NATURE SOUNDS IN SOUND ART AND ELECTROACOUSTIC MUSIC
THE BODILY RESOUNDING TECHNOSPHERE

by Lena Ortega

In recent years, there has been an exponential rise in the use of nature field recordings in electroacoustic music and sound art. Some composers and artists use non-human animal sound samples (called biophony, e.g. insects and birds) and non-animal sounds (called geophony, e.g. water and thunder[1]) from the perspective of soundscape ecology, ecoacoustics, or bioacoustics to directly address global ecological challenges and issues — the effects of noise pollution or global warming on non-human animals for example. Oftentimes the translation of these environmental concerns into a sound art piece or composition alienates the potential of bodily engagement, as the outcome is either technological, conceptual, intellectual or a visualization with the use of a different medium. The use of nature field recordings in artistic compositions with the intention of communicating these ecological issues to the listeners' bodies, rather than discussing concepts o representing soundscapes, can be a strategy of engagement and dissipation of otherness.[2] Reframing these sound samples and compositions, with an aim to construct an emotionally resonating atmosphere —just as the score of a movie evokes a certain mood in a scene -could bodily communicate environmental issues. This bodily engagement can perhaps propitiate a deeper intellectual reflection on these subjects.[3]

1. *Introduction: the rise of nature field recordings in sound art and electroacoustic music*

The wish to think beyond anthropocentrism and its consideration of the world as an exclusively human space is one of the most current and important lines of thought. This is indeed a characteristic interest of our times, permeating disciplines that are not necessarily branches of biology (like botany or zoology)

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[1] The classification of these different types of nature field recordings is mentioned by authors Pijanowski, Villanueva-Rivera et al. (2011, 203).

[2] Body communication as a strategy to dissipate otherness was mentioned by artist and researcher Anya Yermakova in a WhatsApp message to the author on November 6, 2019.

[3] Hermann Schmitz says that "articulation of significant situations into constellations of separate objects and structures is a later-coming achievement (although it is usually taken as primary by theoretical thinking)" (Schmitz 2011, 244). This idea is understood in a Kantian sense as a pre-conceptual bodily engagement and will be further discussed in this paper by reference to Tonino Griffero.

or branches of Earth science (like meteorology or oceanography) — for example, it also includes areas like architecture, contemporary art, sound art and music. In the field of architecture, there is a growing demand for the design and construction of self-sustainable houses, zero-carbon-footprint buildings that are designed in harmony with the surrounding nature. There is an increasing number of contemporary art practices that define themselves as meteorological or environmental sound art. In music, some artists are now composing pieces that make direct analogies with the sounds of nature. This line of thought resonates with a mindset change related to understanding space as a product of interrelations, a product of reciprocal relationships. This change of thought also echoes with notions such as *atmosphere*, *resonance* and *environment,* which have permeated many contemporary discussions. For contemporary biology, the relationship between organisms and their surroundings is mutually affecting. In other words, there is a notion of causal reciprocity between organisms and environments. We wonder about the way in which living organisms condition the environment, which in turn is conditioned by them. In the context of the contemporary academic discussions on the "evolution of the species", a central role is played e.g. by the importance of organisms as integrated systems that develop ontogenetically — that is, they unfold structural and functional complexity as they grow throughout their lifetime — and that respond plastically to the environment with their own activities.

As opposed to research done in the laboratory,[4] the open space of field work, where nature occurs in its open possibilities, can be a good place to reflect upon life configurations that are not necessarily anthropocentrically tailored, as well as to question anthropocentrism and its consequences. For example, the concepts of sonic context or soundscape, understood as a spatial representation of the interaction of various sources of sounds, have been used to better understand the consequences of the interactions between species and their sonic environments (Farina 2016, 38). The field of ecoacoustics focuses the attention on the ecological role of sound in natural and anthropogenic dynamics. The field of study called soundscape ecology, instead, emphasizes the ecological characteristics of sounds and their spatial-temporal patterns as they emerge from landscapes (Pijanowsky et al. 2011, 203). These concepts will be explained in greater detail later on in this paper. The rise in the use of nature field recordings across different artistic and creative practices follows from this kind of thinking. The rethinking of our

