



# Principles of an Ecological Morality: Integrating Values and Ethics for Natural and Human Systems

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## Abstract

In this essay, I outline six principles of human morality within an ecological context. From nature, a code of values and ethics may be extracted and applied to human systems so as to benefit both human and non-human constituents. The first principle, *diversity*, may be seen as a foundation for the remaining five. In diversity we find renewed strength and productivity across domains, acknowledging variety and discrepancy as opportunities for growth and insight. The second principle, *interdependence*, speaks to our mutual reliance on one another and on all life. By nature of such connectedness, we inherit an *innate agency*, such that all actions or lack thereof lead to meaningful consequences within the system, impacting other constituents. No matter the level of analysis, all systems exist in a state of *perpetual flux*. Such constancy of change is a fundamental principle of nature and a highly transformative value when adopted in a human context. The recognition of these four principles places great importance not only on human life but on all members of the ecosystem and on the ecological substrate itself. Life on Earth is a diverse, interdependent, and causal system that is forever evolving. To live according to such principles is to place increasing value on ourselves and on the world in which our capacity for morality has evolved. Indeed, it is these principles that have facilitated the evolution of consciousness itself. The additional ethics of *due conservation* and *compassion* are required in order for us to successfully adopt the preceding values. A human morality within the larger global ecosystem is simply ineffective without such integrative principles, particularly if we aspire to achieve long-term co-existence. With increasing pressures of climate change and mounting environmental degradation, now is the time to align our morals and values with more natural sentiments, in such a way that benefits both psyche and ecosystem.

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## Introduction

*It is not by choice that I have found myself in this world; nor is it by your choice that you find yourself here. Yet as I choose where to walk, so you choose where to swim; and with heavy foot I lead.*

In his landmark 1949 essay, *The Land Ethic*, Aldo Leopold proposed the extension of human ethics to the land, the sea, and all members of the plant and animal kingdoms. It was Leopold's contention that indeed ethics had been previously and successfully established to address relations between individuals and between the individual and society. In logical sequence, and in line with the growing conservationist and environmentalist movements of the 20<sup>th</sup> century, a third ethic should be applied to the natural environment. Much like society, it too presents a constitution upon which humankind is capable of acting *rightly* and *wrongly*. Citing "the despoliation of land" as one of the primary immoral consequences of human behavior (what might now prove an expression ill-equipped to bear the likings of rising sea levels, mass deforestation, and ocean acidification), Leopold's thesis is a simple but bold one, even by today's standards: our sense of community, and by extension, our sense of ethical morality, must be expanded to include the natural world.

The concept of a land ethic, or what might be similarly referred to as an *ecological ethic* (as it was in 1975 by Holmes Rolston III), may at first appear purely philosophical. To the contrary, I believe that such a shift in moral perception and behavior is precisely what is needed today.

Although the line between the two is somewhat blurred, there is a distinction to be made between ethics and morals. While both assign qualities of *right* and *wrong* to human behavior, ethics are much more rule-like in so far that they are defined and applied by others (frequently, by organizations and institutions). Morals, on the other hand, are internally motivated principles; regardless of their origin or popularity, they are revered by the individual alone and respected to the degree of the individual's own commitment. I would like to propose that the development of an ecological ethic is generally insufficient; indeed, we must foster an ecological morality. Although strongly contended here, inherent to morality is the catalytic potential for the development of a corresponding ethical code. Yet morals should remain the primary pursuit, for they require significantly less external regulation; when wholly assimilated by the individual, morals achieve a life of their own. Although morality has traditionally been a feature of human social systems, a leap in reasoning is required such that the individual and his/her consciousness are conceived to encompass the natural environment, therefore facilitating a moral code that is less constrained. This reflects what has been described by psychologists as a *metapersonal self-construal* (DeCicco & Stroink, 2007), the perception of oneself as embedded within a global environment and at one with the cosmos. Further, although I am not contending that

nature in and of itself is capable of an independent morality (and therefore an independent consciousness), I am suggesting that the interaction between life and the laws of nature/the-universe results in a *morality of sorts*; a set of principles upon which we may project (and from which we may subsequently extract) a moral code for human behavior.

