acres. However, the current area that aquatic grasses cover in the Bay is one tenth of this amount (Ernst 20). In addition to being an indicator of water quality, the grasses also provide food and habitat for other species. For example, the brant and redhead are two species of bird that have experience significant population reductions due to the lack of aquatic grasses for food (Ernst 21). Further, what is particularly disconcerting is that one of the most robust and resilient (as well as culturally and economically significant) species of the Bay, the blue crab, has also experienced large population reductions because of loss of habitat in the aquatic grasses as well as oxygen depletion from nutrients (Ernst 22).

The rapid decline in environmental health in the Bay highlights another important pillar of enlightened anthropocentrism: the recognition of the full value of ecosystem services. The loss in filtration capacity of the Bay to provide clean water as well as the loss of other essential species has resulted in large damages to humans. Earlier, I noted several ways in which farmers can reduce nutrient runoff from manure. It is important to note that all of these practices cost a lot of money to implement. Because we have degraded the environmental health of the Bay

and the efficacy of its ecological processes, we will now have to pay for the processes that nature once performed to sustain the Bay's health.

Finally, I wish to highlight that the preservation of ecosystem health is not only motivated by obligations to current generations but also by our obligations to future generations. As discussed in Section 3 of my thesis, we have a moral obligation to do everything in our means to leave the Bay in a state where future generations enjoy the benefits of the Bay, whether aesthetic, economic, cultural, or health related. When all these principles behind enlightened anthropocentrism are taken into account, it is relatively straightforward to justify policies that aim to restore or protect environmental health.

4.2c: Ensuring Environmental Justice

The last typical environmental aim that I will address in relation to the Chesapeake Bay is ensuring environmental justice. As seen in the section on our obligations to current generations, justice is the fourth normative principle. Therefore, I will now move to discuss the environmental justice concerns in the Chesapeake Bay in relation to manure disposal and suggest ways in which we can ensure justice.

Right now, it is common for leftover manure to be shipped to the Eastern Shore. This is very problematic because the Eastern Shore is ill suited to handle the excess manure. First, its sandy soil is not very retentive- the soil easily becomes saturated and the manure escapes via runoff into the area's waters. Second, the groundwater table is shallow; when it rains, a lot of the nutrients travel through the soil and contaminate the groundwater and drinking supply.

Excess water from the land and the ground then flows into the rivers, which flow into the Chesapeake. These contaminants often result in outbreaks of algae, bacteria, and fungus that are harmful to both fish and sometimes people (Tillman 173). As a result, the people in and near the Eastern Shore are disproportionately affected (and if manure was widely shipped to another area, this, although to perhaps a different degree, would also be the case).

In theory, the practice of shipping out excess manure (that cannot be stored onsite) can be adjusted in order to avoid environmental justice concerns. To do this would require a coordination of manure management throughout the watershed. Some areas may have surpluses of manure while some may have deficits of fertilizer. By coordinating nutrient management plans, this disparities can be somewhat corrected.

Another promising option is using manure for energy generation (Tillman 174). It has been shown that thermal processing of waste is technologically feasible. The barriers are instead making this practice economically efficient. Potential problems may include the high operational and maintenance costs and the higher system capital cost per unit of energy produced. However, there would also be many pros such as avoiding high transportation costs of shipping manure elsewhere, reducing or eliminating on site waste storage, providing energy benefits to farmers, and potentially improving animal health and quality by reducing vapor and ammonia emissions (Baranyai 5). Therefore, scientists and economists should continue to explore manure to energy systems to see if they are a viable option in the Chesapeake Bay Watershed. If they are, this can be a great solution to environmental justice issues with the distribution of manure in litter in the Bay.