[4] The space of fieldwork, in contrast to the space of the laboratory, involves a different type of dynamics between organisms and their surroundings. The laboratory space can be generally understood as a modulated environment used to provoke certain dispositions or to enhance affordances for specific results. This type of space encloses organisms as something that can be measured, induced or controlled, thus assuming an instrumental comprehension of the world. In field research, instead, the dynamics are not necessarily driven or tailored by a specific purpose.

relationship with nature as a causal reciprocal relationship is one of the most recurrent themes of our times.

In regards to the influence of this spatial, surround, ambient, atmospheric, line of thought, in music and sound art, it is worth mentioning American musician and soundscape ecologist Barry Truax. For him, electroacoustic music has moved toward environmental sound in many ways, not only by incorporating prerecorded environmental sounds as source material, but also by stimulating environmental — or spatial — cues such as reverberation, directionality, spatial movement or Doppler shifts and also through the structural use of such variables as density, texture, foreground and background as well as multichannel speaker performance (Truax 2001, 236). Here we can mention the sound art piece *I am sitting in a room* (1969) by the American composer Alvin Lucier, who recorded the sound of his voice and played it back in a room to record over and over again. He repeated this procedure until the resonant frequencies in the room began to overcome his voice, thus revealing the sonic landscape. This piece was influential because of the use of the spatial qualities of a place as a component in sonic production.[5]

An essential distinction between music compositions that use prerecorded environmental sounds and soundscape compositions, pointed out by Truax, is that music compositions that use concrete sounds largely lose all or most of their environmental context. The sound samples lose not only context but, through manipulation, they also lose their original identity to the point that they are no longer recognizable.

> In the soundscape composition, on the other hand, it is precisely the *environmental context* that it preserved, enhanced and exploited by the composer. The listener's past experience, associations and patterns of soundscape perception are called upon by the composer and thereby integrated within the compositional strategy. Part of the composer's intent may also be to enhance the listener's awareness of environmental sound. Whereas the use of concrete sources leaves the environments the same and merely extracts its elements, the successful soundscape composition has the effect of changing the listener's awareness and attitudes toward the soundscape, and thereby changing the listener's relationship to it. The aim of the composition is therefore social and political, as well as artistic. (Truax 2001, 237)[6]

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[5] Alvien Lucier, *I am sitting in a room* (1969), https://www.youtube.com/watch?v=fAxHlLK3Oyk, last accessed on November 16, 2019.

[6] The term *musique concrète* is generally attributed to Pierre Schaeffer. In the article *Tendances de la musique concrète*, Antoine Golea identifies four tendencies within concrete music, later summarized by Carlos S. Palombini: "(a) primitiveness of material combined with a lack of formal concerns accounted for expressiveness; (b) total serialization of concrete material

In compositions or sound art pieces with an ecological aim, the potential of bodily engagement — by means of constructing an emotionally resonating atmosphere[7] — may significantly add to the success of the sound work as Truax understands it. It is the potential of bodily engagement that could change the listener's awareness and attitudes towards the soundscape — not the literal presence of the environmental context, or the extent of the manipulation and recognition of the original identity of the sound samples. Moreover, even in a traditional soundscape composition where the original sounds are still recognizable, the intercrossing orchestrations, the complexity of the conditionings and meaningful relationships, and the dynamics between organisms and the technosphere that are present in a natural soundscape remain hidden to most. To fully understand and dimension these complex relationships one needs to take some intellectual distance.

