

University of Nebraska - Lincoln

DigitalCommons@University of Nebraska - Lincoln

Environmental Studies Undergraduate Student
Theses

Environmental Studies Program

Spring 2016

Environmental Exposure and Biophilic Influence on Prosocial Sentiments

Justin Mueller

University of Nebraska - Lincoln

Follow this and additional works at: <https://digitalcommons.unl.edu/envstudtheses>

Disclaimer: The following thesis was produced in the Environmental Studies Program as a student senior capstone project.

Mueller, Justin, "Environmental Exposure and Biophilic Influence on Prosocial Sentiments" (2016).
Environmental Studies Undergraduate Student Theses. 184.
<https://digitalcommons.unl.edu/envstudtheses/184>

This Article is brought to you for free and open access by the Environmental Studies Program at DigitalCommons@University of Nebraska - Lincoln. It has been accepted for inclusion in Environmental Studies Undergraduate Student Theses by an authorized administrator of DigitalCommons@University of Nebraska - Lincoln.

ENVIRONMENTAL EXPOSURE AND BIOPHILIC INFLUENCE ON PROSOCIAL SENTIMENTS

By

Justin Mueller

An Undergraduate Thesis

Presented to the Faculty of

The Environmental Studies Program at the University of Nebraska-Lincoln

In Partial Fulfillment of Requirements

For the Degree of Bachelor of Science

Major: Environmental Studies

Emphasis Area: Natural Resources

Under the Supervision of Dr. David Henderson

Lincoln, Nebraska

May, 2016

ENVIRONMENTAL EXPOSURE AND BIOPHILIC INFLUENCE ON PROSOCIAL SENTIMENTS

Justin Mueller, B.S.

University of Nebraska, 2016

Advisor: Dr. David Henderson

Abstract

Scientific consensus states human civilization has had a profoundly negative effect on the environment, especially in the last two centuries. In addition to this, there is an increasing concern for the psychological well-being of many members of our society. There is a theory known as biophilia that states humans have a natural affinity for things that are alive and in nature.

Exposure to the environment has numerous benefits, including psychological, physiological, spiritual, and ethical improvements. This paper is a theoretical approach studying a potential positive relationship between the triggering of biophilia and prosocial behaviors. It is hypothesized that the existence of biophilia does promote prosocial sentiments and this should be taken advantage of for the improved well-being of humans as well as the rest of the planet.

TABLE OF CONTENTS

Title Page

Abstract

Introduction and Literature Review

Methods

Results

Discussion

Summary and Conclusion

Acknowledgements

References

Introduction and Literature Review

Imagine a puppy, a cat, and a human baby. Next, imagine the view from the top of a snowy mountain gazing out over the clouds below you or from kayaking in a canyon through water as blue as a sapphire. In addition, I want you to imagine all the good things we can do as people. One example of this that came to my mind was the scene in the movie *Patch Adams* where Patch was in the room with all the melancholy and dying children making them laugh hysterically by breaking the hospital rules, being silly and playing with them, temporarily relieving them of their woes. I am willing to bet all these things evoke a form of a joyous or peaceful emotion. Next, I want you to think of all the problems our planet faces today. Concepts like murder, anthropogenic climate change, war, refugees, Islamophobia, lack of political cooperation, economic failure, poverty, oil spills, a mass extinction, and a looming threat of a human driven apocalypse may come to your mind. Biologist E.O Wilson reminds us of the consensus of the negative anthropogenic effects on the planet (Wilson 1984). I may be an idealist, but I believe most people can agree that life is short and life can be very enjoyable and our planet beautiful, so how do we fix all these global issues and live in a society that more closely resembles the ideas mentioned at the beginning of the paragraph? The answer lies in a world where we, human beings, live a lifestyle that encourages more prosocial sentiments (Ricard 2015). An arguably significant factor in fostering these sentiments is increased interaction and exposure to the natural environment and all the living things that call Earth home. This thesis focuses on the philosophy and effects increased exposure to elements of environmental and biophilic nature will have on human attitudes and well-being. In simpler terms, I am suggesting a hypothesis stating biophilia increases prosocial behavior.