Section 5: Concluding Remarks

In this thesis, I began by explaining the notion of anthropocentrism and noting why environmentalists have felt the need to respond to the degrading states of the biosphere by proposing increasingly morally extensive theories. I then highlighted how the extensionist theories (animal rights view, respect for life view, and ecosystem holism) are counter-intuitive to policy makers based on practicality and plausibility objections. I moved to say that these extensionist views are not necessarily incorrect, and these are meaningful conversations to have and ideas to develop. However, for the sake of environmental policy right now, we need to establish a philosophical framework that aligns with people's current moral intuitions in order to effectively address important, and in many cases imminent, environmental issues. Therefore, I proposed an enlightened anthropocentrism theory which is comprised of four different motivating factors: obligations to current generations, obligations to future generations, recognition of the full value of ecosystem services, and recognition of aesthetic. I emphasized that although this theory is motivated by human interest, it will result in the best consequences for the ecosystems as a whole. Then, in the fourth section of my thesis, I introduced the environmentalist's agenda and asserted that enlightened anthropocentrism can give us the normative justification for pursuit of these typical environmental aims. I finished with a case study of excess manure usage in the Chesapeake Bay watershed farms in order to demonstrate how this theory can be applied on a practical level and provide the justification to achieve the applicable environmental aims.

I will now return to the “environmentalist’s dilemma”, which we recall, consists of the contradiction between many environmentalists’ belief that the systematic exploitation of nature for current benefit is unethical and their inability to provide morally justificatory reasons to push policy makers towards action (Norton 1991, 5-6). To a lesser degree, we saw this in the Bryan Norton sand dollar analogy- he believed that the little girl on the beach should put most of the living sand dollars back into the lagoon, but he could not think of a compelling justification for his gut reaction. He thought that the little girls’ actions showed “no respect for life or living systems” and wanted to “make a moral point not expressible in the language of economics” but was unable to think of a way to do so (Norton 1991, 187).

Now, equipped with the enlightened anthropocentric theory, Bryan Norton can have the means to tell the little girl to put most of the sand dollars back into the lagoon. He can tell her that the sand dollars may be necessary for ecosystem function or the sand dollars may have aesthetic value and so it is wrong to take them all. Similarly, we have the philosophical standing to justify to policy makers that the systematic exploitation of nature for current benefit is not morally permissible according to all the factors of enlightened anthropocentrism: our obligations to current and future generations, recognition of the full value of ecosystem services, and the recognition of aesthetic value. Perhaps later, the typical policymaker’s moral concern will extend to entities other than humans. But for the time being, enlightened anthropocentrism can underwrite a more morally extensive theory and effectively achieve traditional environmental aims.

Works Cited

- "Agriculture." *Chesapeake Bay Program: Science. Restoration. Partnership.* Chesapeake Bay Program, n.d. Web. 16 Mar 2013. Beauchamp, Tom, and James Childress. *Principles of Biomedical Ethics*. 3rd ed. New York: Oxford University Press, 1989. Print.
- Baranyai, Vitalia, and Sally Bradley. "Turning Chesapeake Bay Watershed Poultry Manure and Litter into Energy: An Analysis of the Impediments and the Feasibility of Implements Energy Technologies in the Chesapeake Bay Watershed in Order to Improve Water Quality." (2008): 16 Mar. 2013.
<http://www.chesapeakebay.net/documents/cbp_17018.pdf>. Boesch
- Boesch, Donald, and Russell Brinsfield. "Chesapeake Bay Eutrophication: Scientific Understanding, Ecosystem Restoration, and Challenges for Agriculture." *Journal of Environmental Quality*. (2001): n. page. Web. 16 Mar. 2013.
- Botzler, Richard, and Susan Armstrong. *Environmental Ethics: Divergence and Convergence*. 2nd ed. The McGraw-Hill Companies, Inc., 1998.
- Carlson, Allen. *Nature, Aesthetics and Environmentalism: From Beauty to Duty*. New York: Columbia University Press, 2008.
- Cestti, Rita, Jitendra Srivastava, and et al. "Agricultural Nonpoint Source Pollution Control: Good Management Practices- The Chesapeake Bay Experience". World Bank. 16 Mar 2013.
<[http://books.google.com/books?hl=en&lr=&id=YQNcztHzpv4C&oi=fnd&pg=PR5&dq=Chesapeake Bay poultry farms&ots=hTV8hq4cKY&sig=DnikdX35I6gOVN5yNsEJY_mnQi8](http://books.google.com/books?hl=en&lr=&id=YQNcztHzpv4C&oi=fnd&pg=PR5&dq=Chesapeake+Bay+poultry+farms&ots=hTV8hq4cKY&sig=DnikdX35I6gOVN5yNsEJY_mnQi8)>
- Daily, Gretchen. *Nature's Services: Societal Dependence on Natural Ecosystems*. Washington: Island Press, 1997.
- Ernst, Howard. *Chesapeake Bay Blue: Science, Politics, and the Struggle to Save the Bay*. Oxford: Rowman & Littlefield Publishers, Inc., 2003.
- Evans, Claude. *With Respect for Nature: Living as Part of the Natural World*. Albany: State University of New York Press, 2005.
- Kant, Immanuel. "Duties to Animals." Trans. Array *Environmental Ethics: Divergence and Convergence*. Richard Botzler and Susan Armstrong. 2nd ed. The McGraw-Hill Companies, Inc., 1998.
- Katz, Eric. *Nature as Subject: Human Obligation and Natural Community*. Lanham: Rowman & Littlefield Publishers, Inc., 1997.
- Leopold, Aldo. *A Sand County Almanac*. New York: Oxford University Press, 1966.

