5-2015

Ecomusicology: back to the roots of sound/music and environmental sustainability

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Ecomusicology: back to the roots of sound/music and environmental sustainability

by

Tiffany Challe

A master’s thesis submitted to the Graduate Faculty in Liberal Studies in partial fulfillment of the requirements for the degree of Master of Arts, The City University of New York

2015
This manuscript has been read and accepted for the Graduate Faculty in Liberal Studies in satisfaction of the dissertation requirement for the degree of Master of Arts.

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Date Thesis Advisor

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THE CITY UNIVERSITY OF NEW YORK
Abstract

Ecomusicology: back to the roots of sound/music and environmental sustainability

by

Tiffany Challe

Advisor: Professor Sophia Perdikaris

We are currently living in the midst of a global warming crisis, and running against the clock to counter the rapid depletion of natural resources in an increasingly technology-run world. The first step toward sustainability is to care for our world that is full of vibrant ecosystems and that we must work together to preserve. While the visual arts have served as a cogent platform for the environmental movement, this paper will argue that sound and music have been vastly overlooked in sustainability topics. Place-making music can capture a place’s unique spirit and connect listeners with their local ecologies. Therein lies the potential of Ecomusicology, an emerging field, which considers the interconnections between music, culture, and nature. It presents exciting potential in raising awareness about critical environmental issues through music’s lens, bridging the many gaps between arts and sciences, nature and culture, human and nonhuman sound worlds, and considering music and sound in supporting sustainability through the concept of aesthetics. This thesis will ask what musical genres are conducive to spreading ecological awareness and what are the artist’s and audience’s roles in that respect? Sustainability of the technology used toward music-making, awakening people to their natural acoustic surroundings, community-based music to keep endangered indigenous cultures alive, and presenting artists’ works that conveys climate change through music are innovative ways forward that contribute to our holistic understanding of the interplay of environment and people in times of acute climate change. A music video for the song “Without You” is presented in conjunction with this thesis, to highlight my fieldwork on sustainability topics in Barbuda, W.I.
ACKNOWLEDGEMENTS

First of all, I would like to thank my parents for supporting me throughout my educational endeavors. I am forever indebted to them for being the perfect role models in every sense of the word. I would also like to express my gratitude to my advisor, Professor Sophia Perdikaris without whom this thesis and my field research conducted on the island of Barbuda, would not have been possible. Her openness to interdisciplinary work in sustainability topics has inspired me so much and the nature of my thesis has stemmed from her outlook. I was able to combine all of my passions into a single project: music, psychology, and the environment. My travels have also lead me to see some beautiful parts of this world and have inspired me to care deeply for wildlife and the ecosystems that connect us all. A special gratitude goes out to the Muiscas, the indigenous peoples of Sogamoso, Colombia, who invited me into their world to show me the harmony that can exist between people and the Earth—an experience that has touched me on a spiritual level and one that I wish more people could have to fully realize the harmful impact the Western world has on these landscapes that are meant to sustain us. Finally, I would like to thank my fiancé, Raul E. Campiz, for having stood by my side these past two years of my graduate studies, supporting me, engaging me in stimulating conversations and challenging me to keep thinking critically about environmental issues. I hope to continue on this wonderful journey I have embarked upon because there is so much more to learn about the topics addressed in this thesis.
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INTRODUCTION

In a rapidly technology-run world, people are not only cut off from nature or the ‘wilderness’, but work actively to degrade it by depleting resources such as forests, soil, animals without effective mechanisms to replenish. Through unsustainable practices, Western society leaves a carbon footprint that forever changes traditional peoples and their environment. Most Western peoples have never or will never step foot on the lands that are being destroyed in the name of comfort, economy and industry. Western worldview is limited, myopic and aggressively damages what in the end we need to stay alive. The problem is that this disconnect with nature and the environment creates a dangerous ignorance and avoidance behavior, but also an alienation from the planet that we are a part of.

Deep ecology is an environmental philosophy that takes a holistic approach to the environment from which humans cannot be separated conceptually. It advocates for the connectedness of all beings on Earth and that recognizes the intrinsic value of every living organism regardless of their instrumentality in terms of satisfying human needs. In other words, the diversity and richness of all life forms are values in and of themselves. Nature does not exist for the convenience of man, but rather for man to realize that he must respect it in order to live in complete harmony with it. Deep ecologists study "primal people, including the diverse nations and tribes of Native Americans, they seek not a revival of the romantic version of primal people as 'noble savages' but a basis for religion, cosmology, and conservation practices that can be applied to our own society" (Devall and Sessions 1985:96). How can the West respect, relate, preserve and conserve something that they are failing to understand and relate to?

The visual arts and music can take a pivotal role in assisting toward achieving a more harmonious balance in our relationship with nature--an understanding we have increasingly lost.
The visual arts, such as Land Art and photography, capture the essence of a region’s scenery, in ways that provoke the observer to think and more importantly, to connect with his or her emotions. Songs have the immense power to capture the spirit of a bioregion and landscape—whether through lyrics, instrumentation or both.

This paper will aim to explore the various implications of looking at art and hearing sounds and music within the framework of ecology. In the first chapter, an overview will be given on the role of environmental art in shaping humans' relationship with the natural world, highlighting prominent artists’ work and their contribution to educating the public about climate change and the degradation of the environment. The second chapter is dedicated to presenting the power of sound and music in sustainability, particularly through Ecomusicology. The ways in which this new discipline considers the musical life of our planet, in all its complexity and depth will be examined. This approach challenges the Western pervasive perception of nature and culture as being opposites but rather building on one another and creating symbiotic relationships. The various implications of the intersection between music and sustainability will be analyzed, such as how people respond to nature’s ‘soundscapes’, what musical genres are more conducive to raising ecological awareness, the power of indigenous community-based music, and finally, original works by artists who want to convey climate change in an innovative way will be presented.

While the visual arts have contributed to shaping cultural trends by drawing attention to the environment—primarily because we are visual creatures conditioned to focus on visual stimuli—sound (musical and non-musical) and our sensitivity to it have been vastly overlooked in the areas of ecological awareness. The role of the emerging discipline, Ecomusicology will be explored as a venue for serving this growing need.
Chapter 1. Visual Arts and the Environmental Movement

The philosophy of aesthetics and ethics in art

The philosophical underpinnings of art can highlight the efficacy of the ethics and aesthetics involved in shaping our perception of the environment and the underlying issues. Human-environment relationships are complex. Humans tend to use nature in order to serve their needs, namely to survive. The magnitude of the damage done to the environment in the process of appropriating the natural environment inevitably raises ethical questions.

John Dewey’s perspective on ethics and aestheticism can help elucidate the possible role(s) and function(s) of music and the arts in shaping social good. His pragmatic approach to ethics and aesthetics emphasizes the need for direct experience in art in order to connect deeply with it and gain knowledge (Dewey 1934). Dewey applied the principles of biology to human cognition. In other words, he postulates that individuals use their minds in order to solve physical problems. His idea of ethics lies in the very notion of continual practice and evaluation, which is at the heart of pragmatism.¹ He was confident that, in an effort to cure social ills, diverse means should be employed, including the arts (Dewey 1916). His practice-based aesthetics and ethics were more human-centered than nature-centered; nevertheless, they helped bridge the gap between both worlds through experience. For Dewey, artistic experience is pragmatic and has the potential to be ethical.

¹ Pragmatism is an approach that assesses the truth or meaning of theories or beliefs in terms of their practical application.
Dewey believed in body and mind being inextricably linked and suggested that through physical, sensorimotor interactions with the environment, humans can attribute meaning to their aesthetic experiences. The experience of art can trigger neuronal connections of our ‘body--minds’, which can benefit an individual’s understanding of the world around him. Dewey believed in the power of the arts in their ability to elicit strong emotions that have the potential to be used in ethical problem-solving. Emotions are physiological responses to sensory experiences and are linked to and stimulate imagination, which can lead to a creatively active experience. As Bruce McConachie puts it in his essay "Ethics, Evolution, Ecology, and Performance", “the imaginative engagement in the arts provides real experiences that change who we are and can motivate progressive change in the world” (2012:98). Dewey believed in the arts' ability to effect part of that change. When viewers or listeners become emotionally responsive to an artistic work, they tend to pay more attention to it and consequently, commit the experience to long-term memory (Atkinson et al 1990). Kollmuss and Agyeman (2002) point out that the emotions of fear, sadness, and anger elicited by environmental degradation can encourage pro-environmental behaviors.

**Land Art and Photography: a brief overview of visual environmental art**

Environmentalists are concerned with issues such as pollution, preserving natural habitat, endangered species, global warming, and technologies that are damaging to the environment. Land art and environmental photography have helped raise awareness about the critical issues and engage the viewers in caring about the ecosystems threatened by climate change. Some of the works from Land Art and photography will be presented in order to show the artistic and innovative ways that have helped shape our perception of human-environment relationships and climate change.
**Land Art**

*History and background*

Land Art emerged in 1968, when a group of artists in the United States and Europe experimented with creating sculptures with natural materials (e.g. sticks, rocks, seeds, sand, and water) as artistic responses to Earth. The Land Art movement encompasses Earth, eco, and environmental art and strives for reconnection with nature. The ecological movement began in the 1960s, as a reaction to Modernism, spurred on by the increasing knowledge that nuclear weapons, pollution, and globalized technology were destructive to the environment. Anti-nuclear weapons groups, in particular, were responsible for triggering this realization and a greater respect for the environment.