To begin, *biophilia* is a concept first coined by E.O Wilson in 1984. It is a simple term to break down- *bio* means “life,” and *philia* means “attracted to.” Therefore, biophilia literally means love of life and living systems. Wilson defines biophilia as “the urge to affiliate with other forms of life” (Wilson 1984). According to Steven Kellert, who studied Wilson’s work and worked with him, the biophilia hypothesis argues that humans have a natural or innate attraction to anything that is alive. In other words, deep down, all humans love nature and its beauty and have a need for it. This explains why images like the puppy or the beautiful canyon gorge are so appealing to us. There is a lot of philosophy surrounding biophilia and many questions that can be asked.

I find the concept of biophilia fascinating. I argue it can even inspire career aspirations. The work of National Geographic photographer Paul Nicklen is a strong argument for biophilia and its profound effect on people. One particular story of his stands out to me. He was in Antarctica photographing leopard seals when one approached him with its mouth open. It swam away and came back with a penguin and tried to feed it to him. After he failed to eat it the seal came back with a weaker one, then a dead one, then a partially eaten one. After a while it gave up trying to feed Nicklen and swam away, leaving him unharmed. Here he was, in the middle of the most desolate continent on the planet, face to face with the 12 foot long, thousand pound apex predator, and it was nurturing him. Nicklen asserts it was the most exhilarating moment of his life, being able to embrace and interact with one of the planet’s fiercest animals unharmed. The exhilaration Nicklen felt interacting with that seal describes the power of biophilia on our lives. This biophilia-inspired exhilaration is what drives Nicklen to act prosocially and enlighten the world of his work.

Prosocial sentiments cover a variety of positive character traits. Prosocial behavior, according to *psychology.about.com*, is any behavior intended to help others, often “characterized by a concern about the rights, feelings and welfare of other people. Behaviors that can be described as prosocial include feeling empathy and concern for others and behaving in ways to help or benefit other people.” This can include buying a meal for a homeless person, volunteering literally anywhere that has a positive outcome, comforting somebody who just ended a relationship, cleaning up trash, or even something as simple as holding a door open for someone with their hands full. Other terms associated with prosocial behavior are, to name just a few, altruism, empathy, compassion, and cooperation. On a tangent, there is a lot of philosophical debate about whether we are born good and naturally prosocial, or if we are born to be naturally selfish. Research shows that the former is most likely true. Michael Tomasello’s research, in *Why We Cooperate*, reads that as early as age one, “when they are just beginning to learn to walk and speak, children already spontaneously exhibit behavior of mutual aid and cooperation that they were not taught by adults” (3). As we age, however, those who we look up to or choose to affiliate have a high potential to corrupt our innocence, and one result of this corruption has resulted in man separating himself from the world with which he coevolved.

One problem much of society has is our separation from the natural world and our decision to not ‘embrace our biophilia.’ National Geographic writer and animal behavior scientist Carl Safina argues this disposition is artificial, because no matter what we think, it will never stop the fact that we, *Homo sapiens*, are animals as well (Safina 2015). We are just one piece to a giant puzzle called Earth with millions of other pieces. As members of the tree of life, scientists have been inspired to study the effects of human exposure to elements of the natural environment. These scientists have found there are several ways in which this exposure can

potentially strengthen people. These include psychological, physiological, spiritual, and moral benefits. It can even be argued that exposure to elements of nature is inspirational and its beauty can captivate one's soul and combine different types of benefits of exposure to nature. Austrian psychologist and Holocaust survivor Viktor Frankl illustrates this in his work accounting his experiences in various concentration camps. "A fellow prisoner rushed in and asked us to run out to the assembly ground and see the wonderful sunset. Standing outside we saw sinister clouds glowing in the west and the whole sky alive with clouds of ever-changing shapes and colors, from steel blue to blood red. The desolate grey mud huts provided a sharp contrast, while the puddles on the muddy ground reflected the glowing sky. Then, after minutes of moving silence, one prisoner said to another, "How beautiful the world could be!" (Frankl). Sadly, though, many people don't seize the opportunity to see this beauty due to various factors.