The potential of bodily engagement is compromised for this very same reason. This happens even when the soundscape is subjectively rearranged, carefully recorded or even when a visual representation is used to depict some of the complexity — e.g. behind an orchestration of natural sounds like *The Great Animal Orchestra* (2012) by American musician and soundscape ecologist Bernie Krause.[8] Music compositions that use prerecorded environmental sounds, but that also seek to directly address soundscape ecology issues, can be meaningful in changing the listener's relationship to the soundscape if tailored to construct an emotionally resonating atmosphere. This emotional bodily engagement can be achieved by means of the felt-body as understood by German philosopher Hermann Schmitz[9] — this concept will be explained in greater detail later on. Subjective affective entanglement can dissipate otherness and, in this sense, embodied ecological challenges can be significant. Therefore, the bodily approach proposed here in relation to soundscape compositions, electroacoustic music and sound art that use nature sounds with an ecological and environmental aim can be more meaningful for listeners and

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amounted to abstraction; (c) the application of concrete techniques to traditional sources were tantamount to musicality; (d) the mixing of 'expressiveness', 'abstraction' and 'musicality' engendered exemplariness" (Palombini 1993, 544). By material we should understand recorded sounds that have undergone manipulation so that the original source is unrecognizable.

[7] According to Tonino Griffero, "Atmospheres are a great example of extended emotions, that is, of embodied affects exactly generated by one of the many forms of felt-bodily communication" (Griffero 2017, 71).

[8] *The Great Animal Orchestra* (2012) is a soundscape of non-human animal field recordings that have been captured by Krause in their natural habitats around the world. United Visual Artists (UVA) designed accompanying visuals, namely colorful abstract spectrogram landscapes of the environments to visualize the acoustic niches of the organisms (Ribac 2016, 201-204).

[9] According to Schmitz, "sensing by means of the felt body is a holistic exchange of corporeal dynamics, a vibrant attunement to meaningful surroundings. Correspondingly, the world shows up not as a neutral realm of already separate entities but as the atmospheric fields of significant situations, opportunities or quasi-corporeal forces or 'opponents' that in the first instance become manifest to the conscious person in form of the 'internally diffuse meaningfulness' of holistic corporeal impressions" (Schmitz 2011, 244).

therefore create a greater awareness. This way, a fleeting sonic experience effectively lingers in the body and then makes its way to thought.

2. *Bioacoustics, acoustic ecology, ecoacoustics, and soundscape ecology*

To better understand the traditional approach to nature field recordings, it is necessary to briefly review the notions of soundscape and noise, as well as to mention the emerging sciences that have been recently developed to study sonic soundscapes and that are currently inspiring artistic practices. In the late 1960s, Canadian composer and environmentalist R. Murray Schafer suggested the concept of soundscape as a notion from which to approach noise. The introduction of this notion, in the early 1970s, led to the World Soundscape Project (WSP) at the Simon Fraser University, while also paving the way to soundscape ecology. One of the ideas behind the exploration of this concept, and a common thread that Schafer found in the lines of research of many independent areas of sonic studies —acoustics, psychoacoustics, otology, communications and sound recording engineering— was the question of the acoustic relationship between human and non-human animals and their environment.

Schafer's soundscape studies attempted to unify these various researches (Murray Schafer 1994, 3-4). In such studies, he proposed a listener-based approach using techniques of "ear cleaning" and "soundwalks" as a strategy for auditory awareness, so as to counter a habituated non-listening response to the acoustic environment. In this sense, the WSP approach framed soundscape studies within a subjective, listener-centered basis, both theoretically and strategically (Truax, Barrett 2011, 1202). As mentioned before, soundscape composition in this sense occurs within the boundaries of three different possibilities. First, the non-modulated original recorded composition; second, a work constructed with elements such that they appear to have plausibly occurred that way; third, a creation with recordings that have been manipulated for musical or other purposes, but that are still recognizably related to their original environment (Truax 2001, 237). If the soundscape studies proposed by Schafer are listener- and subject- based, much of the bodily processes behind this approach are lost in the construction of a soundscape in a traditional sense.