Feminist Land artists regarded Earth as an intimate extension of the human body: “mythological genealogies were based in part on the ancient belief in the Earth as the mother of all living things, and a social attitude stemming from the tradition that identified women with passivity and nature and associated men with the active making of culture” (Kastner 1998:34). In her essay, “Is Female to Male as Nature is to Culture?” (1972), Sherry Otner delves into the emergence of gender symbols and sexual stereotypes and the ensuing oppression women face as a result. In Otner's view, women's inferior position in society is due to the fact that they are associated with 'nature' pan-culturally. She argues that society views nature as assuming a lower position in the scheme of things. Men, on the other hand, are associated with 'culture', which is humanly produced and strives to gain mastery over nature, and therefore, women, in order to use them for its own purposes.

In 1970, the creation of the annual event of Earth Day consolidated the environmental movement. From this followed the need for an ecological conscience—the plea to a return to a
holistic relationship with nature. Land Art represented a return to the pastoral landscape tradition, which inspired 18th century aesthetic theories of the sublime and picturesque. As Jeffrey Kastner points out, “sometimes it is necessary to uncover those earlier moments... to reconnect with and even celebrate what was previously overlooked” (1998: 23). Land Art seemed to presage the shift from Modernism to Postmodernism in the sense that the latter started to depict nature and culture as socially constructed or fictional ideas.

In October 1968, American artist Robert Smithson organized an exhibition at Dwan Gallery in New York City, which featured large-scale outdoor works as a challenge to conventional notions of exhibitions and sales. His intention was to move the conception of art beyond the spatial confinement of gallery and studio. In his environmental art, Smithson explored the balance of opposites (e.g. nature/culture, space/time, site/non-site). He “began to see the world in a more relational way...so it became a preoccupation with place” (Kastner 1998: 31). The key to the Non-site is the concept of displacement—the idea that the meaning of an object is changed when it is removed and placed on another site, all the while maintaining that connection to the original site. The Non-site was a metaphor of cultural confinement. Smithson viewed landscape as a culturally constructed entity. *Spiral Jetty* (1970) appeals to the imaginary projections of the land itself. The sense of decay as well as the collapsing of categories (e.g. solid and liquid lost themselves in each other) underlined his sense of space and time. Smithson noted how miners and oil drillers trying to extract value from it ravaged the landscape. He spoke of *Spiral Jetty* as an “ecological work of reclamation, and he envisioned a widespread movement to involve artists in the reclamation and improvement of devastated industrial sites” (quoted in Kastner 1998: 32). He pushed for artists to confront ecology and industrial activities and wanted people to see places and regard them as a primary concern, rather than a secondary one. In doing
so, he gave a sense of meaning to a place.

Illustration 1 Robert Smithson, Spiral Jetty, 1970. Long-term installation, Rozel Point, Box Elder County, Utah. ©Holt Smithson Foundation/Licensed by VAGA, New York, NY

Nancy Holt was also an American land artist and Robert Smithson's widow. She was widely known for having created Sun Tunnels Earthworks, inspired by her interest in the variation of intensity of the sun in the desert compared to the sun in the city. Sun Tunnels is located in the Great Basin Desert outside of Lucin, Utah and features four massive concrete tunnels, which are arranged in an "X" configuration, aligned with the sunrise, sunset, summer, and winter solstice.

Illustration 2 Nancy Holt  Sun tunnels, © Lindsay Daniels
Walter de Maria was an American Land artist, who produced his works in the deserts of the southwest United States, with the aim of creating situations where the landscape and nature, light and weather would become and intense, physical, and psychic experience. He stressed that the intended goal of his works was for the viewers to think about the relationship between Earth and the Universe. His most prominent work is the Lightning Field (1977), which consists of 400 stainless steel posts and light up during thunderstorms.


Michael Heizers was a Land artist, who accepted the temporary nature of Earthworks and chose to publish photographs of the deterioration of pieces over the course of the years. He explored the natural phenomena of decay and decomposition of materials, both organic and inorganic. In an interview with editors of Avalanche, he said: “One of the implications of Earth Art might be to remove completely the commodity status of a work of art” (quoted in Kastner 1998: 29). For his work entitled Double Negative (1969-70), he had a team of bulldozers cut two massive sloping trenches fifty feet deep on either side of a narrow canyon on the edge of Virgin
River Mesa, Nevada. Critics argued that his very work marred the land instead of furthering the environmental agenda.

All of the Land Art works presented thus far have brought significant attention to the landscape, whether by emphasizing the beauty and harmony of the various element of nature used to create the Earthwork, or by provoking and disrupting people’s expectations, thereby making them reflect on the 'nature' of landscape and our relationship to and perception of it. Earthworks are typically temporary in nature, which is where photography can step in and capture landscapes, rendering them everlasting.

**Environmental Photography**

Photography is also a medium through which artists can express their views about environmental matters and help raise awareness about the gravity of these issues, particularly in the current context and realities of the global effects of climate change. Photography is also the primary way to permanently capture environmental art as well because, as mentioned earlier, Earthworks have a temporary nature.

The International Center of Photography currently features exhibits, panel discussions, lectures, and film screenings on the topic of climate change. ICP has organized various events in partnership with the Lamont-Doherty Earth Observatory, the International Research Institute for Climate and Society of Columbia University, Earth Institute, and the Human Impact Institute. In the "ICP Talks: Climate Change" panel series, concerned photographers discussed how they can effectively participate in raising environmental awareness through their work, by illustrating the

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root causes of climate change and by showing its impact on the environment. Scientists have grappled with the challenges of communicating scientific facts to the layman. The role of the visual arts is often overlooked, yet the arts have long communicated issues, influencing and educating people, and challenging dominant paradigms (Curtis, Reid, and Ballard 2012). Photography is one of the artistic ways to convey complex scientific facts to the general public.

Sebastiao Salgado has traveled in more than 100 countries for his photography projects, which are mostly presented in books such as *Genesis* (2013), *Africa* (2007), *Migrations* (2000), and *Workers* (1993). Since 1990, he and his wife, Lelia, have been working to reclaim the environment of a small part of the Atlantic Forest in Brazil by giving a plot of land they owned back to nature. In 1998, they turned the area into a natural reserve and created the Instituto Terra, whose aims are reforestation and environmental education. "Genesis" is Sebastiao Salgado's new exhibit at the International Center for Photography in New York City, which features over 200 black-and-white images taken during his eight-year journey around the world to document the last pristine areas of the planet. His intention is to show viewers parts of the world that are endangered as a result of climate change and what might be lost if we do not act now to preserve them. Here are a few of Sebastiao Salgado's images displayed at the "Genesis" exhibit:

Illustration 4 Chinstrap penguins on icebergs located between Zavodovski and Visokoi islands in the South Sandwich Island. 2009 © Sebastião Salgado/Amazonas images, courtesy of the Artist

The visual arts, such as Land Art and environmental photography, have played a crucial role in shaping people's perception, attitudes, and behavior with respect to preserving the landscape that is increasingly degraded due to human activity and climate change. Land Art uses natural materials to sculpt art works in natural settings. Environmental photography captures the aesthetics of a place that the artist wants to preserve. These artists hope that in capturing these places and their current states, the viewers will realize how much will be lost if they don't act now to reverse the looming threats of anthropogenic activity and climate change on the balance of life on this planet. This next chapter will look at the effects of music on ecological awareness.
Chapter 2. Soundscapes and the Power of Music

In Western society, the ear gave way to the eye as the most important gatherer of information around the time of the Renaissance, which marked the development of the printing press and perspective painting. In other parts of the world, however, the aural sense tends to dominate over other senses. Rural Africans, for example, live predominantly in a world of sound, loaded with personal significance for the hearer. The sense of hearing cannot be closed off; we can close our eyes, but we cannot close our ears per se. The ear’s only possible protection are psychological processes which work to filter out unpleasant sounds in order to focus on the more pleasant ones, such as music and the sounds from the natural world (e.g. wind, water, and birdcalls). The aural sphere--particularly music--can communicate a sense of place, thereby helping people to reconnect with nature as they gain a deeper understanding and respect for it. Ecomusicology can further the discussion about how music and sound can encourage environmental activism in the general community.

Ecomusicology

Background and analytical framework

Ecomusicology is an emerging discipline and is the portmanteau of ecocritism and musicology. Ecocriticism is part of the literary studies field, drawing on literary methodologies to study cultural products (i.e. film, books, and advertisements) that portray human-environment relationships from scholars’ and activists’ perspectives (Allen 2011). Ecomusicology--or 'ecocritical musicology'-- is the critical study of music and the environment and considers the interconnections between music, nature, and culture; it has “accompanied heightened activism
among American musicologists” (Garett 2013, vol.3:80–81). It is interdisciplinary and draws on such disciplines as ecology, anthropology, geography, environmental studies, and literacy ecocriticism.

**Concepts, areas of interest and approaches related to Ecomusicology**

*Soundscape and noise pollution*

We have much to learn from the natural world. The question is how does one come to love and relate to the natural world and how does this fit into the concept of sustainability? Humans live within a ‘soundscape’, a concept that was introduced by Canadian composer and environmentalist, R. Murray Schafer in the 1960s and who defined it as a combination of sounds that surround living beings, as well as inorganic things (Schafer 1994). He describes two types of soundscape created by the environment: hi-fi settings that make it possible to hear sounds distinctly because there is no background noise to obstruct the sound (e.g. rural landscapes are particularly conducive to hi-fi soundscape) and low-fi signals that are obscured by sounds, and perspective is lost within the broad-band of noises. Schafer also coined the term ‘soundmark’, which refers to a community sound that possesses salient and unique qualities to the people of the community. Once a soundmark has been identified, it deserves to be protected because soundmarks make the acoustic life of the community unique.

