SONIC ENVIRONMENTS - ACMC2016

ABSTRACTS AND POSTERS
**Of Earth and Sun: Generative Soundscape Composition and Biophilic Design**

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**ABSTRACT**

Despite well-documented benefits experienced by communities and individuals with easy access and direct exposure to nature, many individuals spend a majority of their working hours indoors. The field of sustainable design has tackled this issue through biophilic design, which strives to elicit a positive, valued experience of nature in the human built environment. But while biophilic design principles are increasingly employed within the visual domain, auditory applications of these principles are underutilized and underexplored. I examine sonic approaches to biophilic design in my generative soundscape installation, *Of Earth and Sun*. In 2013, the Phipps Conservatory and Botanical Gardens in Pittsburgh, PA, commissioned *Of Earth and Sun*, a permanent sound installation for the public atrium of the Center for Sustainable Landscapes (CSL). The project is part of its Biophilia Enhanced Through Art (BETA) initiative, which uses art to remind people about nature’s beauty and the connections between humans and the natural world. *Of Earth and Sun* is a dynamic sound installation that evolves throughout the day and with the seasons. The systems at the CSL respond to environmental input in order to reduce its ecological footprint. Similarly, *Of Earth and Sun* uses data from the CSL’s on-site weather station to dynamically control the sounds and processes that will create the installation. Sounds and soundscapes gathered from throughout the Pittsburgh region are stored in a local database, processed, and played back through transducers placed on windows throughout the CSL’s atrium. I am installing the fourth and final iteration of this project in the late summer and early fall of 2016. In this paper, I describe the project goals, processes, and outcomes of the various project iterations. I also examine listener experience and propose models for enhancing listener engagement in soundscape composition using diverse models of community engagement and user interface design.

**Biosphere Soundscapes: Exploring the art and science of listening to UNESCO Biosphere Reserves**

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**ABSTRACT**

Biosphere Soundscapes is a large-scale interdisciplinary research project underpinned by the creative possibilities of acoustic ecology, ecoacoustics and rapidly emerging fields of biology concerned with the study of environmental patterns and changes through sound. This project is designed to inspire communities across the world to listen to the environment and explore the value of sound as a measure for environmental health in UNESCO biosphere reserves. This project is delivered through immersive residencies with artists and scientists, research laboratories, intensive masterclasses and a diversity of creative projects spanning four continents. Biosphere reserves are sites recognised under UNESCO’s Man and the Biosphere Program (MAB) to promote innovative approaches to sustainable development. There are currently 669 biosphere reserves in 120 countries comprising terrestrial, marine and coastal ecosystems. Each biosphere reserve is designed and managed in a different way, but all seek to reconcile the conservation of biological and cultural diversity. They differ from world heritage sites in that they encourage active community participation and are ideal locations to test and demonstrate innovative approaches to ecosystem monitoring and sustainable development.

Biosphere Soundscapes draws on the inherently interdisciplinary nature of sound to explore cultural and biological diversity through accessible audio recording technologies, interdisciplinary creativity and environmental engagement with local and global communities. This paper introduces the framework and methodology for Biosphere Soundscapes and explore the ecological, social and cultural contexts of UNESCO Biosphere Reserves through sound. This presentation will also introduce the potential role of acoustic ecology in the Lima Action Plan (2016-2025) adopted by UNESCO at the 4th World Congress of Biosphere Reserves in Lima, Peru in March 2016. Biosphere Soundscapes sits at the intersection of art and science, with the recordings providing valuable scientific data for biodiversity analysis and incredible source material for creative works that can bring awareness to these environments through new technologies. This project is designed as a platform for artists, scientists and global communities to collaborate and expose the creative and scientific possibilities of environmental sound to a global audience.
TAMBOURINE BAY

Damian Castaldi

http://damiancastaldi.net/

ABSTRACT

Tambourine Bay is a multimodal work for large scale, interactive video projection and live electroacoustic performance. It can be seen and heard as a window into the local weather patterns experienced in the Tambourine Bay Reserve, situated on the Lane Cove river, Sydney and represents a transition or dramatic shift in the climate over a 16 day period. Additional audio and text combine with this to reflect on more severe weather patterns across the east and west coast of Australia leading up to the Australia day long weekend.