In fact, acoustic noise is a phenomenon found in nature— the sound of rivers, waterfalls or rain — and although the definition of noise is also subjective (in regards to animal communication what is perceived as communication by one species may be perceived as noise by another) human or animal caused noise is what is commonly referred to as noise pollution, which has intruded and unbalanced

several sonic ecosystems. Italian ecologist Almo Farina defines noise "as sound characterized by poor information (high level of vibrational disorder) that masks other sounds and that affects the active space used by terrestrial and aquatic animals for acoustic communication" (Farina 2016, 37). Noise pollution does not only affect non-human animals that inhabit metropolitan areas: the propagation of underwater noise pollution, for example, is a major environmental threat to marine fauna. According to Farina

> acoustic noise impacts important functions in animals, such as habitat selection, pair formation, resource tracking, and prey-predator mechanisms. Additionally, a differentiated species-specific tolerance results in an important factor responsible for significant changes in community composition. (Farina 2016, 37)

It seems that animal and plant populations worldwide are significantly shifting and changing. In the specific case of the effect of noise pollution on city birds, for example, some species can compensate for the masking effect of noise through shifts in vocal amplitude, song and call frequency, song component redundancies, as well as temporal shifts to avoid the noisy rush-hour traffic (Ortega 2012, 6).

These soundscape studies proposed by Schafer have now been surpassed by the emergence of different areas of research in the line of environmental sound studies, where music and sound art projects now find inspiration. There are currently four overlapping concepts: bioacoustics, acoustic ecology, ecoacoustics, and soundscape ecology. These concepts denote interrelated areas of science. Bioacoustics is the oldest of all these sciences: it studies and systematizes sounds produced by non-human animals. This science is concerned on the one hand with sound production in non-human animals — including sound reception capabilities and the mechanisms of animal hearing — and, on the other hand, with sound propagation in water and air (Ozga 2017, 415-416). The scientists dealing with acoustic ecology, ecoacoustics and soundscape ecology are gathered in two different scientific organizations: The International Society of Ecoacoustics and the World Forum for Acoustic Ecology.

Soundscape ecology, the ecological balance of a soundscape, is directly related to the community composition of an environment. This term is now being proposed as a new synthesis that leverages on two important fields of study: landscape ecology and acoustic ecology (Truax, Barrett 2011, 1201). The intellectual foundations of soundscape ecology are spatial ecology, bioacoustics, urban environmental acoustics and acoustic ecology. It is argued that soundscape ecology differs from the humanities-driven focus of acoustic ecology. The current working definition of a soundscape is "the collection of biological, geophysical and anthropogenic sounds that emanate from a landscape and which vary over space and

time reflecting important ecosystem processes and human activities" (Pijanowsky, Farina et al. 2011, 1213).

Ecoacoustics instead is a discipline that investigates the ecological role of sounds. It is a field of research that relates to long-term monitoring, habitat health, biodiversity assessment, soundscape conservation and ecosystem management. Several life traits of the species, populations, communities, and landscapes/waterscapes of the environment can be described by ecoacoustics. Non-invasive programmable recording devices with on-board ecoacoustic metric calculations are efficient and powerful tools to investigate ecological systems. A set of processes in four domains — adaptive, behavioral, geographical, ecosemiotic — supports and guides the development of ecoacoustics (Farina 2018, 1).

Blurring the boundaries between bioacoustics, acoustic ecology, electroacoustic technology, music composition and installation art, the long-term project *Fragments of Extinction* was created by ecoacoustic composer, sound artist and researcher David Monacchi, who aims to portray and reveal the ordered structures of primary ecosystems. The composer has traveled the world capturing the sounds of endangered ecosystems and, in his artistic compositions, proposes a possible model to integrate these sounds to make the outcome accessible to the audience, so as to foster awareness of what he refers to as the "sixth mass extinction" (Monacchi 2014, 1). This project is the product of a major research project that has been ongoing for over fifteen years. It involves a complex and extensive amount of field recordings done by Monacchi in the Earth's three remaining areas of primary equatorial rainforest. These field recordings have been used for presentations, sound art installations and ecoacoustic compositions. The main objective of this project — as it reads in Monacchi CD liner notes (2007) — lies in "raising public awareness of the bioacoustic aspect of our environmental heritage and of the serious environmental issues pertaining to the loss of tropical forests and the related extinction of species". The project description is as follows