In the 1970s, the EPA conducted studies about the effects of sound on health.\(^3\) The health of a soundscape can be measured by the extent of noise disturbance to it. Environmental noise impinges on “our senses, our bodies, our emotions and our reason—probably to a greater degree

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than we know…. the increasing density of noise and sound information is a growing fact of any expanding civilization” (Stocker 2013: 13). There are significant impacts of noise on aggression, depression, and anxiety, particularly in loud, urban areas.

More recently, sustainability and Ecomusicology have brought up the concept of 'soundscape' to awaken people to their natural acoustic surroundings in an increasingly noisy world. Noise pollution is linked with a lack of soundscape awareness and results when individuals do not listen carefully. Noises are the background sounds we have been conditioned to ignore. Noise abatement today has been employed to resist noise pollution. We must take a listen to the sounds emanating from the environment and ask ourselves which sounds we want to preserve and encourage. Only then will we truly appreciate the potential of these environmental sounds to produce a beautiful orchestration of the world soundscape.

There is a lot to be learned about our surroundings through the environmental acoustics. However, this practice can be challenging because it requires a significant amount of attention in a world increasingly mediated by technology, which diminishes our attention. Technology such as iPods and smartphones, while they can connect us to music, can also disconnect us from our natural surroundings, encouraging us to seek escape from place (Arons 2012:182). We do not only rely on our ears to hear but our whole body. There is space around sound and a body can pick up these vibrations. An increase in aural awareness through focused attention can lead to more caring and sensitivity toward the surrounding, natural environment. This topic has been known to bring up contradictions between sustainable energy efforts and noise disturbance. One example is that of the wind turbine, which relies on wind to generate electrical power, while at the same time creating noise that people who live near them may find aurally polluting.

Sound studies encourage an increase in awareness of these ‘soundscapes’, as each place
has its own unique and characteristic sounds. In the article “Sustainability and Sound: Ecomusicology Inside and Outside the Academy”, Denise Von Glahn discusses how she incorporates soundwalks in her teaching methods. She hopes that they “result in an increased caring about the world we live in” (Aaron S. Allen 2014:23). These soundwalks—also called nature walks—consist of walking around with a group of people while listening to the sounds in the surrounding environment without talking to one another. After the walk, the group gathers to discuss what they heard and experienced in doing so. This simple practice can help create awareness.

Schafer (1994) makes a distinction between a listening walk and a soundwalk: a listening walk should be done at a relatively slow pace, and if a group undertakes it, the participants are spread out so that each is out of earshot of the footsteps of the person in front. By listening constantly for the footsteps of the person ahead, the ears are kept alert but at the same time, privacy for reflection is provided. Sounds heard and missed can be discussed afterward. The soundwalk is an exploration of the soundscape of a given area using a score as a guide. The score consists of a map, drawing the listener’s attention to unusual sounds and ambiences to be heard along the way. A soundwalk might also contain ear-training exercises. For instance, the different pitches of cash registers or the duration of different telephone bells or the different walking surfaces (e.g. wood, gravel, grass, and concrete) could be compared. When the sound-walker is instructed to listen to the soundscape, he is the listener; when he is asked to participate with it, he becomes composer-performer.

Silence

Today, as result of increasing sonic disturbances, we are starting to lose the ability to concentrate. As Schafer states, “a recovery of contemplation would teach us how to regard
silence as a positive and felicitous state in itself” (Schafer 1994:258). Certain philosophies and
religions lend themselves well to this idea of celebrating silence. The Inuit of North America are
known to have refined their sense of hearing because they inhabit a world of quietude.
Unfortunately, their quiet arctic hunting life has recently been replaced by the sounds of
snowmobiles (Stocker 2013:5). We need to regain this very quietude in order to keep fewer
intrusive sounds at bay. Our hearing is more alert in the absence of sound—or in silence—and
we notice it in a more vibrant way when sound is recovered.

_Acoustic ecology_

This area of study focuses on the effects of noise disturbances on people or animals’
health, which can be indicative of a habitat’s health. High levels of noise interference can cause
stress and hearing loss. Thus, the less noise disturbance in a given area, the healthier the
soundscape is. One example of noise pollution in the marine habitat is the effects of sonar ships'
noise on whales that rely on echolocation to locate their prey and to navigate (Erbe et al. 2014).
Bats are also known for using echolocation, a process by which the animal emits sound waves
and listen to the echo in order to locate objects and to navigate (Sarkar 1999).

_Bioacoustics_

The field of bioacoustics focuses on how animals communicate through sound. Animals
are known to use other senses (sight, smell, and touch) but sounds in communication are unique
to each species and differ in terms of rhythm, duration, silence and so forth. Each species carves
out its acoustic niche in which they communicate.

This topic can lead us to ask the following questions: when does sound become music
and are animals capable of making music through sound production? Is music largely defined in

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4 Taoism, Buddhism and Rumi’s philosophy about aspiring to a world where speaking is carried out without letters or sounds.
terms of human production of sounds? It can be argued that music and its aesthetic appreciation are cultural constructs and its definition varies not only from one cultural group to the next, but also from one individual to the next. Any stand that argues that humans can only produce music would seem inherently anthropocentric. Conversely, any views that determine that animal-produced sounds are music by human standards are anthropomorphic.

Furthermore, the field of bioacoustics is now teaching us that animals can produce sound for their own pleasure, beyond the need to lure potential mates or to assert their territorial position. Prior to that, we had assumed that aesthetic pleasure was to be solely attributed to human music making. Does this new criteria imply that birds, for example, are capable of making music? Philosopher professor and jazz musician, David Rothenberg believes that animals such as birds and whales are capable of making organized sounds—a commonly made distinction between music and sound—and learning through sounds. He argues that birds and whales have a complex system of melodies and patterns that have a beginning, middle, and end to them, which is a characteristic that not all animals share (Rothenberg 2008; 2010). Recent findings are starting to shed light upon the purposes of bird songs; birds sing for pleasure, as well as for courtship and territorial threatening purposes. As Denise notes, “previously, we had identified aesthetic pleasure as a unique characteristic of human music-making” (Allen et al. 2014:24). Human standards and criteria of human-produced sound are different from the aesthetics and meaning behind animal-produced sound in the natural world. Intentionality or lack thereof may be different in the natural world than in the human world.

Beyond bird and whale songs, it is also becoming increasingly easy to find more exotic field recordings of "crackling shrimp, melting ice, singing ants, pondweed, crabs falling from

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5 See also https://www.youtube.com/watch?v=egZrPZQjqSw
trees into water, geological rumbles, insects hidden under leaf litter in the Cameroon rainforest, vultures feeding on a zebra carcass, bark beetles emitting vibrations from within the bark of pine trees, and the tiny voltages produced by plants" (Andrews 2006). Natural sounds speak volumes about a particular place.

*Production, distribution and consumption of music and the unsustainable practices associated with them*

The technology used for music consumption and recording, and distribution “has significant climate and environmental impacts through the materials that are in the gadgets themselves, where those materials come from, and the global warming gasses created by the electricity that they use”. We don’t necessarily think about the materials used for instruments such as violins and that these materials are harvested unsustainably (rosewood and ebony) but rather we think about “our immediate end use or enjoyment of the instrument” (Aaron S. Allen 2014:21). In his book, author Mark Pedelty (2012) uses examples of contemporary touring practices and organizations fighting for social and environmental justice (e.g. U2’s unsustainable 360° tour and Al Gore’s benefit concert, Live Earth), as he underlines the inherent contradictions between global efforts to send positive messages and the environmentally damaging means employed to do so. He rightly raises the question as to whether it is possible to effectively promote environmental awareness in contexts shaped primarily by a materialistic and consumer-driven society. However, he acknowledges digital media’s potential in helping “us think and act in concert with distant others” (2012:40), and its role in reducing disposable materials, such as CDs.
Ecomusicology and the various approaches to the environmental crisis

There are three approaches to ecological topics in cultural products in this day in age: the apocalyptic, nostalgic, and aesthetic approach.

The first is the alarmist approach to ecological topics. It paints an apocalyptic picture of the environmental crisis “expressed in the urgency of Gore’s political mission or in the more sensationalist thrills of spectacular Hollywood special effects” and in which the Earth is in dire need to be saved right now or we are doomed; “it endows the literary products with political relevance, powerful realism, and—in a very literal sense—sublime terror” (Rehding 2011:409-410).

The second approach is one that appeals to the romantic sense of nostalgia. One way to do so is to appeal to the power of memory, which is an area in which music is known to be efficacious. In his book Landscape and Memory, Simon Schama delves into the cultural significance of landscapes through myths of the past and present. In his view, landscapes are an integral part of our cultural identities and are present and imprinted in our shared cultural memory as well as in our individual memory. He does not separate nature from culture but rather views them as building on one another. The real landscapes and the landscapes of the mind have given us our sense of homeland. He says:

For if.... our entire landscape tradition is the product of shared culture, it is by the same token a tradition built from a rich deposit of myths, memories, and obsessions. The cults which we are told to seek in other native cultures—of the primitive forest, of the river of life, of the sacred mountain—are in fact alive and well and all about us if only we know where to look for them.” [quoted in Redhing:413]

Myths and legends are a part of culture and are entrenched in a collective
intergenerational memory—a reflection of the way humans relate to geography and bioregion—and can be transmitted orally, including through music. A prime example would be indigenous peoples, such as North American Indians, who relate to landscapes in order to explain their creation and their evolution. Some myths are connected with various bodies of water, such as lakes and rivers inhabited by monsters and demons. Numerous stories about spirits and animals living in lakes have emerged through storytelling around campfires, when the Indians gathered in the mountains for hunting and berry picking. Most of these stories can be perceived as cautionary myths about monsters and spirits that ask that they waters they inhabit not be disturbed by man (Clark 1953). They shed light upon how the natives viewed and made sense of natural phenomena and geographical features. Tales such as these can be transmitted orally, through stories or songs, for many generations and help keep their beliefs and traditions alive and each generation connected to one another through the power of stories. Music reinforces cultural memory and can draw upon the powers of nostalgia to encourage environmental stewardship and protection of the places it gives meaning to. Music is thus a cogent vehicle for community building.