One very significant factor for humans' continuous separation from the natural world is the constant rise of urbanization. Mathew P. White and associates, who studied the effects of living in a greener area, argue that "Mental health and well-being are of increasing concern to policymakers and public-health officials. The World Health Organization (2008) states that unipolar depressive disorders are now the leading cause of disability in middle- to high-income countries. Evidence is growing that this rise may, in part, be associated with increased urbanization and detachment from the kinds of natural environments people evolved in and are thus best adapted to" (2013). Following the experiment, they found that "individuals are happier when living in urban areas with greater amounts of green space. Compared with when they live in areas with less green space, they show significantly lower mental distress (as indexed by GHQ scores) and significantly higher well-being" (White, et al. 2013).

EarthTalk suggests trees can even improve physiological conditions in humans and other living things. They improve air quality by capturing six different pollutants including ground-level ozone, carbon monoxide, and lead. Just one tree can take up to ten pounds of pollutants out of the air every year. In fact, in 2014 scientists in the U.S. Forest Service discovered trees save more than 850 people every year and prevent 670,000 acute respiratory symptoms. As such, they estimated that human health effects of this reduced pollution are valued at \$7 billion each year (EarthTalk). Other positive physiological health benefits from exposure to elements of nature include quicker healing, improved concentration, lower blood pressure, and other factors (Sandifer, et al. 2015).

Social benefits of access to green space in urban areas include increased social cohesion, facilitated interaction between adults and children, fostered social empowerment, enhanced interracial interaction, and more promoted social support (Keniger, et al. 2013). There are even some studies that suggest awe can have social value. Francine Russo discusses the findings that researcher Paul Riff found in studies of awe. “Philosophers long ago suggested that awe binds people together... This new research proves that awe can make people feel less self-involved and more attuned to the needs of the larger group.” In one study, they found people who experience awe more often are more generous. In any situation, awe can help promote prosocial behaviors. Awe shifts our perspective to the needs of the greater good (Russo). Spiritual benefits can also be found with increased interaction with a natural environment. These benefits, states Keniger and associates (2013), include “increased inspiration and feelings of connectedness to a broader reality, both important for spiritual well-being. It has been suggested that these types of benefits may also play an important role in positively influencing how people value natural environments by inspiring a broader responsibility for the natural world” (2013). One concept relating to

spiritual benefits of nature is something called the overview effect. So far, only astronauts have been able to experience it. The overview effect can be summarized as a profound change in one's mental state and view of the world due to the literal view of the world from space. Frank White, author of *The Overview Effect: Space Exploration and Human Evolution*, summed together the thoughts of astronauts when they first saw our planet and were first exposed to the overview effect and shared them at an event at Harvard in 2012. He stated:

“First, it is true that there are no borders or boundaries on our planet except those that we create in our minds or through human behaviors. All the ideas and concepts that divide us when we are on the surface begin to fade from orbit and the moon. The result is a shift in worldview, and in identity. Second our planet is, in the words of panelist Ron Garan, a fragile oasis and we need to take care of it. So there is a strong environmental component to the message. Third is that we are one species with one destiny as we move out from the Earth and begin to explore the universe. Finally, we need to understand that the Overview Effect is not only about seeing the Earth from space but, as my colleague David Beaver likes to point out, also seeing it in space. We are in space, we have always been in space, and we always will be in space, whether we leave the planet or not. In a very real sense, all of us are astronauts, members of the crew of spaceship Earth, and the time has come to realize that this is so” (White, F.).