In following, I propose to you *the principles of an ecological morality*. I would like to suggest that there exists the potential for a morality – a set of human values – which exceeds the boundaries of the human social world; a transpersonal morality that extends to the land and sea and all life. This morality is not one that excludes; to the contrary, it is as adaptive to the individual and society as it is to global ecology. In some respects, it is founded further in physics, and is perhaps equally applicable to pre-life systems. Nevertheless, I believe strongly that the time has come to align our morals and values with those of nature, in such a way that benefits both psyche and ecosystem.

Looking to nature, it is possible to extract principles that have truly stood the test of time, unlike what is possible from humanity alone. Although in nature such principles are principles of life, it takes but the weakest of imaginations to translate these principles to those of *living*. The moral code offered by nature, as one should see by mere exploration and examination of it, is a sound one. It is also a utilitarian one, in so much that the good of the ecosystem outweighs the good of the individual. Undoubtedly, this is the pinnacle human challenge, for individuals are we all. Despite the collectivistic propensities of a few, our high degree of self-consciousness breeds individualism; what was once an evolutionary gift may now be an evolutionary roadblock. As any successful human morality must value individual human life (or else be quickly abandoned by the masses), I suggest an extraction and interpretation of nature's fundamental ethics within a human context. To this end, I propose a set of principles extracted from nature that constitute a viable moral code for humankind. Sacrificed here is not the value of individual human life; rather, sacrificed here is the value of individual human life unabated and at all costs to nature. (Surely it takes but a glimpse to grasp the extent of such costs in the modern world.) As I will attempt to demonstrate, a morality extracted from nature is one that has the potential to benefit all dimensions of existence – including, most importantly, nature itself. The collective system (i.e., Earth) must take priority over the individual; seen any other way, and human existence is far more temporary than desired.

Why is an ecological morality needed? I would like to answer this question by suggesting that one simply look outside, but that answer may prove inadequate to some. After all, a pre-existing human morality governed by such principles as kindness and humanity should be more than qualified. And yet it is not at all; it has fallen short of the momentous task that is the long-term co-existence of our species with nature. So we find ourselves here, on a planet that is changing faster than ever believed possible. The scientific consensus on the human role in climate change is debatable no longer. The atmospheric concentration of

carbon dioxide continues to increase rapidly, leading scientists to wonder only as to *when* the Arctic Ocean will experience ice-free summers (United States Environmental Protection Agency [EPA], 2014). Antarctica is also witnessing record melting, with average temperatures having increased by 2.8 degrees Celsius (EPA, 2014; Vaughan et al., 2003). Warming waters are stifling the growth of phytoplankton in many areas (Thomas, Kremer, Klausmeier, & Litchman, 2012), a vital link in the ocean food chain that's further responsible for removing half of the carbon dioxide from the atmosphere during photosynthesis; perhaps surprisingly, implicated in this process is the production of half the world's atmospheric oxygen. Sea levels are now rising by roughly three millimeters per year, and that rate is expected to increase (National Oceanic and Atmospheric Administration, 2013); 1.5 million square kilometers of forest were lost globally between 2000 and 2012 (Zolfagharifard, 2013); and between 200 and 2000 species become extinct each year, a rate that is highly attributable to present human behavior (World Wildlife Fund, 2014). Increasing ocean acidification, thawing permafrost (EPA, 2014), almost daily oil spills – the list goes on, and the consequences are dire. To underscore the exponential nature of these developments seems redundant, yet the feedback loops are prominent, each pushing us further into a state of global ecological crisis. Then there are the smaller, seemingly less ominous atrocities, from widespread cases of animal cruelty and slaughter to our relentless consumption and waste production – and further consumption. What results (or what *should* result) is the conclusion that the system is highly flawed. At the most fundamental of levels, the way we have been doing things is working no longer, leading to a future that is far less optimistic than our predecessors imagined. Underscoring such heedless behavior is a set of morals and ethics that is inconsistent with our place in *this* finite world, and evading of any reconciliation with the size of our species (now exceeding 7 billion individuals). It is my proposition that we need only look to nature for the answers. This is a morality recommended by a world that got it *right* long before we ever had a chance to get it *wrong* – indeed, long before we were here. As natural systems become compromised, the necessity of human responsibility and action grows, but it is only with a complementary moral code that such efforts will not be in vain.