Professor of music at Harvard University, Alexander Redhing believes that nostalgia is the most effective approach in obtaining the desired result in Ecomusicology, namely a call for environmental awareness and ensuing action or activism. He believes that “it is quite possible that the most productive way forward for Ecomusicology...” (2011:414). While I agree with his assertion, Ecomusicology must also be cautious not to revert or regress to the past as a way of displacing ourselves completely from the problems in the present, but rather it must keep it both present and future-oriented; in other words—as Rehding also points out—we must take the “greatness of the past” and apply it to today’s “urgent imperative to preserve and perpetuate it for
future generations” (413), which is the very definition of sustainability. Therefore, music can also play a role in shaping our perception of the landscape, which will lead to a deeper understanding of it and of how much we stand to lose if we do not take action to protect it from decimation and climate change.

The third approach is an aesthetic approach to sustainability. Ecomusicology encourages sustainability through the concept of aesthetics—or the philosophies of beauty; it can ask us to think about what kind of world we want to live in and what are its aesthetic qualities that we care to preserve. The aim is to encourage individuals to consider aesthetics, sound, and music in pursuit of achieving sustainability and the preservation of beautiful landmarks. An aesthetic appreciation requires abstraction from the notion that our survival depends on natural resources. Aesthetic appreciation is not motivated by the need to survive, but by the pleasure we may derive from the elements of nature. The question that can be posed is whether an aesthetic judgment can really be 'pure' in the Kantian sense, or is it always bound to a culturally defined concept of nature. Is there such a thing as a universality of a conception of nature, shared by all cultures?

Furthermore, this approach looks at the overlap of the economy and aesthetics and more specifically, at the ways in which they impact each other. Activities that can be beneficial and profitable for the economy can also be destructive to the aesthetics of a particular place (e.g. building developments that reduce green spaces and decimate wildlife and habitat). Mountaintop removal, a practice used for coal mining, raises the question about workers and their families who depend on such activity for their survival. Mountain top removal and deforestation degrade the place, as well as the sounds emanating from them, thereby destroying the culture that depends on it; it is the destruction of the ecosystems that people have made sacred by singing songs that refer to these places. The mountains create an active role in creating meaning.
Requiem for the Mountains\(^6\) is a chant and video exposing the impact of coal mining on the landscape through mountaintop removal. Several musicians have taken initiatives to end mountaintop removal; in 2010, the Natural Defense Council organized concert which raised $60,000 to advocate for more sustainable mining techniques and mountain preservation (Pedelty 2012:80-81).

Mining and deforestation activities contribute to climate change, which leads to an increase in natural disasters, devastating to an economy that depends on the land and its resources. These examples demonstrate how culture depends on the environment and therefore, the environment assumes a primary position. With that in mind, ethics of conservation should be considered in our current economy: sustainable choices can also be desirable choices “because they are ecologically appropriate, ethically just, economically responsible, and aesthetically pleasing. Incorporating considerations of music and sound into sustainability...can engage the community and help effect cultural change” (Aaron S. Allen 2014:9). In sum, Ecomusicology can help understand and activate the role of human culture in confronting sustainability challenges.

Music making and the environment

Music can give meaning to a place, by translating its uniqueness into sound, thus preserving it in people’s individual and collective memories. This is called place-making music and can both evoke a place and create space. Author Ray Pratt notes that music’s effect is different from that of other arts because it has no fixed physical boundaries, but nevertheless can

\(^6\) See the video: [https://www.youtube.com/watch?v=g8gJrTe2O18](https://www.youtube.com/watch?v=g8gJrTe2O18)
define a space (cited in Rosenthal and Flacks 2011). Environmentally engaged musicians across genres may choose to include environmental issues in their lyrics, while others convey a place through instrumentation alone—either by incorporating or imitating the sounds of a particular place in the piece. Place-making music serves to connect the listener with his or her local ecologies. A piece can inspire and titillate the imagination and incite an individual to pay attention to the environment; environmental awareness and action develop from a sense of critically aware place-connectedness.

Music and non-music, according to Western culture

In Western culture, music is thought of as much more than sounds; it has a structure consisting of rhythm, pitch, and frequency and these sonorous sequences elevate it to the ranks of what is culturally-defined as ‘music’. Challenges to this cultural tradition include musical—or sonourous—explorations by musique concrète, electronic instruments and works, such as those by composer John Cage, which reject created sounds by presenting exclusively environmental sounds. He encouraged environmental sounds to be disruptive and to defy conventional expectations, as opposed to their homogenization (Andrews 2006). His work attempted to persuade musicians to abandon rigid compositional structures and embrace open methods. 4’33” is one of his most celebrated compositions, and a pioneer in 20th century environmental works. As described by David Toop in his essay "Eco-soundscapes", "the performer is instructed to time three sections of silence, adding up to 4 minutes and 33 seconds. No sounds come from performer or composer; instead, any members of the audience able to calm their outrage and listen, grow acutely aware of the ambient sounds of their immediate environment and the non-existence of silence" (Andrews 2006). These new musical explorations were in some ways
linked to art movements, such as Land Art, conceptual art, and kinetic sculpture, as well as coincided with the development of free jazz, improvisation, and experimental rock.

*Mimesis in music*

Art has been known to imitate nature. Ecomusicology recognizes the mimetic imitations of elements of natural landscapes in music. More specifically, this approach does not limit itself to extra-musical factors, such as lyrical content, notation, liner notes, programmatic elements, or context, but rather on its sonorous manifestations. It can also be applied to various music genres. The mimetic tradition was recovered recently by artists and experienced a shift away from the romantic response to nature toward the use of 'natural' sounds directly incorporated in music's creation. According to French composer, Francois Bernard Mache, the dichotomy of mind/body, nature/culture are useless (1983:166).

When music strives towards nature, there is an admission of the boundary between music and the natural world (Cook and Everist 1999:23). The various procedures of composition and performance are employed to stylize the natural sounds and adapt them to musical standards. According to anthropologist Claude Levi-Strauss, the naturalness of music becomes cooked from its raw state in the sense that its substance is altered to situate it in human society (cited in Cook and Everist 1999). However, if one takes into consideration the different cultures around the world, one might argue that there is no real boundary between nature and its musical representation.
The power of community-based music and Ethnomusicology: music that sounds like nature

Ecomusicology can make the connection between people or a culture and the natural world they inhabit. It isn’t just about preserving these musical cultures but also about the environment from which the music is inspired; they are both interconnected in deep and meaningful ways. The environment and the sounds coming from it are critical to sustaining a given culture. Ethnomusicology studies non-Western communities and their relation to music and musical standards. Ecomusicology is considered to be a sub-field of Ethnomusicology and attempts to preserve local, indigenous traditions, despite the advent of globalization, by documenting their symbiotic musical relationship with their environment. It ultimately strives to end the hegemony of Western art music in cultural discourse.

Indeed, Ecomusicology highlights the dependence of a particular community's musical life on their auditory environments—or soundscapes. This can be more readily discernible in cultures with low levels of technological development, where people spend most of their time outdoors—in nature per se. These cultures display a strong connectedness between music and nature and hold on to the belief that music exists in nature. The Kaluli people of the endangered rainforest in Papa New Guinea are a prime example of a people using the surrounding natural soundscape for cultural expression. The Inuit of Canada and Greenland engage in vocal games called kattajjait, in which they sing patterns that represent geese and other birds. Kattajjait is a form of improvisation, where two women stand face to face, trading off rhythmic, guttural sounds through vocal manipulation and breathing manipulation, creating rhythms of close to 240 bpm (beats per minute). Other animal impersonation songs are used as medicine songs, sung by shamans to conjure the spirit of animals that can spiritually heal people (Keeling 2012). Another
A case study is that of nomadic Sami people of Lapland, a region that spans Norway, Sweden, and Finland around the Arctic Circle, who developed a song, called the *Yoyk or joik*, sung while they tend herds of reindeer. The melody of bird “joiks” is derived directly from the birdsong. They sing with a tight larynx, a closed throat and their mouths barely open. However, after social changes ended their nomadic life style, the Sami’s unique vocal technique has disappeared altogether (Harley 1996). This research, conducted by Feld and Edstrom, falls under the field of cultural anthropology or ethnomusicology. These are all examples of the way a particular culture relates to their environment through song.

For indigenous people, music is a salient part of their community. They are the ones who can be empowered to effect change through musical expression. They live there and should be the ones to tell the rest of the world about their customs, environment, music, and culture. Otherwise, if an outsider presumes to be able to raise awareness about an issue and does not have first-hand experience in it, he or she will not necessarily be in a position of authority on the matter. Furthermore, it displays an unconscious sense of moral superiority and ethnocentricity.