As you read in the opening paragraph, there are plenty of reasons to be anxious. As far as anxiety is concerned, it is said there are six existential anxieties. Holli-Anne Passmore and Andrew J. Howell studied these anxieties. They write that Irvin Yalom proposed the anxieties of meaning in life, isolation, freedom, and death; and P. Wong proposed two positive anxieties of happiness and identity. These scientific findings strongly suggest “addressing all six types of existential anxieties is necessary for human flourishing” (Passmore & Howell). Experiences

within the natural environment and embracing biophilia are important in addressing these six anxieties and this concept was coined by Passmore and Howell as Eco-Existential Positive Psychology. The potential for insight from the marriage of the environment and each type of anxiety is articulated wonderfully in this article. The struggle for identity with nature is explained first. “Authenticity is an integral focus of existential and humanistic literature... An expanded sense of self-identity that incorporates the natural world could help to reconcile people with the essence of who they are as human beings and with their unique place in the larger scheme of things, thus, resulting in a sense of authenticity. Experiences of authenticity have recently been linked with transcending the self in a direction toward harmony or interconnectedness between the self and the natural environment.” Happiness and its relation to the environment is explained next. “Experiences in nature can result in a direct increase of various forms of happiness or well-being (e.g., eudaimonic and hedonic well-being, chaironic or spiritual well-being), in addition to increasing well-being via satisfaction of basic psychological needs (e.g., competence, relatedness, autonomy).” Yalom’s first anxiety and its relation to nature is then explained. “Meaning in life stems, in part, from an individual’s identification with elements of stable patterns and permanency within a changing world (Baumeister, 1991), beliefs that life fits within a larger scheme (Wong, 2010), and an individual’s ability for self-transcendence (Emmons, 2005; Frankl, 1959=1984; Steger, 2009; Wong, 1998). Theoretically, it has been suggested that these key elements of meaning in life can be found in nature.” Isolation and its antidote in the environment came next. “Nelson (1993) suggested that isolation from the natural community has created for us a “profound and imperiling loneliness” (p. 221). Experiences with nature afford us a greater sense of relatedness and social connectedness. Clayton (2003) suggested that “relatedness comes from the opportunity to feel like a part of a

functioning system” and that redefining oneself in a way that includes the natural environment can reduce the sense of isolation and separateness that many people feel (p. 50).” Yalom’s third anxiety of freedom is then explained. “The natural environment enhances perceived autonomy because “there are fewer commands or requests from others that limit behavioral choices” (Clayton, 2003, p. 50). Nature does not impose on us expectations of arbitrary social propriety; we are free simply to be.” Lastly, death and the process of coming to terms with it from nature is discussed. “Although the natural rhythms of the Earth as it passes from day to night, and season to season, provide a daily reminder of our own mortality and the transitory nature of our own beings, we are also reminded of the “cyclical relationships between life and death, nourishment and deprivation” and how “such a relationship is in fact a necessary condition for the functioning of the Earth” (Pienaar, 2011, p. 27). We accept that, not only is death inevitable, but that death is, in fact, “necessary to maintain the greater life of the Earth itself,” and by extension, ourselves (Pienaar, 2011, p. 27; see also Lifton, 1979).” To summarize, the authors state “that affiliating with nature affords us the opportunity to be fully flourishing human beings—which in turn will allow the larger-than-human natural world an opportunity to fully flourish, as individuals shift from an ego-centered view and lifestyle, to an eco-centered view and lifestyle.” Wong’s insight is powerful. He states “it is only through embracing life in its totality . . . that we can uplift humanity and improve the human condition.”