The problems resolved by a complementary ecological morality exceed those listed above. I contend that the application of these principles permeates all domains of human existence, from stress adaptability and economic stability to racism, classism, and homophobia. What is to be solved in nature is to be solved in us; that which will solve the problems outside will solve the problems inside; and so a morality extracted from the principles on which nature is founded is the *natural* course. Undoubtedly, this is an appropriate step if the goal is long-term sustainability, for the natural world cannot (yet) be escaped. Indeed, research in psychology highlights its functional importance in such basic human experiences as happiness and anxiety. The mere presence of a natural element such as wood has been shown to lower one's physiological response to stress, for instance (Fell, 2010). Our highest

functionality – as individuals and as a society – is possible only when compatible with nature and ecology. Our survival as a species is possible only in consideration of natural laws. We are not exempt.

What I propose to you is a set of principles that makes living in this world possible. In turn, these principles make a living world possible alongside human existence. Population size will forever present our greatest challenge to sustainability; to consider the problems listed above, one need only look to an ever expanding human population as the primary cause. Yet it too is a fundamentally moral and ethical issue. To be tempered, we must perceive the world differently, and we must engage in behaviors that are in keeping with the system that ultimately supports us. Leopold's land ethic might just as well be named an *Earth ethic*; with or without such additional musings as consciousness at the superorganism level (see Lovelock, 2000), any ecology-based morality inevitably inspires a discussion of responsibility and retribution to that which gave us life. Here, I am suggesting a shift to more earthly morals; to a morality that perpetuates existence because it is based on the rules of existence. Such morality may be freely adopted, integrated into a personal code of morals, values, and ethics, and subsequently translated into action by individuals.

What follows are brief explanations of each principle. The first four principles are the most fundamental of the six, while the latter two result from the interaction between natural and human systems, and more closely resemble ethics. Although each principle may be best described as a *value* upon first inspection, each is accompanied by a number of implications and suggestions for human behavior (not all explored here), thus serving as a principle upon which an ecological morality may be effectively founded.

## **1. Diversity**

If we were to extract from nature any one particular moral value, it would undoubtedly be diversity. All natural systems, whether on genetic or ecologic levels, are propelled towards a state of increasing complexity and diversity. This is most evident when examining the proliferation of life on Earth since its appearance 3.6 billion years ago; from the conception of the first single-celled organism to the now estimated 9 million eukaryotic species that inhabit the land and oceans. Of these species, it is estimated that only 14% of those on Earth and 9% of those in the oceans have been described and classified. Indeed, this degree of diversity in nature is far greater than what we readily perceive. Yet it is only with diversity on the microscopic scale (under pressures of natural and sexual selection) that we are able to arrive at our current state of biodiversity. On the genetic level, diversity creates opportunities for random variations to occur; mutations that may contribute to improvements in structure and function over time. On the macroscopic level, diversity is equally valuable to ecologic structure and function. In fact, ecosystems as we know them would not exist without diversity.

The value of biodiversity is far-reaching. Among many other natural services, a greater diversity of species boosts ecosystem productivity, prevents the loss of natural resources (including fresh water and soil), contributes to nutrient storage while enhancing the breakdown of pollutants, and improves recovery from a variety of unpredictable events and natural disasters. Biodiversity also increases biological resources for humans, including a variety of crops, medicinal supplies, and the availability of natural resources fundamental to human survival, such as wood and livestock. A key feature of diverse ecosystems is their greater number and variety of natural constituents from which to draw resources. In the event that one species should be lost, another is more likely to fill its role. Should a climate event strike or a disease befall a species, diversity ensures that enough species remain so as to prevent ecosystem collapse and further loss. Diversity of genetic information also ensures the survival of individual members of a species who may better withstand such calamities. To understand the fragility of ecosystems (and therefore the value of biodiversity), one might look to the recently publicized improvements to the ecological health of Yellowstone National Park, driven largely by the reintroduction of wolves after a 70-year absence (see the recent TED Talk by George Monbiot, *A Walk on the Wild Side: 7 Fascinating Experiments in Rewilding*). The effect of one species on many others, as well as on the landscape itself, is remarkable. Not only does it underscore the enormous value of diversity in nature, it also speaks to the second principle in this series – interdependence.