**Artist/audience's role in music and sustainability**

There needs to be a clear distinction between the artist’s intent and the listener’s reception or response to the music because the two are not always in line with each other and the construction of meaning for an audience member can be very different from the actual meaning of a song—or the one intended by the artist. This is an important distinction to make, given the complexity of the effects of environmental music and the different forms it takes. Let us analyze the two sides of a song: the artist and the listener.
The Artist’s role in the environmental movement

*The Artist's/Performer's intent: is it really crucial to raising environmental awareness?*

The artist’s intent is only one factor that helps shape the purposes of music, but it’s also one of the few factors that can be consciously controlled, and thus easily measured. Some artists may choose to integrate their environmental advocacy in their musical pieces, but cannot guarantee that their audiences will interpret the songs in ways that can inspire environmental action in them. Some artists only hope that their songs can reach and inspire their audiences by opening themselves to the topic, but acknowledge the difficult task of taking on a ‘leader’ position in the environmental movement, nor do they necessarily desire to do so.

*The Artist’s authenticity*

It is inevitable that an artist’s image or a performer's persona plays a central role in the audience’s understanding of the music’s message: “image—built through the actions of musicians, the conscious machinations of publicity machines, the active imagination of fans, or other factors—may, in fact, become the most important factor in constructing meaning in some cases” (Rosenthal and Flacks 2011:63). In terms of artists who have achieved high levels of success, their status and public image can sometimes divert the attention away from the messages they want to send through their art.

Mark Pedelty also asserts that even though mainstream pop and rock music has the utopic intention and ability to move people through the ritual-like performances onstage “designed to make us feel a sense of collective catharsis … rock is still about celebrity and spectacle, massive apparatuses and media designed to project individual personas onto giant stages for large live audiences to enjoy” (2012:29:32). We tend to “worship the star instead of the communal
collectivity he originally stood for…the heroic components increasingly attributed to the personal essence of the individual hero rather than the scene of which he is representative” (Rosenthal and Flacks 2011:189). The more an artist is successful, the less he or she has time to be actively involved in any specific organization on a regular and consistent basis due to the demands of the job. Therefore, for the artist, it becomes increasingly difficult to act locally when they spend so much time moving around, and constantly touring. Many artists recognize this dilemma and chose not to claim the title of activist.

Pedelty (2012) explains that most current music artists tend to avoid including environmental references in their songs, mainly because of their fear of perceived hypocrisy; they are aware that they would be held accountable for showing that their actions—under public and private scrutiny—are in keeping with the protection of the environment. Ironically, in some cases, such as folk singer, Woody Guthrie's, the need to appear authentic may result in inauthenticity: "Guthrie was a self-made myth. To identify with the masses, he had to remain one of the people. His power to influence, he believed, depended on his credibility…there was always a part of him that was pure put-on. He passed himself off as a country bumpkin” (Rodnitzky 1989:19). Furthermore, he was under contract with the Bonneville Power Administration in 1941, during which he wrote songs promoting the construction of a dam along the Columbia River and the development of publically-owned hydro-electrical utilities. These projects led to the decimation of the salmon population and other species. Guthrie unintentionally used his music as propaganda as opposed to political art, a line he would never cross again.
Participatory music

Active participation can encourage more engagement and commitment to environmental problems. Emotional and intellectual investments in movements are more likely when an individual or a group of individuals are performatively involved in music making, whether in performance or creating a song: "the act of creation stirs up feelings deep, meaningful investment" (Rosenthal and Flacks 2011:199). In this event, the divide between the artist-performer and the audience members thus disappears, allowing a participatory medium through which a message can be conveyed. Listeners become active in the performance—as opposed to passive observers—which increases the likelihood of becoming more invested in the issues the music addresses, beyond the social cohesiveness we all seek in-group formations. As we listen to "the sounds we and those around us are making, we experience a cohesiveness and a result—the aural reality of sound—that we have already constructed" (Rosenthal and Flacks 2011:200).

Pete Seeger is an example of an artist who engages his audience through participatory music making. He once said: "When I'm out there singing, I'm bouncing songs off of myself...what I'm really trying to get is the crowd singing themselves.." (quoted in 2011:243), which minimizes the artist-audience split effectively. German musicologist and philosopher, Theodore Adorno was known to critique popular music, stating that its commercial appeal and commodification rendered it creatively limiting and encouraged passivity on the part of the listeners. In his view, "popular music in most countries comes to us in a general setting of commercialized entertainment that trivializes all content" (quoted in 2011:87). On the other hand, he saw the potential of progressive music in challenging the audience and making them active listeners.
Participatory music presents great potential in distancing the artist from a 'star' image, making him or her more accessible to the audience and thus, more relatable. In this sense, popular music may be a more difficult genre to use as a vehicle to promote environmental awareness because the more a pop artist is successful, the more ‘star power’ he or she has, and the more the performer-audience differences are highlighted. This participatory approach entails a conscious rejection of the conception or perception of the artist as special and different from the listeners.

**The audience/listeners' reception to environmental music**

There are many other variables that influence the construction of meaning for the listener. In order to appreciate meanings derived of songs, we must break away from the traditional assumption that the ‘real’ meaning of a piece is what the artist intended. “Music is a canvas, upon which musickers paint their own visions” (2011:93). A listener's understanding of a song is based upon reception to the music, sound, performance, performer persona, and context. The construction of meaning is therefore contingent upon a specific place, time, and under certain conditions.

**Context**

The listener’s reception to music depends on the cultural, social, and historical context he or she is immersed in; “for listeners, consciously or not, we tie our understanding of music to experience in the social world” (2011:104). The historical context informs them of associations they may make when they listen to music—perceptual analogies. There is a strong link between music and collective memory. Music carries historical meanings that inform the listeners familiar with those histories.
Music can have significant effects on a listener and these can be specified by context or setting. The physical setting is the space in which a listener is exposed to music—in a crowded space, an empty room, outdoors or indoors. A person may not listen as attentively to the lyrics of a song in a local club than in the privacy of one’s own room. Furthermore, depending on the setting and predisposition of the listener, he or she may interpret a musical piece differently. Some settings can contribute to a particular mood that may lead to the listener to question the lyrics, using his or her intellect, while others allow the listener to immerse him or herself in the musical atmosphere, taking in the music rather than the lyrics. Adorno’s critique of popular music treats the context in which it is made and consumed as the most significant factor in determining what it means to consumers. For instance, "hearing music at specific times and places reserved for that purpose leads to different assessments of its meaning than hearing as part of a ubiquitous low-level background hum emanating from elevators, radios..." (2011:87).

Setting frames the experience so that some of the factors of the music become much more salient. Music also organizes our memory of a particular setting, thus contributing to the meaning we attribute to it in later recollections.

The construction of meaning for the listener is mediated by the imaginative resources of his or her time. As much as music can connect us to local ecologies, it can also transport us “into alternative realities, into virtual environments of its and our own synergistic making”. It has the ability to send the listeners to certain regions of their imagination, which can either enhance their sensitivity to the environment or disconnect them from it: “place nurtures music, and music nurtures place, but music just as easily flees the roost, consigning its place of origin to a distant memory” (Watkins 2011:407).
Musical genres and environmental awareness

Instrumental versus lyrical content music

Philosophers of aesthetics have argued that instrumental music is not representational in the same way as words are. In his book, Pedelty also makes a distinction between symphonic music and popular music, where the “lack of lyrical content makes symphonic composition less denotative in nature than popular song, providing fewer explicit cues as to the composer’s intentions” (2012:120). However, as mentioned earlier, one may ask whether the artists’ intent truly does matter in promoting sustainability and environmental awareness. It would appear not. What matters more here is the meaning that the listener constructs when listening to a musical piece—instrumental or lyrical-content music. The listeners interprets a song according to his or her experience, musical taste, and response a particular style of music.

I argue that place-making instrumental music can be just as effective in raising ecological awareness as songs referencing environmental issues in their lyrics—and in many ways, more so. The lyrics in place-making songs such as Woody Guthrie’s This Land is your Land and Pete Seeger’s Sailing up My Dirty Stream have been manipulated and interpreted in ways other than the artist’s intention, undermining their advocacy efforts, while compositions that imitate the sounds of nature with instruments such as Beethoven’s Pastoral Symphony and John Luther Adams’ Songbirdsongs, can evoke strong emotions in the listener by connecting him or her with the ‘universal sound cues’ stored in our cross-cultural memory.
The pastoral tradition and the sublime

The pastoral mode of art, which is what the four musical works have in common, is an aesthetic reflection of nature and is linked with the cultural and musical meaning of a particular place and time in history. During the Age of Enlightenment, reason represented authority in the field of science and gave a new meaning to the relationship between nature and art. Pastoral pieces of music were therefore not given as much attention as others.

The pastoral tradition in art entails looking back at the simpler, holistic past of a pastoral tradition, which has been a communication tool used by the environmental movement by and large. In philosophy and art, romanticism and nostalgia have represented a certain aversion to technological advances spurred on in modernism. Nostalgia to pre-industrialism speaks to going back to a lost time and space. In other words, it suggests a longing to get away from progress to a time prior to culture, when wilderness was abundant and land was unspoiled by human activities. To a certain degree, "the idea is expressive....of a desire not only to get close to the land, but also to retreat from culture" (Soper 1998:188). Adorno believed that "there is no beauty without historical remembrance" (quoted in Soper 1998:202).