> Following the extensive data collection carried out with space preservative recording methodologies during the last field recording trips to the remote equatorial primary rainforests of Brunei and Sarawak (Borneo), and Dzanga-Sangha, Ndoki (CentralAfrica), the audio-video concert proposed a sequence of sonic experiences where pure unaltered recordings were explored and then complemented with subtle digital sound synthesis. The spatial complexity and inter-species ecoacoustic order within the different sonic habitats (primary lowland dipterocarp forest, alluvial forest, pond and riverbank forest in Borneo, and dense forest and saline habitats in Africa), manifesting the balanced interplay among hundreds of biophonies, have been recorded with the highest 3D-Ambisonics definition possible in

> those remote environments, and presented with periphonic playback systems. Compositionally, different levels of time-lapse, explorations of audible and inaudible sonic languages, and a real-time spectrogram video projection, allowed the audience to understand the ecosystems internal configurations. Subtle sensor-driven live musical integrations ideally build then a powerful metaphor of our species collaborating with these extraordinary composite ecosystems. (Monacchi 2014, 1)

Designing the listener's acoustic aesthetic experience has been a concern for Monacchi as well. The aim of his work is to transport the audience to remote and extremely inaccessible ecosystems. In order to do so, the composer has designed an isolated and neutral space with characteristics such as darkness, acoustic insulation/damping, symmetrical multispeakers and video setup. The Ecoacoustic Theatre, in Monacchi's view, is the ideal device for the immersive listening of ecosystems (Monacchi 2016, 166-167). Like other pieces that are environmentally concerned, *Fragments* is a work aimed at offering an experience of nature, with the aim of eventually changing our current utilitarian relationship with it. Although Monacchi's approach has drawn from Schafer's soundscape studies, not even a place like the Ecoacoustic Theatre can offer the complex, multilayered, bodily experience that Monacchi has lived through his travels and field research. Perhaps acoustic technology and the visualization of spectrograms offer a more intense sensorial experience but, like a traditional soundscape composition where the original sounds are still recognizable, the full range of dynamics between organisms and their environments remain hidden for everyone except the composer and other specialists. I can only imagine the experience that one may have in the middle of an equatorial rainforest: the smells, dampness, dirt and dust in the air, the uneasiness of the walk, the shapes and shades of green, the sweat and itchiness on the skin, the heightened awareness and uneasy feeling of tuning oneself with a surrounding area and being aware of even the slightest changes of sound, temperature, etc... I can also only imagine the feeling of understanding some of the complexity behind the orchestration of sounds among different organisms and the experience of a soundscape changing directions and intensities as the day goes by. The use of spectrograms to portray a soundscape of nature reduces to numbers and graphics its relationships and ecological importance, thus producing a measurable understanding of the world. Nothing is more distant and less involving than a quantification of what there is.

3. *Bodily resonating environmental challenges. Related artistic practices*

In this paper, I have proposed bodily resonating environmental challenges, taking as an example the case of nature soundscapes as a strategy to dissipate alienation or otherness. Now I will not try to describe the particularities of such an approach, but at least I will attempt to point at the need to reframe the way in which we portray, compose and perform compositions that use sounds of nature with an ecological agenda. Nevertheless, the most important concepts of such an approach will be outlined hereafter and articulated in an interdisciplinary artwork.