As diversity is valuable in nature, so too is diversity valuable within human systems. The previously noted value of genetic diversity and variability may be easily applied to human beings. Without a doubt, we know the value of within-species genetic variation; from an evolutionary perspective, our aversion to inbreeding illustrates this point. But as a moral principle, diversity can be developed and applied to all levels of human existence. In making this proposition, I recognize that there exist circumstances where homogeneity and conformity may prove valuable, particularly for the operation of more pragmatic systems. We might imagine commonalities being of value due to their implicit functional advantage; a soccer team may be more successful if all players have strong calf muscles, for instance. Yet even within these systems, a degree of diversity is necessary for success; on any one team, different positions must be filled and someone has to score, all of which require variations in ability and expertise. Regardless of circumstances, diversity is not to be avoided. Rather, it is to be valued, even within contexts where some degree of conformity is effective. Much like biodiversity improves the productivity and vitality of ecosystems, human diversity improves the productivity and vitality of groups and the human species at large. With diversity comes an increased probability of survival, by means of physical advantage in some kind of disaster, for example, or through genetic resistance in a pandemic. Without diversity, our entire species could be wiped out in one fell swoop – this being the most extreme scenario. Similarly, we might imagine intellectual advantages contributing to survival in a variety of contexts. Diversity in human systems also leads to

more diverse expressions of thought and creativity, both of which are extremely valuable on social and cultural levels (and perhaps in the ongoing evolution of our species). Indeed, technological advances are not made without intellectual leaps. Diversity and variety in human thought breed diversity and variety in ideas, without which we would hardly recognize ourselves. And without new ideas, we are ill-equipped to survive. While Albert Einstein and Nikola Tesla may reflect particularly random mutations in human intellect, it takes but little reflection to realize that human diversity at all levels is fundamental to the world in which we live. Without diversity, we would have no inspiration.

Extrapolate this to other facets of human existence, and we see little room for such phenomena as racism, sexism, homophobia, and the like. Ability, race, gender, sexual orientation, genetic makeup, body shape and size, vocation and occupation, spiritual perspective or religious affiliation – these are all benchmarks of human diversity, and they are to be valued and respected, not judged and persecuted; and never confined. Furthermore, nature tells us that anthropocentrism more generally is not conducive to our survival, for the global ecosystem on which we depend requires diversity of species for long-term sustainability. And so as discrimination and domination within human systems must be avoided, so too must it be avoided in nature. The conclusion is that we must live in harmony with each other and with the natural world; indeed, the value of diversity is deeply engrained, and it is only to our betterment as individuals and as a species that it be readily adopted and applied in our daily lives.

## **2. Interdependence**

Closely related to diversity is the principle of interdependence. More than mere interconnectedness, interdependence refers to the tendency of constituents of natural systems to be fundamentally linked and mutually dependent. Indeed, such interrelatedness and interdependence are defining features of ecosystems, whether on local or global scales. Examples abound, and infinitely so. To consider a basic (albeit essential) case, animals depend on plants for the production of oxygen, while plants absorb the carbon dioxide released by animals. On a similarly simplistic level, bees, butterflies, and birds assist in pollination and seed dispersal, enabling the reproduction of a multitude of plant species on which other organisms depend for food and shelter. Of course the flowers of these plants are also providing food to their pollinators, reflecting a mutually beneficial form of symbiosis. Yet things get far stranger and more complex. For example, cattle stir up insects while grazing in fields of grass; these insects are subsequently eaten by egrets. Clownfish benefit from the protection of sea anemone (due to their immunity to the animal's poisonous cells) while feeding on small invertebrates that would otherwise harm the anemone; the fecal matter of the clownfish further aids the anemone by serving as a source of nutrients. Predators also play critical roles in ecosystems, preventing overpopulation of prey species that would otherwise overwhelm smaller organisms that serve as the basis of

food chains. The aforementioned example of the wolf's reintroduction to Yellowstone National Park speaks well to this. In addition to controlling the deer population and allowing shrub and plant species to rebound, the wolves also changed the behavior of the deer, leading them to move more frequently and avoid certain areas of the park; in turn, plants in these areas flourished, attracting more bird species and preventing soil erosion on riverbanks, ultimately changing the landscape of the park itself. Beavers also flourished as a result of strengthened rivers, creating new fresh water ecosystems that further attracted insects, reptiles, and amphibians.