While the pastoral tradition has tended to depict and encourage a holistic return to nature, it has also misrepresented the realities of the impact of industrialism on the countryside portrayed in the arts (e.g. literature, painting, and music). The naïve idealization of the rural land serves to appeal to the imagination with a purpose to exert social control. Indeed, according to Kate Soper, the pastoral tradition is one that paints a picture of the countryside as a Golden Age, using mythological-theological terms as an absolute origin in Eden or Arcadia, where the "Arcadian image of a ‘naturally’ abundant land directly serves to reinforce the social message,
and the older order that is to be preserved from the corruption of modernity” (1995:190). In this context—in the arts of the 18th and 19th century—nature is a cultural construct and its form is distorted by a representation that selects and portrays only what it wishes to, namely a simple image of rustic countryside, unharmed by industrialism. It was a strategy used to “show the harmony of the status quo of class division and private ownership” (1995:191). In present day as well, we must be wary of the ways in which romantic and pastoral imagery can also serve as cover for the continued exploitation of nature.

There is also a link between the sublime and the scientific Enlightenment, the growth of industry and the increasing domesticity of nature. According to Soper, “the cultivation of the sublime is the expression of anxiety, but also...of a culture that has begun to experience its power over nature as form of severance from it” (1995:227). The sublime was therefore a way of working out social transformations of a given historical period. The purpose of the aesthetics of cultivated landscape was to convert our terror over nature’s power into delight in it.

The relationship between culture, nature, and art

As shown in Figure 1, culture, nature, and art can best be represented in a circular relationship, where culture influences people’s perception of nature, which influences the production of art in relation to nature, which then reinforces culture and its perception of nature.
Figure 1 Circular relationship of 'nature', 'culture', and 'art'

**Musical Analysis of lyrical folk songs: Sailing up My Dirty Stream by Pete Seeger and This Land is your Land by Woody Guthrie**

*The background of folk music and the environmental movement*

The environmental movement in music is typically associated with the folk music genre, mostly because as an acoustic musical style, it lends itself well to conveying environmental messages through the lyrics. It places a greater emphasis on lyrics and the beat is toned down. For this reason, it can be more easily used for educational purposes. Some have argued that the political effectiveness of the 1960s folk music was partially due to its quiet sounds that served to emphasize the lyrics (Eyerman & Jamison 1998). At the time, folk music was associated with left-wing politics.
While its tradition of being political does further the environmental agenda, it has also been the subject of dissent, causing institutional figures to censor and edit the songs to make them less political, and artists to develop new musical aesthetics that clashed with the proletarian realism of the folk genre in the 1960s. Pete Seeger was a folk singer and active in the environmental movement. After he was excluded and marginalized from the Civil rights movement, he spent most of his energy on Clearwater, the replica of a 19th century sloop which has been used by the Clearwater organization to campaign for cleaning up the Hudson River since its launch in 1969. Seeger also advocated for industrial workers, just like fellow folk singer, Woody Guthrie. However, it soon became evident that fighting for the workers’ rights was in direct contradiction with fighting for environmental causes. Industrial workers were hired to take part in coal mining, which was a practice that damaged the environment but to which these workers’ owed their livelihoods.

Seeger wrote “Sailing up my Dirty Stream”\(^7\) in 1964—an environmental song about the Hudson River pollution that takes on the pastoral tradition of idealizing the lost perfections of Edenic nature. Some of the verses are particularly political in their environmental content:

Sailing up my dirty stream  
Still I love it and I’ll keep the dream  
That someday, though maybe not this year  
My Hudson River will once again run clear  
She starts high in the mountains of the north  
Crystal clear and icy trickles forth  
With just a few floating wrappers of chewing gum  
Dropped by hikers to warn of things to come  
At Glens Falls, five thousand honest hands  
Work at the consolidated paper plant  
Five million gallons of waste a day  
Why should we do it any other way?  
Down the valley one million toilet chains  
Find my Hudson so convenient a place to drain

\(^7\) To hear « Sailing up my Dirty Stream », go to: [http://youtu.be/IncmfeMqvsY?t=5s](http://youtu.be/IncmfeMqvsY?t=5s)
As David Ingram points out in his analysis of “My Dirty Stream”, “the lilting melody and gently swinging rhythm of the banjo, suggesting the “tacking to and fro” of the boat, evoke a pastoral idea ruined by what Marx calls the “counterforce of industrial pollution...Retaining the optimism of the proletarian realist tradition, however, Seeger keeps the dream that someday the river will “once again run clear”’ (Ingram 2008:28). Seeger valued pastoral landscape and showed his devotion to it by overtly opposing corporations involved in industrial development in his lyrics. He emphasized the importance of lyrics in effectively communicating his political and environmental messages; he believed that in a performance, there should be simplicity in the melody and delivery and the words should be heard clearly.

However, there was growing dissent about protest songs in the 1960s due to artistic and aesthetic differences. Bob Dylan rejected the topical song in this period. He performed at the Newport Folk Festival in 1965 and incorporated electric guitars, engaging in new aesthetics of music and performance, which clashed with the proletarian realism of Seeger. Ingram says:

Newport 1965 can thus be seen as a clash between the old Apollonian folk and the new Dionysian rock: the wordy and the ballsy. Seeger’s music was genteel, ascetic, and emotionally contained...it was rational noise rather than disruptive noise. In contrast, Dylan’s new music and performance style signified rebellious individualism, the pursuit of pleasure, and the division in society into the hip and the square, the young and the old. Moreover, in rock music, as Joe Boyd understood, the voice is part of the mix, the music’s affect deriving from the overall sound rather than from the foregrounding of lyrical content. [2008:30-31]

There are numerous accounts that say there was tension between Seeger and Dylan at this festival but as Seeger himself claimed in an interview: “I couldn't understand the words. I wanted to hear the words. It was a great song, "Maggie’s Farm” and the sound was distorted. I ran over to the guy at the controls and shouted, "Fix the sound so you can hear the words." He
hollered back, "This is the way they want it."\(^8\) Clearly, Seeger viewed amplified sound as having an adverse effect on the delivery of a song’s message. One could argue that “Maggie’s Farm” was Dylan’s protest against folk protest songs, which represented his transition from the folk music to an innovative style blending the activism of the folk genre with the aesthetics of rock music. Other artists were influenced by this cross genre and continued the musical movement.

Seeger had political intentions in his lyrics and wanted people to sing along with him about such topics as pollution, bombs, hunger, and injustice. He believed these issues could be overcome by people working together for the greater good. The rock aesthetic departed from folk music in the sense that just as folk music strove for the ideals of a rural environment, rock music tended to depict urban settings and ideals.

“This Land is your Land”\(^9\) is by all accounts a place-making song that resonates with people to this day—a song about how America is made up of many lands and peoples. However, on closer analysis of the song’s lyrical content and the history of its use in America, it becomes clear that the popular version we are accustomed to hearing is in actuality, a censored version. In the 1950s, school administrators, textbook publishers, and choir directors edited the song down to three celebratory stanzas, one that leaves out the last three verses which are overtly political and far from conveying the patriotic sentiment we have come to associate the song with (Pedelty 2012). Here are those three verses:

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In the square of the city, in the shadow of a steeple; 
By the relief office, I’d seen my people. 
As they stood there hungry, I stood there asking, 
Is this Land made for you and me?
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\(^9\) To hear “This Land is your Land”, go to: [http://youtu.be/HE4H0k8TDgw?t=2m15s](http://youtu.be/HE4H0k8TDgw?t=2m15s)
There was a big high wall there that tried to stop me;  
Sign was painted, it said private property;  
But on the backside, it didn’t say nothing;  
That side was made for you and me.

Nobody living can ever stop me,  
As I go walking that freedom of highway;  
Nobody living can ever turn me back  
This land was made for you and me.

Woody Guthrie wrote, “This Land is your Land” in the 1940s, as a musical response to hearing “God Bless America”—a song that reflects America’s exceptionalism. Guthrie’s song was a protest against private land ownership and a call for celebrating America’s beautiful landscape on which people have a right to collectively walk on, as opposed to defining it in terms of nationhood.

Interestingly, according to Rosenthal and Flacks (2011), Woody himself omitted the last two verses when he first recorded it. We really don't have any way of knowing for a fact whether he omitted the verses to make the song more commercially viable or politically inclusive. We do know that the 'clean' version he recorded had a more universal appeal that resonated with people and that made its way into songbooks and as a patriotic anthem. According to Michael Smith, General Manager of Woody Guthrie Publications, Woody actually recorded two versions of "This Land" for Asch Records in the mid-1940s, one with the radical verses, and one without. The 'clean' version was the only one that was released. Asch and Guthrie never released the radical version, which was discovered by Smithsonian Folkways in the 1990s and finally released in 1999. According to Smith's account, Howard Richmond owned the song's rights.
He recalls that Howard:

made a smart move of allowing textbook publishers for schools to use the song at a low price or at no cost at all. The song quickly spread and school children were soon singing it everywhere. The downside was that they were only singing the sanitized version of the song... Arlo Guthrie has often remarked that at one point, Woody took him aside and told him that people were singing “This Land” but they weren’t singing all the verses. Woody was afraid that they would be lost if someone was not taught them, so he taught the real version to Arlo. As to why Howie Richmond only had the clean version published, I think the answer is more clear. No textbook publisher in their right mind would allow a song that questioned policies and their effect on the poor or advocated against private property. [quoted in Rosenthal and Flacks 2011 endnotes]

_Apolitical but eco-friendly lyrical content music_

There are nevertheless eco-conscious artists, who use lyrics in a way that enhances the overall message without including overt political references. CloudCult, an eco-friendly rock band, infuses ecological themes in their songs without explicit references to these. Minowa, the lead singer, explains that specific reference to environmental issues can appear to sound too ‘preachy’, which can be off-putting to listeners. Therefore, when he writes and performs songs, his goal is “to work on getting people in touch with their souls” (quoted in Pedelty 2012:123). Carolyn Cruso is another artist who does not write directly about the environment in her songs, but who conveys her home, Orca’s Island, hoping that she will inspire people to understand nature and realize that it can “feed our soul” (quoted in 2012:166) in the same way that it has for her, presumably. Her stance here implies that according to her, spiritual growth is one possible path toward caring about the environment. Her work is effective at place-making, whereby she gives meaning to a place through the sounds in her music. Music of the bioregion may be one way to promote sustainability.