A solid argument for emphasizing a more environmentally conscious lifestyle as described above is an educational reform. Matthieu Ricard, author of *Altruism*, asserts “An enlightened education should highlight the interdependence that reigns between people, animals, and our natural environment, so that the child will acquire a holistic view of the world. By being taught to put more emphasis on cooperation than on competition, and on caring rather than

indifference, children will be better equipped to contribute in a constructive way to the society in which they are evolving. The educative practices we make use of depend on the concept we have of childhood. If we recognize that children are born with a natural propensity for empathy and altruism, their education will serve to accompany and facilitate the development of that predisposition” (Ricard 2015).

It is very clear to the scientific community that humans, especially since the Industrial Revolution, have had a terrible effect on the planet. “By 2011, half of Earth’s forest had been cut down, most of it in the last fifty years. Since 1990, half of the world’s tropical rainforest has been destroyed, and there is every possibility that it will disappear entirely in the next forty years” (Ricard 2015). In addition to this, we are becoming increasingly closer to crossing the nine planetary boundaries, a concept first discussed in a 2009 issue of *Nature* journal by Johan Rockstrom and 27 other scientists. These boundaries are all very interdependent of each other, and include the following concepts: Climate change, ozone layer depletion, soil usage, freshwater usage, impoverishment of biodiversity, ocean acidification, biosphere and ocean infiltration of nitrates and phosphates, atmospheric aerosol content, and chemical pollution (Rockstrom, et al 2009).

On the subject of fear and nature, biophobia ranges from discomfort in “natural” places to active scorn for whatever is not manmade, managed, or air-conditioned. Biophobia, in short, is the culturally acquired urge to affiliate with technology, human artifacts, and solely with human interests regarding the natural world. “The manifestation of biophobia, explicit in the urge to control nature, has led to a world in which it is becoming easier to be biophobic” (Orr). It makes a lot of sense. We fear what we do not understand. We fear what we are not familiar with. It is a compound effect. Humans like things dead-we like things under our control. One can even say

an extreme case of biophobia can be paralleled with necrophilia. An example of this can be seen in the life of Adolf Hitler. He loved the idea of Jews-human beings-being killed and he convinced all of Europe to think the same. On the notion of nature and Europe, some people may say, “Europe is beautiful. If what you’ve been saying is true, wouldn’t the Nazis have exhibited a lot of prosocial behavior?” There is a reason for this. Psychologists have found that people are willing to go against their instincts or conscience if they are under the orders of a higher power. Because of this, the power of biophilia was no match for the desires of the masterminds behind the Third Reich.

Aldo Leopold, a famous American environmentalist, argues that mankind should expand its focus on ethics to include every aspect of the planet, and not just on humans. In his work *A Sand County Almanac*, he writes about his proposed land ethic. He explains, “The land ethic simply enlarges the boundaries of the community to include soils, waters, plants, and animals, or collectively: the land” (Leopold). Is it appropriate to spend effort to treat soil ethically? It is essential for life-providing plants to grow, so maybe. Should we treat our domestic canine companions with the same level of ethics as an elephant, a fish, or a hawk? I think I’ve articulated the message well enough by now that pure anthropocentrism is not the most sustainable or appropriate mindset to have, but is pure ecocentrism the correct answer? After all, a human being has more potential than an animal—a creature that is not self-aware. Can things be plurally centered, with humans in the middle or the land in the middle, depending on the situation at hand? Is biophilia the answer to making Leopold’s land ethic a reality?

There may be some doubt at my suggestion of the world becoming a better place with the help of an understanding of biophilia and its relation to prosocial behavior. Media nowadays seems to be so negative—You can’t even turn on the evening news without going to bed with a