The work is scored for 51 percussionists and 100 tambourines. Additional instrumentation includes a percussive/string instrument with audio sensor interface using a Raspberry Pi Model B+, six fast vibration sensor switches, wire / aluminium frame, clear acrylic housing & miscellaneous electronic components; electronic & acoustic drums; cymbals & tambourines (see Figures 1 & 2).

1. INTRODUCTION

The video component of Tambourine Bay was first programmed for installation at the Balance-Unbalance International Conference 2013 in Noosa, Queensland, Australia from the 31st of March to the 2nd of June 2013. The single channel video work was presented in the ‘Earth to Earth’ sound venue throughout the conference proceedings. After participating in this event I started working on a larger scale version of Tambourine Bay for performance and it is the development of this work that I will discuss in this paper.
2. CONCEPT
The performance is in three parts and is visually represented through processed urban video footage, altered in its duration, hue and perspective and situating the viewer inside an apartment room looking out over Tambourine Bay. Parts 1 & 2 of the video/performance are visually saturated in a red and orange hue intended to illustrate and highlight the unusual weather patterns experienced in this inner city suburb, the ongoing shifts in local weather patterns and what this might indicate in terms of broader climate change (see Figures 3, 4 & 5).

Throughout the performance the audience witnesses the systematic pounding of the Tambourine Bay Reserve as it is severely struck by thunder and lightning. It then transitions from late evening into an overcast midday with a forecast of further showers, storms and bush fires. The final scene is late afternoon interspersed with sunshine and heavy cloud cover and again with further predictions of wild weather.

Spiralling text created in the application Processing and adapted from the typography sketch “kinetic_type” by Zach Lieberman (Lieberman 2014) fuels the narrative of the video and performance. Using the daily weather broadcasts transcribed from ABC news radio throughout January 2012 the narrative builds and repeats itself in an upward movement passing in front of the window frames from which the video was shot. The constantly moving cyclone of text is both readable and sometimes not, providing snippets of news, which can be distinguished at random throughout.

A second layer of text also created in Processing is projected onto a screen placed within the audience. This secondary text is manipulated by the musicians on stage in real time using long range, infrared sensors to alter the speed and direction of the spiralling text. The secondary text is constantly changing and is sourced from real time news feeds broadcast online as weather news in the vicinity and at the time of the performance.

The two layers of text provide contrasting data between the shifting weather patterns over a period of time ranging anywhere from the 10th of January 2012 to the current day’s performance date and data.

The second layer of text’s Processing sketch is still in development. A prototype sketch using a simple turn switch with an Arduino Uno R3 to manipulate the speed and direction of the spiralling text is shown below.

2.1. Score Soundtrack timeline (@ 30 fps):
00:00:00 to 06:23:00 - scene 1 RED
06:23:00 to 09:48:00 - scene 2 ORANGE
09:48:00 to 14:50:00 - scene 3 BLUE

2.2. Prototype Processing Sketch

```java
import processing.serial.*;
import cc.arduino.*;

int fps = 30;
Arduino arduino;
short portIndex = 1;
String[] theText;
int index;
int lineLength;
PFont font;
Line ln;
Line lns[];
PImage bg;
int potPin = 0;
int potValue = 0;
int potnumber = 0;
```
int startTime;
int sketchDurationInMilliseconds = 1380 * 1000;
int i = 0;
int loopFlag = 0;
float yPrint = 0.0;
float xPrint = 0.0;

void restart()
{
    //println("started up");
yPrint = 0.0;
xPrint = 0.0;
i = 0;
index = 0;
startTime = millis();
}