According to Italian philosopher Tonino Griffero, atmospheres are emotionally charged spaces. A first, approximate, definition of an atmosphere is, for him, "a qualitative-sentimental prius, spatially poured out, of our sensible encounter with the world" (Griffero 2014a, 5). Objects and spaces are not merely functional, but emotionally affect those who participate in them, making them more likely to behave in a certain way (Griffero 2014b, 16-17). We feel directions and tensions in the shapes and lines as well as in the quality of the textures of materials. This is due to a reproduction of the motor suggestions that come from the forms and that are immanent to them (Griffero 2014b, 16-17). In this sense, we could imagine for instance the overall feeling of uneasy awareness that one may feel in a tropical jungle while doing field work. Following Griffero, we could say that by atmospheres we mean those quasi-things that are generated in our sensible encounter with the world and that are emotionally perceived before passing through the intellect, in a pre-conceptual encounter so to speak. Atmospheres are a resonance of the space we feel in the body, the "in between" that arises between the experience and the environment (Griffero 2014a). In relation to atmospheric perception, Griffero states

> According to the pathic aesthetics the atmospheric perception should be understood as the first affective-synaestehtic impression of the expressive qualities (or affordances) ontologically rooted in things and quasi-things of the surrounding space. Through its specific dynamics, whose poles are narrowness and vastness, the felt (and not physical) body appears as the precise sounding board (also) of these atmospheric feelings widespread in the (lived) space. (Griffero 2017, 71)

The felt-body is understood by Schmitz as the body that perceives peripherally, beyond what is witnessed by the five senses and beyond the physical construct of the body derived from visual and tactile experiences. It perceives a type of sensation that is more diffused than sensorially located, an impression given on the islands of the felt-body.[10] Atmospheric perception could then be understood as a

[10] According to Griffero, "the main theme of the New Phenomenology is the archaic dimension of the body sense (see Schmitz 1965; Rappe, 1995): that is, an affective state perceived pathologically in the islands of the felt body which is difficult to define anatomically (chest, stomach, arch of the foot, oral cavity, anal area, etc.) without the mediation of sensory organs and

synaesthetic and sensory motor unit of experience that allows complex situations to be holistically united and be made sense of. In order to make sense of these situations one develops a sensibility, presentiment or intuitive perception (Griffero 2014a, 17). We can take as an example the perception of the nuance and humor of a given specific situation: the tension and dissatisfaction that "is in the air" at a work meeting in which colleagues do not agree with a decision taken but are not able to express their opinions, or a dinner with friends in which some of the participants keep a secret and the "alliance" and reserve between those who share it is perceived.

We could say that the notion of causal reciprocity between organisms and environments, mentioned in the introduction, speaks of resonant relationships, a phenomenon that consists in affecting and being affected mutually. This type of relationship is at the basis of any soundscape of nature. Although resonance echoes with the contemporary mindset of viewing the world based on the notion of causal reciprocity, it has not yet permeated the way in which we translate this type of resounding relationships into the composition of a soundscape or a sound art piece, as well as into the choices made for art performances. In this sense, it would be more accurate to say that the type of bodily response that could account for a more meaningful experience of environmentally concerned music is more resonant than engaging. According to German sociologist Hartmut Rosa, a resonant relationship is one were "the two entities in relation, in a vibratory medium (or resonant space), mutually affect each other in such a way that they can be understood as responding to each other, at the same time each speaking with its own voice" (Rosa 2019, 167). More than merging, so to speak, in the aesthetic experience, each would answer with their own voice in a resounding aesthetic experience. This way of relating could develop into environmental awareness.

For this same reason, working with the notion of atmosphere as a toolbox[11] may be a successful strategy to bodily and affectively involve listeners in environmental challenges. The construction of atmospheres can be significant in intensifying the listeners' sensitivity to communicate with their felt-bodies: this way, art could be experienced bodily. And this bodily experience of art may be more significant than the kind of art that suggests taking distance through intellectual means. By making nature

'perceptual body schemes' (too linked to experience and associative explanations). Since the 5th century BC, the body sense has been circumscribed to the physical and material body, with spatial and physiological boundaries, which can be perceived from the outside, arbitrarily manipulated and described in the third person (*Körper*). This non-anatomical corporeality, which can only be duly witnessed by the person who 'inhabits' it, constantly generates higher inter-body units in the pericorporeal space. Such units vary according to the form of the intertwining between the two extreme poles of all vital dynamics, namely 'narrowness' and 'vastness' (*Enge/Weite*)" (Griffero 2017, 72).