- Marietta, Don. *For People and the Planet: Holism and Humanism in Environmental Ethics*. Philadelphia: Temple University Press, 1995.
- Minteer, Ben. *Nature in Common? Environmental Ethics and the Contested Foundations of Environmental Policy*. Philadelphia: Temple University Press, 2009.
- Norton, Bryan. *Towards Unity Among Environmentalists*. New York: Oxford University Press, 1991.
- Norton, Bryan. *Why Preserve Natural Variety?*. Princeton: Princeton University Press, 1987.
- O'Neill, John, and Alan Holland. *Environmental Values*. London: Routledge, Taylor & Francis Group, 2008.
- Regan, Tom. "The Case for Animal Rights." Trans. Array *The Environmental Ethics & Policy Books*. Donald VanDeVeer and Christine Pierce. 2nd ed. Wadsworth Publishing Company, 1998.
- Rawls, John. "The Idea of an Overlapping Consensus." *Oxford Journal of Legal Studies*. 7.1 (1987).
- Rolston, Holmes. *A New Environmental Ethics: The Next Millennium for Life on Earth*. New York: Taylor & Francis Group, 2012.
- Sagoff, Mark. "Animal Liberation and Environmental Ethics: Bad Marriage, Quick Divorce." Trans. Array *Environmental Ethics: What Really Matters, What Really Works*. David Schmidtz and Elizabeth Willott. 2nd ed. Oxford: Oxford University Press, Inc., 2012.
- Sarkar, Sahotra. *Environmental Philosophy: From Theory to Practice*. West Sussex: John Wiley & Sons, Inc., 2012.
- Shrader-Frechette, Kristin. "Environmental Justice: Creating Equality, Reclaiming Democracy." Trans. Array *Environmental Ethics: What Really Matters, What Really Works*. David Schmidtz and Elizabeth Willott. 2nd ed. Oxford: Oxford University Press, Inc., 2012.
- Singer, Peter. "Animal Liberation." Trans. Array *The Environmental Ethics & Policy Books*. Donald VanDeVeer and Christine Pierce. 2nd ed. Wadsworth Publishing Company, 1998.
- Tillman, Ned. *The Chesapeake Bay Watershed: A Sense of Place and a Call to Action*. Baltimore: The Chesapeake Book Company, 2009.
- VanDeVeer, Donald. "Interspecific Justice." Trans. Array *The Environmental Ethics & Policy Books*. Donald VanDeVeer and Christine Pierce. 2nd ed. Wadsworth Publishing Company, 1998.
- Varner, Gary. *In Nature's Interests? Interests, Animal Rights, and Environmental Ethics*. New York: Oxford University Press, 1998.
- Williams, Bernard. *Moral Luck*. Cambridge: Cambridge University Press, 1981.