void setup()
{
    // screen size below
    size(1280, 720, P3D);
    arduino = new Arduino(this, Arduino.list()[portIndex], 57600);
    arduino.pinMode(potPin, Arduino.INPUT);
    frameRate(fps);
    //restart();
    theText = loadStrings("testing2b.txt");
    font = loadFont("Georgia-Italic-48.vlw");
    textFont(font, 0.70);
    lns = new Line[theText.length];
    fill(255, 255, 255, 255);
    for (index = 0; index < theText.length; index++)
    {
        ln = new Line(theText[index], 0, index * 70);
        lns[index] = ln;
    }
}

void draw()
{
    background(00);
pushMatrix();
    translate(0, 0, -550);
    popMatrix();
    translate(100, -50, -550);
    rotateY(0.3);
    potValue = arduino.analogRead(potPin);
    println(potValue);
    // Now animate every line object & draw it...
    for (int i = 0; i < theText.length; i++)
    {
        float f1 = sin((i + 1.0) * ((millis() - startTime) / 1000000.0) * TWO_PI);
        float f2 = sin((theText.length - i) * ((millis() - startTime) / 1000000.0) * TWO_PI);
        Line line = lns[i];
        translate(0, line.yPosition, 0.0);
        for (int j = 0; j < line.myLetters.length; j++)
        {
            if (j != 0)
            {
                translate(textWidth(line.myLetters[j - 1].myChar) * 75, 0.0, 0.0);
                rotateY(f1 * 0.007 * f2 * 30);
                pushMatrix();
                scale(75.0);
                text(line.myLetters[j].myChar, xPrint, yPrint);
                popMatrix();
            }
            int potNumber = potValue;
            if (potNumber < 240) { yPrint += float(potValue) / 1000000; }
            if (potNumber > 250) { yPrint -= float(potValue) / 1000000; }
            if ((potNumber > 241) && (potNumber < 249)) { yPrint = yPrint; }
            popMatrix();
        }
    }
}(Reas and Fry 2014)

3. SOUND DESIGN

3.1. Design
The sound design is layered and includes multi tracked, processed location sound recordings, recorded oral snapshots, live percussion and electroacoustic performance. The location recording (thunder, lightning and birds) / intense bursts of synth pipes / manipulation of frequencies using EQ and sound relationships created by dynamic mixing are the main production components.

The performance soundtrack will include oral snapshots yet to be recorded by aboriginal clan elders, some of the oldest inhabitants of this Sydney region, from the ‘Guringai’ Aboriginal language/tribe. As discussed in the Aboriginal Language Group and Clan Names - Aboriginal Heritage Office in their publication, Filling a Void: A Review of the Historical Context for the use of the Word ‘Guringai’, they are from the ‘Guringai’ and not ‘Kuringgai’ Aboriginal connection or identity (Aboriginal Heritage Office 2015). The aboriginal elders will speak of their environment and reflect on this in the historical context of their clan.

The work is scored for 51 percussionists and 100 tambourines. Fifty percussionists (two tambourines per percussionist) play in unison throughout the performance accompanied by one multi instrumental percussionist.

3.2. Instrumentation
• String instrument with audio sensor interface - Raspberry Pi Model B+, six fast vibration sensor switches, wire / aluminium frame, clear acrylic housing & miscellaneous electronic components (See Figure 6);
• Macbook Pro w/Logic Pro & ProTools;

(Reas and Fry 2014)
4. ACKNOWLEDGEMENT

The original video component and soundtrack of Tambourine Bay was first programmed for exhibition at the Balance-Unbalance International Conference 2013 in Noosa, Queensland, Australia from the 31st of March to the 2nd of June 2013. The single channel video work was presented in the ‘Earth to Earth’ sound venue throughout the Conference proceedings. The artist would like to thank Dr Ricardo Dal Farra (Chair & Conference Convenor) and Dr Leah Barclay (Conference Co-Convenor).

5. CREDITS

Original concept, video production, score & soundtrack by Damian Castaldi.

Acknowledgement for the sketch “kinetic_type” by Zach Lieberman and code adaptation by Solange Kershaw.