Waterways, climate, and weather systems subsequently connect ecosystems around the world (and themselves depend on complex interrelated phenomena), making these natural systems inextricably related in ways that often evade our isolated lives. Yet the isolation is an illusion; indeed, it is all connected, and humans are no more able to escape such mutual existence than is any other species. We are just as much dependent on the bees that pollinate our crops as we are on the farmers who plant and harvest them. The collapse of ecosystems due to climate change and the resulting human impacts are but reminders of our own implication in the entanglement of natural systems. As Charles Darwin argued, "Nothing exists for itself alone, but only in relation to other forms of life."

According to nature, everything is connected, and it is from this quality that we might extract our second principle of morality. Applied to human systems, this principle places increasing value on the interdependence of all individuals; by extension, each individual is highly valuable in his or her own right. As we are entangled with nature, so we are entangled with each other. Psychosocial research, and particularly the work of Nicholas Christakis and James Fowler (2011), is beginning to shed light on the degree of our interconnectedness, demonstrating that our friends' friends' friends are capable of enacting some degree of influence over our lives. Such influences occur despite our lack of direct contact, suggesting that the absence of experiential evidence in our daily meanderings is no measure of our interdependence. We are ruled by unseen forces and connections, by mere nature of the complexities of ecological and human systems. Furthermore, we are reliant on one another just as we are reliant on other constituents of our local and global environments. The adoption of this principle within a human context is highly valuable, for it recognizes that we each play a meaningful role in the lives of others. Additionally, it stresses our inherent responsibility for one another and our ability to contribute to the betterment of our neighbors. International research has shown, for instance, that a country's inequality negatively affects the health of all its citizens, including those at the very top of the socioeconomic ladder (i.e., those ultimately responsible for the oppression; see the work of Richard Wilkinson; or Pickett & Wilkinson, 2011). In 2013, as a testament to the unbounded quality of our environmental effects, Northeastern and Mid-Atlantic states asked the U.S. Environmental Protection Agency to set stricter pollution regulations

for their Midwestern and Southern counterparts; it seemed that prevailing winds were carrying unwanted power plant emissions across state lines. The physical environment itself comprises a network of connections that exceed our neighborhoods, cities, and provinces and states. Yet our mutual dependence, much like it unfolds in nature, is limited to neither local nor national settings. Rather, it extends globally; it surpasses all borders and boundaries; and it binds us eternally. As Amazonian deforestation reduces atmospheric oxygen around the world, North American carbon emissions intensify Arctic warming that subsequently leads to rising sea levels in Venice, Italy. In South Pacific island nations like Kiribati and Tuvalu, entire peoples and cultures are expected to be displaced in less than a century due to climate change, despite themselves playing very minimal roles in global warming. And to the very detriment of natural beauty and wonderment, urban sprawl in the United States now severely compromises the 4500-kilometer migration of the monarch butterfly from Eastern Canada to Mexico.

The appreciation of our mutual interdependence, whether in nature or in society, results in an appreciation for all individuals, human or otherwise. This principle prescribes what has been previously referred to as an *ecocentric ethic*; the attitude that all things in the ecosystem have intrinsic value and deserve moral consideration (Leopold, 1949), due undoubtedly to their daunting degree of interdependence and mutual reliance.

### **3. Innate Agency**

The third principle may be similarly extracted from the previous. Dubbed innate agency, it is the recognition that what one does matters by consequence of being part of the ecosystem. Given that all constituents of nature are interdependent, it can be reasoned that each constituent is accompanied by an innate ability to affect other constituents and the ecosystem itself. By nature of being born into such a complex and interconnected system, each of us contains within us the capacity to influence others; in fact, such agency occurs regardless of intention or drive. The honey bee is innately influential, in her pollination of the flower or lack thereof. Each action – any action – impacts the system in some way, as does the mere existence of that particular honey bee. This observation further underscores the value of the individual within the ecosystem.