nightmare. Despite this negativity, it needs to be passed around and widely known that our society is actually in its most peaceful era yet, because this is the truth. The further back you go in history, the more violent humans were to each other. The beautiful truth is that “individual and collective violence has continued to diminish for a millennium, especially in the last sixty years” (Ricard 2015). This diminishing, of course, is not depicted graphically by a smooth downward line, but a jagged one. Violence does occasionally increase “temporarily in certain countries or cities, due to particular situations stemming typically from conflicts and political instability, but it is over the long term that we should judge the decline of violence.” In addition to this, Ricard also writes, “Contrary to what the avalanche of shocking news often presented in media headlines would have us think, many studies show that when a natural catastrophe or some other kind of tragedy occurs, mutual aid is more the rule than every-man-for-himself, sharing more common than pillaging, calm prevails more than panic, dedication more than indifference, courage more than cowardice.” I personally don’t believe that absolute world peace is ever possible due to the imperfect nature of humans. However, people do an excellent job of coming together in the face of extreme adversity. We have our uncooperative moments, absolutely, but I believe the good of the human race is triumphant more often than the bad.

Author Eliazabeth Kolbert states, “Our capacity to change the world is also the capacity to destroy it. And that capacity is probably indistinguishable from the qualities that made us human to begin with.” Viktor Frankl strengthens this argument with a dark but true statement on the nature of humanity. He writes, “Our generation is realistic, for we have come to know man as he really is. After all, man is that being who invented the gas chambers of Auschwitz; however, he is also that being who entered those gas chambers upright, with the Lord's Prayer or the Shema Yisrael on his lips.” Kolbert also asserts ecological destruction is already causing vast

amounts of human suffering as well; and the urge to save each other may possibly be the only hope of stopping the damage we inflict on all other life forms (Kolbert 2014).

Humans are undoubtedly the most powerful force this planet has seen. We are capable of great and positive feats, but also destructive feats of the same magnitude. We have created national parks to preserve nature's integrity and some of us even give our lives in the ultimate display of altruism to protect the life or well-being of another life. However, we also are at fault for the sixth mass extinction our planet is currently facing (Kolbert 2014) and are guilty of letting fear and misunderstanding drive us to committing genocides and other heinous acts. Can we save ourselves and the world by using biophilia to our advantage and embracing and protecting the natural forms of Earth to create a more sustainable society? If society were to promote a marriage between itself and nature and embrace our innate biophilia, it is reasonable to suggest that it would aid in facilitating a more prosocial world. We will be more inspired to carry out our lives and search for our meaning while acting in a more ethical manner toward others and the environment.

Methods

My thesis discusses the effects biophilia and nature exposure have on the world from a strongly theoretical approach. After gathering ample amounts of various sources of literature, I compared and contrasted the information argued by them. My sources of literature came were both written and online sources. These writings include peer reviewed scientific journal articles, the works of E.O Wilson himself, very recent published books of social scientists and ecologists, and online articles. During my time doing this I received the aid and guidance of Professor Henderson on thinking of the nature of the questions to ask and study. I argue ideas brought up

as far back as ancient times with the thoughts of Aristotle and as recent as books and ideas published in the summer of 2015, such as Ricard's book, *Altruism*. I will analyze theories brought up by the various works of the scholars I read about and compare them to answer questions also brought up by philosophers, such as the fact man is biologically endowed with the capacity for biophilia, but psychologically has potential for necrophilia, so how does society promote a way in which biophilia triumphs (Kellert 1993)?

Results

There were over ten studies looked at involving biophilia, nature's effect on well-being (the triggering of biophilia), and human nature. The suggestions of each of those studies have a positive relationship between the environment and its effect on human behavior, ethics, and well-being. Our natural attraction to elements of the environment is triggered and we often experience positive events or sentiments as a result. Even the existence of trees has been proven to have several benefits. If trees can save billions of dollars and thousands of lives each year, imagine what an increase of other natural elements can do for our society. An example of this is that awe increases likelihood of generosity as well as happiness. Findings also explain why human love zoos and gain happiness from hearing stories of saving the lives of animals. Readings suggest that we have a natural "motherly nature." We love to care for nature, both animals and plants, with our green thumbs. Existential crises can be addressed in the environment and when people go into space, it puts the whole scope of the world in a much more connected perspective. Changed perspectives like this are what is crucial for a more sustainable and biophilic society.