It is a common belief among both musicians and audiences that matching sound to lyrics has the ability to increase the emotional impact. This following statement by lyricist Yip Harburg
eloquently and poetically illustrates the power of a song on the emotions and the intellect:
"words make you think a thought. Music makes you feel a feeling. But a song makes you feel a thought" (quoted in Rosenthal and Flacks 2011:112). Lyrics of a particular song can also disrupt our expectations—posing a conflict with our previous experience—which can ultimately succeed at capturing our attention.

In contrast to music that relies on an overt text to create a sense of place, instrumental pieces or absolute music is highly effective in conveying an environmental statement by touching the listener on an emotional level. It has the ability to transport the listener to a dimension that allows him or her to access the imagination more fluidly without lyrics or non-musical content.

**Musical analysis of instrumental music: Beethoven's *Pastoral Symphony* and John Luther Adams' *Songbirdsongs***

Beethoven’s *Pastoral Symphony* and John Luther Adam’s *Songbirdsongs* both contain imitations of the comforting birdcalls and will be used to demonstrate the many ways in which this type of music can touch the listener on an emotional level by giving them the freedom to use his or her imagination without the inevitable influence of words. In order to understand the effect of instrumental music on the listener, we must first look at the philosophical and psychophysiological underpinnings of the effects of music and its meaning as a medium of communication.
Philosophy and psychophysiology of music

Music has the ability to meld reason and emotion. Music causes physiological arousal and is therefore relevant to sentient life because it restores the link between mind and body, intellect and emotions. The power of music "rests not only on its strength in each of several dimensions, but on the way musicking melds together several at once, the way it joins head and heart and body, the way it can serve various functions simultaneously (Rosenthal and Flacks 2011:252). Are cognitive processes and emotional reactions really two separate mechanisms? According to composer, author, and philosopher, Leonard B. Meyer, "affective experience is just as dependent upon intelligent cognition as conscious intellection...both involve perception, taking account of, envisaging...[therefore] thinking and feeling need not be viewed as polar opposites, but as different manifestations of a single psychological processes" (Rosenthal and Flacks 2011:113). In other words, the intellectual and emotional reactions may not be as separate and independent as we may think, but rather complementary in many regards.

Philosopher Arnold Schopenhauer believed that music is “the most powerful of all arts, and therefore attains its ends entirely from its own resources” (quoted in Storr 1992:128). Similarly to Kant’s theory about perception, Schopenhauer argued that individuals register objects in the external world in the ways that they appear to them—their representations as phenomena in the external world. However, the range of our senses’ abilities limits our perceptions; there are sounds, which our ears cannot hear and there are colors, which our eyes cannot see. Therefore, to borrow Kant’s term, individuals can never perceive objects as ‘things-in-themselves’. However, according to Schopenhauer, there are ways of accessing our inner-world and gaining the knowledge of who we are through direct and intuitive experiences. One of these ways is art, which he considered to be an aesthetic mode of knowledge. In his view, our
pure contemplation of beauty in art enables us to escape the miseries of our world and the unattained peace of Nirvana. It is life-enhancing in so far as it removes us temporarily from life. Although he asserts that music directly expresses the nature of inner life and that music can go deeper than pictures or words, he does not include passions, emotional or physiological response per se, when he refers to the contemplative state. In this sense, his theory is of a pessimistic nature—one that deems ordinary life as not being able to aptly satisfy our unfulfilled needs.

While Schopenhauer had a pessimistic view of life, philosopher Frederick Nietzsche asserted that music exalts life and gives it meaning through a bodily experience, making it worth living (cited in Storr 1992). He used the language of aesthetics to express the meaning he derived in life. Similarly to Dewey, he claimed that, in a broad sense, art has a direct effect on bodily experience, which is why it is life-affirming. Music can trigger subconscious mechanisms that connect us with our unfulfilled desires. In other words, music helps us become aware of important aspects of ourselves which we may not ordinarily have access to and perceive consciously. Thus, music can make us whole again.

American philosopher of the mind and art Susanne Langer wrote that music represented the inarticulate flow of emotions. In Walden’s “Sounds” chapter, Henry David Thoreau (1985) argues that sound is a language spoken without metaphor. In other words, sound has the ability to communicate directly and without any means of mediation. Thoreau believed that truth could be found in nature. In his book, he derives pleasure from the sounds he hears around his cabin in the woods: church bells ringing, carriages rattling, cows lowing etc. According to author Michael Stocker (2013), there are undeniable archetypal sounds to which humans across all cultures respond to, such as the sound of the elements of nature (e.g. water, fire, wind) as well as the first sound that provided comfort in our prenatal lives, the heartbeat. Sounds heard while in the womb
invoke emotional responses in us throughout our lives. Typically, the sounds that trigger fear responses in people contain deep, low frequencies, such as that of thunder, earthquakes, and explosions. We fear these sounds because they appear as larger than life and beyond our immediate control. Conversely, we are comforted by sounds, such as birdsongs, the sounds of ocean waves, and the howling of the wind. These are 'universal sound cues' in our landscape of emotional safety. In addition to these cues, there are also soundmarks unique to regional experiences of a place that cement a bond between people of a community—'acoustic communities'.

Our imagination is innately fertile. Archetypal sounds—even ones that are imitations and ‘not real’ in the strictest sense—are persuasive to the imagination, engaging the listener and triggering emotional responses. Our imprinted sounds give and shape meaning in our lives, trigger emotional responses, and have deep motivational potential, which is necessary in environmental engagement. As mentioned before, John Dewey believed in the power of the arts in their ability to elicit strong emotions that have the potential to be used in ethical problem solving. In Stocker’s view, “due to the subconscious nature of our sound perception, sonic imprinting occurs at the intersection of our hearts and our minds; it is an important aspect of our auditory maps”. There are soundprints of our civilization that are embedded in our emotional mythology and when we hear them, we “drift into the mythical landscapes of our imagination” (2013:29:31). There are also sounds deeply ingrained in our collective psyche that most of us will have a deep emotional reaction to, such as that of fires, waterfalls, storms and bird calls.

Beethoven explored the concept of nature in the *Pastoral Symphony*, composed in 1808. He was a lover of nature, spending his leisure time on walks in the countryside. He referred to his musical work as ‘more an expression of feeling than painting’, which means that rather than
engage in tone painting, the piece is an emotional-artistic response to nature that was felt by the composer, Beethoven himself. The *Pastoral Symphony* is the only symphony he composed that takes on the mimetic tradition of music. It is also one of his few works containing explicitly programmatic content. As Alexander Rehding points out, “our musical understanding is still tacitly determined by absolute music, with programmatic or mimetic elements forming the deviation from it or exception to it” (Rehding 2002:315). *The Pastoral Symphony* features an intricate interplay between harmony, texture, and tempo. There is repetition in the symphony’s structure, in which the natural world is transcribed in musical terms.

The second movement, entitled the *Scene by the Brook*, has a slow tempo and contains a stream of 16th notes over a repetitious harmonic background. The woodwind and strings play a melody that evokes birdsongs, as this portion of the movement takes us through the soundscape of the countryside. Helga de la Motte-Haber remarks that the nightingale, cuckoo and quail appear as “realistic intruders…. almost true to life” (quoted in Redhing 2002:313).

![Nightingale, Quail, Cuckoo](Image)

Illustration 6 Ludwig Van Beethoven, *Pastoral Symphony* (Symphony No.6), Op, 68, No.11

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10 Beethoven’s *Pastoral Symphony* contained descriptive devices such as the title of each movement, which could, arguably influence the listener’s reception of the piece.
The fourth movement, entitled *Storm movement*, becomes epic, dramatic, and loud, reminding us of the power of nature over humans. Storms are violent explosions and these sounds are translated into this movement very accurately, with some wildly rhythmic and textural effects: the four against five in the double basses and cellos, the electric shocks conveyed by the piccolo, timpani, and trombone. Schmenner critiqued the storm movement by arguing that it “is not an artistic imitation of a real event but rather a technical simulation of a natural event a la Baudrillard, a ‘reduplication of the real on the basis of a different medium’” (quoted in Redhing 2002:318) which shows that there is nevertheless debate and room for interpretation of a symphonic composition’s aesthetic style in the musicological discourse.

Illustration 7 Ludwig Van Beethoven, *Pastoral Symphony* (Symphony No 6), Op. 68, No.43
Much of composer John Luther Adams’ music has been inspired by the landscape of Alaska, where he has lived since the 1970s. He composed the *Songbirdsongs* symphony in the late 1970s, based on his observation of actual bird songs and he scored them for various ensembles of piccolos, ocarinas, flutes and percussion. Each movement features specific birds collected together by their region and shared habitat. He wrote in the notes that the pieces in the album are not meant to be transcriptions, but rather evocations. In order to fully understand the breadth of reception to this musical piece, it seemed appropriate and necessary to look at various types of reviews—by professional music critics, music bloggers, and customer reviews. Here are a few reviews selected, based on the criteria mentioned.