The same line of reasoning may be readily extended to human systems. Within social groups and society at large, each of us contains within us an innate agency by consequence of being born into society/the-world. As we are mutually dependent, each of us is mutually influential, and this is true in either the presence or the absence of intention; in either the presence or the absence of *action*. Not only does this principle place increased importance on individual life, it also suggests that within each of us is a greater potential than we may have previously conceived. Everything we do matters simply because we are alive. This principle has important implications for conservation and long-term sustainability, as well

as the productivity and functioning of human social systems, for it necessitates a degree of responsibility on the part of the individual. As intelligent beings capable of reflecting on our innate influence over others, it is essential that we act and behave with awareness of said influence. This consideration is important within both human and natural systems; the impact of our individual agency on other people, on other species, and on the environment requires some degree of conscientiousness and accountability. Every footstep, every smile, every piece of trash discarded has an effect. As Jane Goodall suggested, "What you do makes a difference, and you have to decide what kind of difference you want to make."

#### **4. Perpetual Flux**

To say that nature values change may be understating it. Indeed, continuous change is a fundamental characteristic of natural systems. Such a state of perpetual flux can be observed on all levels, from the microscopic to the global. This state of flux is indispensable to the operation and productivity of relevant natural systems. Within ecosystems, death is a prime example of the value of perpetual flux, for in death new life is proliferated by means of decomposition and the fertilization of soil, for instance. If plant and animal species did not die, others would not be afforded life. By extension, aging is an additional example of the value of change within natural systems. This is true not only for the return of nutrients to the ecological substrate, but also for the growth of plants and trees that offer new ecological niches as they age. In effect, growth itself is an illustration of perpetual flux.

All natural systems are continuously changing, and it is in this change that new opportunities are created in nature. Although easily observable on the atomic and cellular levels, where energy is constantly being exchanged, there is perhaps no greater illustration on the macroscopic level than that of evolution. Evolutionary processes demonstrate the immensity of flux over vast amounts of time. As organisms are driven by changing environments and selective pressures at the species level, they find themselves in a constant state of change, no matter how concrete any one characteristic may seem at any given time. Birth and death; stagnation, movement, and action; cellular aging and oxidation; growth and degeneration; sleeping and waking; memory, consciousness, and the transformation of thoughts and emotions; decomposition and fertilization; evolution; these are but a few of the examples of this pervasive principle in nature. In consideration of the global ecosystem, weather systems, ocean currents, and climate offer further evidence of this flux state. Seasons change; indeed, climate is rarely stable. Yet it is only with these and other changes that life is capable of existence, harbingered by the big bang and subsequent expansion of the universe itself; and so we find ourselves in a cosmos of perpetual flux.

In a human context, this principle has perhaps the greatest potential to transform the way we live our lives, yet it is a difficult one to put into action. The value and appreciation of change have enormous implications socially and culturally. Undoubtedly, it is our tendency

to resist change that produces some of our most significant problems and challenges. Social struggles like civil rights and gay marriage are prime examples of our resistance to change. Traditionalism holds us back; it creates palpable tensions in social systems, from increased suicide rates by members of marginalized groups to civil unrest and outright war. It should be of little surprise that these tensions ensue, for nature (and by extension, the world) operates according to a principle of change. Resisting what is so fundamental to existence will inevitably produce negative consequences, within the individual or outside. Each of us is caught in a state of perpetual flux; it is only in our self-consciousness that we resist it.