Discussion

Tomasello found that humans are innately more good than bad. Our intentions really are good, but the complexity of life makes making ethical decisions much more difficult, especially with the adverse effects of “greenless” urbanization like mental issues. Passmore and Howell found that biophilia and exposure to nature can help one answer the deeper questions about their lives and bring peace of mind. The mere existence of trees has numerous benefits, including physiological health and economic benefits. Seeing sights in nature that trigger biophilia can produce awe, an emotion that has high social value. Viktor Frankl’s observation of that beautiful sunset captivating the souls of prisoners at that concentration camp can be a strong argument for this awe having value in our lives. Kolbert discusses how we are on the verge of the sixth great extinction, and this parallels with the extreme loss of biodiversity in Rockstrom’s nine planetary boundaries. Kolbert also noted that the urge to save each other could be the planet’s saving grace. I think that has significance with biophilia-the love of living things and nature...things we want to save. Orr also discusses the enemy of biophilia, biophobia. There are, of course, certain elements of nature we dislike because we are afraid of things we don’t understand. We must familiarize ourselves more often with parts of the natural environment to prevent the manifestation of biophobia. We must better understand as a society the importance of everything on this planet and that what goes around comes around. Everything is dependent on the integrity of the environment.

Biophilia and related concepts can have influences in areas such as sustainability and broader topics of positive psychology. Since biophilia relates to the environment, it can really be seen as an element of virtually any global issue we see in our society today. Furthermore, I believe there is sufficient evidence to suggest biophilia can be an influence in prosocial behaviors and attitudes.

I do want to add, though, that negative anthropogenic effects are not entirely *our* fault. Human beings have been building mighty civilizations for thousands of years using whatever we could get our hands on. About 200 years ago the Industrial Revolution began. With the rise of this revolution, we began to use fossil fuels, and very heavily. It is because of this heavy fossil fuel use that we discovered countless advancements in transportation, medicine, architecture, and many other technologies. I *applaud* society's use of fossil fuels in the past because of what they accomplished. However, they had no way of knowing that heavy emissions would cause unnatural changes in climate and other elements of nature. In today's world though, due partly thanks to people's use of fossil fuel-driven technology, we now know that heavy consumption of fossil fuel is very negative. If we continue to live in an unsustainable society then that is the moment the people on Earth today need to feel at fault.

Summary and Conclusion

Scientific consensus states humans have had a negative effect on our planet and there are many issues on the ethical treatment of elements of the environment. Fixing all the problems in the world can be largely solved by an increase in prosocial behavior, and this behavior can be influenced positively by the existence of biophilia and finding more ways to trigger it.

Environmental exposure results in multiple benefits and I believe the findings suggest biophilia is one of the reasons why prosocial sentiments can be fostered. The manifestation of biophobia has occurred in recent years due to urbanization and political influence in addition to mental issues, so incorporating more "green things" into our daily lives would be extremely beneficial. More studies can be made on reconnecting children with nature to encourage love of life as they age. Teach them to love an endangered animal as much as they love their own friends, for everything is so interconnected on this Earth. Lastly, there is a famous poem by Max Ehrmann

called *Desiderata*. It is about the proper way to live one's life, and perhaps biophilia can aid in answering the suggestions made by Ehrmann in this poem. If you have not heard of this poem I would suggest looking it up.

One of the books that influenced me to do a topic concerning human and planetary well-being was Ricard's *Altruism*. He speaks of man's treatment of animals and of our greed when it comes to money. He brings up politics as well. The environment can be linked somehow to virtually every aspect of our society. Another book I've read that also had profound influences on my interests is *Man's Search for Meaning*, which was referenced in this work. Frankl asserts that work and experiences have an influence on finding meaning and purpose. A career in environmentalism and experiences of awe can therefore certainly be crucial for these elements.