[11] The possibility of working with the notion of atmosphere as a toolbox was mentioned in a conversation I had with ethnomusicologist and researcher Friedlind Riedel in Rome on August 14, 2019.

an experience in which one can delay, transit and perceive oneself delaying and transiting, one questions one's relationship with nature from the point of view of representation or instrumentation.

I will now briefly bring up a specific work by Danish-Icelandic artist Olafur Eliasson and mention that this bodily resonating approach in music and sound art production is an interdisciplinary one. This is the reason why I will refer to this artistic piece, which constructs a very particular soundscape of nature. Environmentally concerned artist Eliasson has been able to bodily frame in atmospheric constructions some very concrete emotional experiences of nature. I refer mainly to his works with natural elements such as water, wind, rivers, rainbows, etc., like *Beauty* (1993), *Ice Watch* (2014), or *Der reflektierende Korridor, Entwurf zum Stoppen des freien Falls* (2002). These works make their way through the felt-body to exceed the representation of nature. It is in this sense that Eliasson incorporates into his work the mindset of a reciprocal relationship with the environment. In regards to this line of thought, the artist stated:

> Today, ecological systems are looked upon almost as models for society. I think we are beginning to work with a more porous notion of self, where the porousness lies in our ability to identify not just with other people, but also with the planet, with animals, objects, and structures that we don't normally identify with, and to find a reflection of our emotional needs in the other, understood in a very broad sense. […] I've been inspired by Bruno Latour, a very good friend, and his thoughts on James Lovelock and Gaia and the need to see everything, including animals and inanimate objects — not just human beings — as agents in the intricate networks that make up our world, biological and lived. I think it's very healthy to take this perspective. It sharpens the question of what it means to take responsibility, both locally and globally. Ecology, as well as what has recently come to be known as object-oriented ontology in philosophy, is about seeing yourself as part of a complicated ecosystem, made up of a network of agents that are not only, simply, human beings, and acknowledging that you are inseparable from it, even though you might feel alienated at times. […] The ecological perspective, which has always interested me, has become more mainstream in the last five to ten years, especially because of climate change. Thinking not just about human beings, but about human beings in the environment, acknowledging our impact on ecosystems that go far beyond our individual lives, has become an activity for everyone. The question for me is really about how we can turn our thinking on this topic into doing, our knowledge into action. (Eliasson et al. 2016)

In reference to the concept of atmosphere, Eliasson comments that we are often insensitive to the atmospheres around us. He believes that detail in architecture and artistic intervention can help make

people more aware of an existing atmosphere by directing their attention and amplifying their sensitivity. Materials have a psychosocial content, and the right material can make an atmosphere explicit by giving it a trajectory and making it almost tangible. At the same time, such materiality can act in a liberating way, so to speak, by fostering or opening up new ways of interacting with the atmosphere. In other words, making visible what escapes our measurable gaze of the familiar opens the possibility of new ways to reflect and interact with what we know (Eliasson 2014, 95). These concerns are present in the work *A Riverbed Inside the Museum* (2014), a piece that Eliasson presented at the Louisiana Museum of Modern Art in Denmark. I chose this work in particular because the soundscape inherent to it is the main actor in producing a very particular atmosphere, which in turn is responsible for somehow proposing possible behaviors for the visitors. The interior of the museum was transformed into a riverbed. A landscape of monochromatic grey river rocks of somewhat homogeneous size and shape filled the place. Between them, a stream ran as a source of movement across the rooms. The trickling water could be heard in every space. The windows to the gardens outside the museum were blocked by raw wood planks and the museum floor tiles were also covered so as not to distract the participants from the stage that was being built.

The participants of the work entered through the end of the creek. The gesture of entering from the end invited the public to advance through the rooms with the intuition that they would find the "beginning" of the river and that, in doing so, they would walk against the current. The river stones made walking difficult and the participants needed to go through a short learning curve in order to be able to walk around the rooms - with the exception, perhaps, of those who had previous experience in walking on similar terrains. This discomfort put people in contact with their bodies and made them notice their relationship with the environment. At the same time, the rocks registered the choices of travel that people made inside the artwork, creating the footprints of intervention which in turn modified the landscape every time.