We may readily understand the importance of accepting change on a societal level; in actuality, if we wish to value human development and improvement in all their manifestations, we must embrace change completely. We cannot, for instance, value the evolution of technology while resisting the evolution of social institutions like marriage; the two reflect very different fundamental values. Underlying the former is a value for change, while underlying the latter is a value for conservatism – another source of tension within individuals. While this fourth principle more closely resembles a human *value* rather than a moral or ethic per se, it carries significant implications for human behavior nonetheless. To live most successfully, perpetual flux must be valued, embraced, and embodied entirely. On the psychological level, this can have profound implications for the individual, contributing to a value for age and wisdom rather than a resistance to such progresses. Wisdom is, after all, a product of change and evolution. An acceptance of perpetual flux contributes to an acceptance of ourselves, of each other, and of the realities of the world in which we live. It may further liberate our species from those things that so tirelessly restrain us, from our dependence on oil to our radical devotion to outdated religious institutions. Simply put, conservatism and stagnation are incompatible with nature and existence.

## **5. Due Conservation**

Human nature within the global ecosystem dictates two final principles, the first of which is due conservation. This principle is not extracted from nature in the same way as those that precede it; rather, it is the result of a human presence within nature. In recognition of our intelligence and of our capacity to affect nature, and in consideration of our physical presence (a population now exceeding 7 billion individuals), I propose conservation as a necessary component of human morality. Natural systems are known for conserving more valuable constituents over time. In our ability to contemplate, study, and manipulate nature, so too should we engage in conservation efforts where needed. Morally and ethically, conservation is required by the awareness of the ways in which we are changing the global ecosystem. This is not to say that we should intervene at every opportunity; in an ideal world, human intervention is not necessary in every natural event or in every selective pressure. Unfortunately, given the complexities of our recent environmental

impacts, it becomes difficult to determine what may be primarily driven by human activity versus that which is driven by natural processes. As such, the 'due' in *due conservation* is only relevant in a less affected world. In our current historical position, conservation is a necessary value and ethic.

Whether it is for the betterment of our children and grandchildren, the long-term survival and perpetuation of our species, or responsibility to other constituents (i.e., species) within the global ecosystem, we are ethically obligated to engage in conservation efforts where possible. It is a necessary step if we should truly value such principles as diversity and interdependence – natural phenomena which require conservation in their own right. Furthermore, it is not inconsistent with the value of perpetual flux, for an important facet of conservation is that of natural systems more largely. Rather, due conservation reflects a less hostile interaction between nature and humanity, in which our impact on the environment is mitigated and priority is placed on the preservation of natural systems on which we depend.

## **6. Compassion**

Lastly, I contend that humans cannot function successfully in any ecosystem without adopting a principle of compassion. A productive global ecology is not possible with such an intelligent and dominant species if said species does not exhibit compassion towards other human and non-human constituents. As in the case of conservation, our sheer size requires this ethic. In our natural capacity for love and empathy, bestowed upon us by millions of years of evolution, we are capable of interacting with both natural and human systems in positive, considerate, and empathic ways. According to previous values of interdependence and innate agency, this is compulsory. Compassion is the value of diversity and interdependence manifested in emotional form. While compassion may not appear readily evident in nature, there are countless examples of both intra- and inter-species compassion and empathy among other organisms, from cross-species adoption of abandoned young to cases of human aid and rescue by other species. Yet it is not necessary that this principle be extracted from nature; rather, like due conservation, this moral principle results from the interaction between nature and humanity.

In order to achieve success in both human and natural systems, and in order to uphold the preceding principles of ecological morality, compassion is a necessary ethic. Indeed, there is little doubt as to the value of empathy, for example, within a human social context. To extend this to nature is to more broadly and consistently satisfy our morality. The same presumptions and prejudices that facilitate cruelty against other human beings underlie those that facilitate cruelty against non-human species, and they are altogether inconsistent with a truly moral existence (see the annual dolphin hunt in Taiji Cove for illustration of this point; or watch the documentary, *The Cove*). I would like to further

propose that the moral incongruence underscoring such human social phenomena as torture and slavery is equivalent to that of animal captivity (for an example here, consider the common enslavement of another majestic cetacean, the orca whale, for entertainment purposes; or watch the documentary, *Blackfish*). For some inspiration, we may look to India's 2013 legal designation of dolphins as non-human persons for whom captivity is now banned. In line with the principle of interdependence, it is after all difficult to assign greater value to one species over another; persons are we all, each deserving of human compassion.