New York Times reviewer Zachary Woolfe comments on the live performance of *Songbirdsong*, at the Galapagos Art Space, in New York City in 2011, performed by Le Train Bleu, by saying “it was a strange, thrilling immersive experience. There isn’t a clear narrative to the piece, but there are scenes that sound familiar: a nocturnal episode in which the sharp, bright birdcalls mellow into owl hoots; a terrifying scherzo that could be a storm or a hunt; a shimmering finale sunrise”.\(^{11}\) Although the movements feature repetitions of certain riffs or cells imitating bird calls, the reviewer goes on to note that “there is never a sense of stasis; the relationship between the different cells is constantly changing.” Music critic, Olivia Giovetti also remarks that it is “a transporting, immersive, encircling experience that requires total sensory surrender”.\(^{12}\)


One blogger remarks “the pieces here form a suite, with relatively little variation between them. Nothing deviates too much from its birdsong origins, with percussion largely consisting of a rhythmic background to the bird-like ocarina and piccolos…With the percussion providing atmospheric background, listening to the LP is like listening to straight field recordings of birdsong, the percussion evoking wind, background forest noise, and rushing water.”

Another music blogger speaks directly to the possible effects of ‘nature’ sounds on ecological conservation: "But the simulation of nature is so particular, so intent on being perceived as faithful, that Songbirdsongs becomes one of those nature pieces that gets me wondering whether the end result is supposed to be the aural equivalent of conservation land, or something more—which, depending on your point of view, might actually mean something less.”

Among the many customer reviews of the album Songbirdsongs found on the internet, they were narrowed down to reviews that included emotional responses to the music, particularly to the mimetic birdcalls because it seemed to constitute a recurring theme. Included here are the ones that were the most detailed comments, insightful and evocative of the reviewers' emotional reactions: “It’s as pleasant as sitting in the woods listening to the birds, and not too different” and “The unexpected, the startling, is always present; the listener can never be too much at ease. It's an alert, ever-changing beauty as unpredictable as the songs and actions of the birds themselves.” and “like the songs of the birds themselves, it's something wordless, something beyond the neat, linear boxes of human reason. It speaks directly to the heart.” 

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Admittedly, instrumental pieces can also be subject to manipulation or interpretation of both musical and nonmusical matters (e.g. the composer’s intentions). However, lyrics make it easier for this potential for manipulation and one does not have to have extensive musical knowledge about the genre, stylistic techniques, or composer, to do so. There is variation in taste and reception from listener to listener and depending on one’s mood and the setting, which all contribute to whether or not he or she will pay attention to the message. The goal here is not to discourage writing lyrics about the environment because as it is, very few artists do so, but rather to point out that instrumental music can be just as representational as words and effective in raising ecological awareness. This next section will look at artists who strive to convey climate change issues through musical works. They all believe that emotional reactions to their works will enhance the impact on pro-environmental behaviors.

**Innovative musical works that convey climate change**

There are many ways to present the many climate change stories. Most scientists turn to charts, graphs and other ways to organize and present data. However, there are also complementary and innovative artistic ways to do so. Here a few climate change artists who stand out and whose work are worth presenting.

Climate scientist Robert Davies was concerned with "the broad gap between what science understands about climate change, and what the public understands" and according to him, part of it is due to the fact that the public does not connect with the scientific facts presented to them in the form of graphs, and other data visualization techniques. He soon began to actively search for methods that could effectively change people's behaviors in relation to climate change. He

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asked himself what could drive them to want to act now and make the change that is needed to prevent further damage to our planet. The answer he found was music. He developed a hybrid event, in which a lecture on climate change was combined with a musical performance by the Fry Street Quartet. This production was to be called the Crossroads Project and premiered in Utah in 2012. The music's purpose is to make people think about water, glaciers, and warming temperatures. But as violinist Rebecca McFaul adds, the music "can take on so different meanings for the listener". The project is an exemplary model of how music can be used to the service of raising awareness about climate change and encouraging pro-environmental behaviors.

University of Minnesota undergraduate student Daniel Crawford uses his cello to communicate climate science through music. His composition, entitled *A Song of Our Warming Planet*, conveys surface temperature data from the NASA Goddard Institute of Space Studies, in which "each note represents a year from 1880 to 2012, with low notes assigned to relatively cool years, and high notes to relatively warm years". The result aurally represents a temperature graph and is a musical representation of the state of our planet. Daniel Crawford's approach is referred to as 'data sonification', which converts global temperature records into a series of musical notes. His performance piece gives people something they can feel, as opposed to thinking on a purely intellectual level. Crawford hopes that other researchers and artists will use his composition to support science outreach. He says "climate scientists have a standard toolbox to communicate their data. We're trying to add another tool to that toolbox". Scientists predict that the planet will warm up by 1.8°C by the end of the century. This could produce a series of notes beyond the range of human hearing.


Chapter 3. Combining Visual Art, Music, and Sciences

As previously demonstrated, there is great potential in environmental visual art, as well as in environmental music, in their ability to capture the complexity of landscape and the growing threat of climate change and economically-driven priorities, which are proving to be more and more destructive to the natural world. There is even greater promise in effectively combining these different artistic mediums with science. Music can enhance visual art and vice versa, especially in the context of presenting the effects of climate change on a particularly vulnerable community in the world. This chapter will focus on a music and art project initiated within the framework of field research in Barbuda, W.I., a small island in the Caribbean that is suffering the effects of the rising of the sea level and an increase in drought periods.

Barbuda ArcGIS Music and Art Project

In June 2014, an interdisciplinary (archaeology, anthropology, sustainability and climate science) fieldtrip at the Barbuda Research Complex, in Codrington, Barbuda, brought together Graduate Center and Brooklyn College (CUNY) students, who were able to conduct fieldwork and complete research projects around themes of their choosing. I worked on a project that allowed me to bridge the gap between the arts and sciences by putting art in Barbuda on an ArcGIS map essentially for people to visualize artistic data on a scientific platform. More specifically, this project centered on how Barbudan youth perceives climate change by having them express themselves artistically—through music and the visual arts. I worked alongside the teaching artist in residence, Noel Hefele, who set out to teach Barbudan children about climate change through collaborative art projects. I participated and documented that journey.
Art Project with local youth

Teaching artist Noel Hefele worked on two murals with local Barbudan children: one at the Holy Trinity Primary School in Codrington, Barbuda and the other one at the Barbuda Research Complex. These art projects are featured on an ArcGIS map, where they are linked to their locations on the map of Barbuda.

Figure 2 Screenshot of the ArcGIS Barbuda Story Map (June 2014)

Figure 3 Screenshot of the ArcGIS Babuda Story Map (June 2014)
Music Project with local youth

Noel Hefele, Bama Russell, and Tiffany Challe collaborated on a song entitled "Without You" and videographer, Oscar Lemus shot the song’s music video, capturing Barbuda’s beautiful scenery. The music video is also linked to the ArcGIS map.¹⁹

Figure 4 Screenshot of the ArcGIS Barbuda Story Map (June 2014)

The power of visualizing data cannot be underestimated in terms of raising awareness about the devastating effects of climate change. Combining art (visual and/or musical) with a scientific platform can potentially present an even more exciting avenue to explore.

¹⁹ To view the Story Map, go to http://bit.ly/1yR2gNi
CONCLUSION

Culture and the environment are inextricably linked in many more ways that we can imagine and it is this realization that will help us make that first step toward sustainable practices on a global scale. These connections will serve to protect the Earth that is suffering in the midst of all the environmental issues it faces. Rather than politicize environmental issues, further dividing people on such topics, the arts can act as a bridge between culture and nature, allowing people to come together for the greater good of the Earth on which humanity depends. The visual arts are an effective way to convey environmental issues in a compelling and thought provoking way because we are conditioned to respond to visual stimuli. Music and more broadly, sound, have been overlooked in the area of ecological awareness. This paper has aimed to show that there are manifold ways that music and sound can engage the listeners and encourage him or her to reconnect with the natural world. In essence, music and sound can effectively help to advocate for greater environmental stewardship.

Ecomusicology presents exciting and previously unexplored avenues for sustainability topics. This emerging discipline can further the environmental agenda. Music that deals with the environment can help shape our perception of the landscape, which will lead to a deeper understanding of it and of how much we stand to lose if we do not take action to protect it from decimation and climate change. There are different musical genres that lend themselves well to conveying environmental messages: folk music has been and still is effective in the environmental movement, even though overly political lyrics can be off-putting for certain listeners. Instrumental music can also be compelling, particularly when it incorporates or imitates archetypal sounds of nature, such as water, birdcalls, storms and so forth. Soundscapes can also contribute to the formation of new cultural identities and encourage a strong human-nature
relationship. Music can draw upon the powers of emotions through nostalgia, for example, as well as upon the powers of community building in the service of environmental stewardship. We have only just started to scratch the surface of what music and sound can achieve in this sense; it can revive a culture that depends on its natural ecosystems and sends a global message about vulnerable communities that people will more likely pay attention to. We must apply the 'think global and act local' model. Change can start with the arts because at this critical juncture, motivation has to emotionally-driven.
APPENDIX A

MUSIC VIDEO

Director:
Oscar Lemus and Noel Hefele

Description:
This music video for the song entitled “Without You”, written and composed by Bamma Russell and Tiffany Challe, and produced by Noel Hefele, Tiffany Challe, and Bamma Russell, is complementary to this paper. It is the culmination of the music project initiated by Tiffany Challe as part of her field work in Barbuda, Antigua and Barbuda.

File name: Barbuda.mp4
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Scores—Portion of a work