A white, diffuse, and evenly distributed light illuminated the rooms which —together with the fresh and humid air, the constant sound of the water moving and the stillness of the landscape— invited people to sit down and perhaps take off their shoes and wet their feet in a state of relaxed bodily expansion. There was an ambiguity as to whether the river was coming or going, whether it was about to dry up or to overflow, and that imprecision might have generated restlessness and curiosity. In this sensorial and gestural architectural setting that I have briefly described, many of the possible interactions, emotions and sensations are suggested by the materials, directions, colors, humidity and light; at the same time,

the multiplicity of individuals participating in the piece and the circumstances that occurred on the stage opened up a range of possible interactions between the environment and the participants.

4. *Final Considerations*

Eliasson's *A Riverbed Inside the Museum* is a very simple soundscape. Few components highlight the perception of interactions and intertwines. The sounds that compose it are mainly the trickling water running through the stones (geophony) and the human animal voices and sounds (anthrophony). In this case, fewer human sounds leave more acoustic space for flowing water sounds. Also, in places like museums, people are more aware of the sounds they produce and how they affect the acoustic space of others. There may be no other biological organisms present in this piece, yet people need to somehow find their acoustic niche, so to speak, so as not to disturb others or the flowing sound of the water. Visitors minimized their conversation or spoke at a lower volume. One could say that this behavior implies a simple understanding of ecoacoustics, soundscape ecology and noise.

Eliasson uses strategies, in this particular work and others, to direct the participants' atmospheric perception and awareness. These strategies may also be useful for composing and performing artistic sound practices that resonate bodily. I can mention, for instance:

1) An interdisciplinary approach; architectural and design components that build up a specific mood; the sound and smell of the running water through the river stones, the diffuse light, the freshness of the air, the monochromatic color of the stones and the rhythm that all this produces. Also, the disposition of elements interacts with the visitors and allows for different narratives. Both individual and collective participation are possible, depending on the amount and type of people visiting at a certain time.

2) Reframing the familiar to make what escapes our measurable gaze visible, for us to see something anew. This riverbed landscape is completely striped off, with the exception of river stones and water. This simplification allows for certain elements to stand out based on the artist's decisions. At the same time, the landscape is a bit unsettling since one does not know if the river has dried up or if it will form again. This could also be the landscape of an ecological disaster, and that possibility is uncomfortable.

3) A slight bodily discomfort, achieved by changing the way we commonly approach certain experiences. Bodily discomfort allows a person to become aware of their body and how it interacts with the environment. It also allows us to change the way we ordinarily go about our daily lives; at the same time,

it makes us gain something new. In this case, visitors learn how to walk and balance on stones. The unsettling dried up river also adds to this bodily disconformity in the felt-body.

4) Techniques of sonic-bodily participation. The running water produces a resonating uneven pulse. One needs to find a bodily rhythm in its uneven looping. This type of pulse is more involving than a constant, predictive beat with which one can engage mechanically.

5) Resonant relationships. The landscape of rocks and running water and the visitors mutually affect each other. In the case of music and sound art, a live performance elicits this type of relationship between performer and audience. This does not happen in an acousmatic presentation.

We are often insensitive to the soundscapes of nature. More so, we are unaware of what lies behind their complexity. Even though we now think that the environment and the organisms mutually affect each other, this frame of mind does not translate into how we compose and perform artistic sound practices. We often portray these complex relationships in instrumental, unilateral representations of what there is. In order to convey and put forward the reciprocal relationships behind these soundscapes in environmentally concerned music and sound art, it would make sense to tailor works that would resonate with the participants in a mutually affecting way. We need works that demand the participation of the visitors rather than their mere contemplation or engagement. This mindset is certainly present in the experience of a *Riverbed Inside the Museum*. What could a bodily resonating sound art performance/installation be like?

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