## **Conclusion**

In this essay, I have attempted to define human morality within an ecological context. From nature, a code of ethics and values may be extracted and applied to human systems so as to benefit both human and non-human constituents. The first principle, *diversity*, may be seen as a foundation for the remaining five. In diversity we find renewed strength and productivity across domains, acknowledging variety and discrepancy as opportunities for growth and insight. The second principle, *interdependence*, speaks to our mutual reliance on one another and on all life. By nature of such connectedness, we inherit an *innate agency*, such that all actions or lack thereof lead to meaningful consequences within the system, impacting other constituents. No matter the level of analysis, all systems exist in a state of *perpetual flux*. Such constancy of change is a fundamental principle of nature and a highly transformative value when adopted in a human context. The recognition of these four principles places great value not only on human life but on all members of the ecosystem and on the ecological substrate itself. Life on Earth is a diverse, interdependent, and causal system that is forever evolving. To live according to such principles is to place increasing value on ourselves and on the world in which our capacity for morality has evolved. Indeed, it is these principles that have facilitated the evolution of consciousness itself. The additional ethics of *due conservation* and *compassion* are required in order for us to successfully adopt the preceding values. A human morality within the larger global ecosystem is simply ineffective without such integrative principles, particularly if we aspire to achieve long-term co-existence.

With increasing pressures of climate change and mounting environmental degradation, now is the time to align our morals with more natural sentiments, in such a way that benefits both psyche and ecosystem. In extracting values from nature that are further conducive to human systems, we create opportunities for long-term, sustainable existence – as individuals and collectively as a species. Living according to these principles contributes to the betterment of all individual constituents and to the global ecosystem more largely. Indeed, I believe that one of the most pressing human developments to be had is the realization of our dependence on nature in all aspects of existence. With the total human impact on the environment now being grasped, an ecologically based morality is

more important than ever. A 2009 report by the American Psychological Association (APA) may offer some perspective on the complexities of the problems we now face: “Heat, extreme weather events, and increased competition for scarce environmental resources – compounded by preexisting inequalities and disproportionate impacts among groups and nations – will affect interpersonal and intergroup behavior and may result in increased stress and anxiety. Even in the absence of direct impacts, the perception and fear of climate change may threaten mental health” (APA, 2009, p. 7). Further to the point, a recent study published in *Science* offered evidence for a sizeable link between climate change and escalating interpersonal violence (Hsiang, Burke, & Miguel, 2013). Indeed, the effects are far-reaching, and the interdependence between natural and human systems is very real. All outcomes considered equally, however, we must not place primacy on human life at all cost, for to do so is to automatically sacrifice other ecological constituents. In the most self-transcending espousal of these principles, the ultimate outcome may be the development of an authentic biospheric value orientation (Schulz & Zelany, 1999), in which nature is viewed as having intrinsic rights that exceed the survival or interest of any one species (including humans). When integrated into more traditionally materialistic or self-motivated systems (e.g., business, economics), these principles have the potential to revolutionize humankind.

I believe the time has come for us to live our lives in harmony with nature, for all aspects of our existence depend on it, from our mental and physical health to the survival of our species. We are intimately tied to the natural world in which we evolved. If we can live in accordance with the principles that brought us here, success will be possible on both fronts – and for all involved. The immediate goal should be a broadened implicit definition of health and fitness which incorporates ecological and environmental functioning. The long-term goal should be a kind of self-actualization that transcends individual human conventions; something closer to Viktor Frankl’s concept of *self-transcendence*. As he recommended, “being human always points, and is directed, to something or someone, other than oneself – be it a meaning to fulfill or another human being to encounter. The more one forgets himself – by giving himself to a cause to serve or another person to love – the more human he is and the more he actualizes himself” (Frankl, 1959).

This is the cause of our time. This is the challenge before us. Either we are morally bound to it as a species, or we are forever lost as individuals – haunted by the possibility that no matter our place in time, it was all in vain. As a species, a grand opportunity for actualization is before us; let us grasp it firmly, together.

*I am mistaken, for I have been without dominion all along. As the world is yours, so the world is mine, to no greater or lesser degree. Let us breathe together; let us thrive together; let us be together in this time and place. Although my foot is heavy, my heart is light; let these morals and values guide us together.*

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