For future studies I would suggest focusing more on types of education that encourage holistic views. I would also suggest doing more research on the barriers to sustainable or biophilic behavior. A survey of peers could also be considered for studies on opinions of biophilia's influence on behavior. This was a large topic and if I were to give any advice to future undergrads, I would suggest not studying quite as broad of a topic and decide to narrow it down. This was very overwhelming at times. Finding ways to add tables and figures would be helpful for adding more content to the Results section and creating a clearer relationship between the ideas studied.

Acknowledgements

I would like to thank Professor David Henderson for his guidance on this project. I would also like to thank Professor Dave Gosselin and Professor Christine Haney for their input as well. Special thanks also goes to the UNL Libraries for their resources to scientific journals.

References

- EarthTalk. (2015, July 20). Does being around trees help people feel good? Scientific American. Retrieved January 3, 2016, from <http://www.scientificamerican.com/article/does-being-around-trees-help-people-feel-good/>.
- Frankl, V. (2006). *Man's search for meaning*. Boston, MA: Beacon Press.
- Kellert, S. (1993). *The Biophilia hypothesis*. Washington, D.C.: Island Press.
- Keniger, L., Gaston, K., Irvine, K., & Fuller, R. (2013). What are the Benefits of Interacting with Nature? *International Journal of Environmental Research and Public Health* IJERPH, 10(3), 913-935. Retrieved November 9, 2015, from <http://www.mdpi.com/1660-4601/10/3/913/htm>
- Kolbert, E. (2014). *The sixth extinction: An unnatural history*. New York, New York: Henry Holt and Company.
- Leopold, A. C. (1966). *A Sand County almanac*. New York: Oxford Univ. Press.
- Orr, D. W. (1994). *Earth in mind: On education, environment, and the human prospect*. Washington, DC: Island Press.
- Passmore, H., & Howell, A. J. (2014). Eco-existential positive psychology: Experiences in nature, existential anxieties, and well-being. *The Humanistic Psychologist*, 42(4), 370-388. Retrieved January 30, 2016, from <https://www.routledge.com/>.
- Ricard, M. (2015). *Altruism: The power of compassion to change yourself and the world*. New York, New York: Little, Brown and Company.
- Rockstrom, J. (2015, June 30). Why the Pope's embrace of science matters. Retrieved November 12, 2015, from <http://ideas.ted.com/why-the-popes-embrace-of-science-matters/>
- Russo, F. (2015, September 1). Awe has social value. *Scientific American Mind*. Retrieved March 3, 2016, from <http://www.scientificamerican.com/article/awe-has-social-value/>.
- Safina, C. (2015). *Beyond words: What animals think and feel*. New York, New York: Henry Holt and Company.
- Sandifer, P., Sutton-Grier, A., & Ward, B. (2015). Exploring connections among nature, biodiversity, ecosystem services, and human health and well-being: Opportunities to enhance health and biodiversity conservation. *Ecosystem Services*, 12, 1-15. Retrieved November 9, 2015, from <http://www.sciencedirect.com/science/article/pii/S2212041614001648>
- Tomasello, M. (2009). *Why we cooperate*. Cambridge, MA: MIT Press.
- What is prosocial behavior? (2015). Retrieved October 12, 2015, from <http://psychology.about.com/od/pindex/g/prosocial-behavior.htm>.

White, F. (2012). The overview effect: Astronauts' unique view of the earth and what we all can learn from it. Retrieved March 31, 2016, from <http://www.overviewinstitute.org/featured-articles/54-the-overview-effect-astronauts-unique-view-of-the-earth-and-what-we-all-can-learn-from-it>.

White, M., Alcock, I., Wheeler, B., & Depledge, M. (2013). Would You Be Happier Living in a Greener Urban Area? A Fixed-Effects Analysis of Panel Data. *Psychological Science*, 24(6), 920-928.

Wilson, E. (1984). *Biophilia*. Cambridge, Mass.: Harvard University Press.