Drum & cymbal recording engineered by Ganesh Singaram.

6. REFERENCES


LISTENING TO DESERTS IN THE AMERICAN SOUTHWEST:
GARTH PAINE’S EXPLORATIONS OF SONIC PLACEMAKING

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ABSTRACT
Thanks to their fierce nature and potential for metaphor, deserts have long fascinated musicians. Edgard Varèse, Olivier Messiaen, Luc Ferrari and Peter Sculthorpe created works inspired by deserts around the world, but they had only a tenuous connection with these places. In contrast, David Dunn, Richard Lerman, Maggi Payne and Garth Paine have strongly identified with deserts and paid tribute to them in numerous works, compelling examples of sensitive engagement with these places. This paper centers on Australian-born composer and sound artist Paine. I will analyze and contextualize his large-scale interdisciplinary and collaborative Listen(n) Project, his acousmatic work Becoming Desert (2014) and live-electronic flute piece Forest (2015) which have been inspired by deserts in the American Southwest and draw on field recordings made with ambisonic recording technology. I will explain how they reflect Paine’s environmental philosophies and concepts of sonic placemaking in the context of composition, virtual reality experiences, community art and citizen science projects.

1. REFERENCES
RE-IMAGINING A SITE SPECIFIC SOUNDSCAPE DESIGN PROJECT INTO A SONIC ART PERFORMANCE SPACE

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ABSTRACT
Over the past 20 years or more I have been mostly involved in the world of design, creating functional soundscapes in public spaces; zoos, memorials, architectural precincts and more. To assist my own comprehension of my activities I contend that design is about working with materials and art is about working with ideas. This distinction, while artificial and notional, recognises the very different qualities and performance parameters pertaining to each domain. This presentation intends to exemplify these differences in a discussion about the creation of the sound work, ‘What U might have heard..’

1. INTRODUCTION
‘What U might have heard..’, the Sound Work, is a re-envisioned version of an ambient electroacoustic soundscape installation for the public areas of the Australian Centre for the Moving Image (ACMI Soundscape), Melbourne, in 2000. While not what I would consider a pure work of art the piece does go some way in that direction once emancipated from its functional role at ACMI.

The original project was a site specific work carefully designed into this unique precinct and public space. It functions in a number of ways; to help orientate visitors within a highly dynamic architectural space, as an aesthetic overlay and to extend the presence or image of ACMI the institution into the acoustic domain. The Sound Work intends to relive the experience of visiting that space through creative composition rather than simply as documentation.

2. CONTENT AND LICENCE TO PERFORM
Any sound heard is a function of time; the fusion of content and performance. Content can be developed independently and silently however when it is performed in public, in order to be environmentally responsible, all sounds must conform to what might be considered a licence to perform.

While the ACMI soundscape may be ever present and able to be heard within the precinct it, by necessity, is not designed to be listened to. Its inherent texture of background and midground layers can be punctuated occasionally with dynamic foreground sounds. Cogniscent of how people are inhabiting the building the interonset times of such ‘alerting’ events must be programmed carefully. Foreground sounds can be created either as loud(er) sounds or of a character which jumps out of the environment and causes attention. This introduces a somewhat playful mode or interplay between what is real and what is not real. A kind of augmented aural reality.

The same texture is present in ‘What U might have heard..’ however the licence to perform is completely emancipated from any functional role and responsibilities. The sound materials are free to be heard in much greater detail and across a much wider dynamic range. Without the physical presence of the building the playful sense of what might or might not be real is lost. As will be described later, there is another similar kind of interplay within the sound materials that can be playfully explored.

3. DIFFERENTIATING
In the two versions of the soundscape, let’s call them the design (ACMI soundscape) and art versions (Sound Work), the content remains fairly consistent. It is in the performance where the two versions are completely differentiated. In the design version people are free to move about from place to place thereby creating their own ‘performance’. The temporal structure is therefore free and arbitrary. The art version would have the audience remaining in one position, perhaps seated in a concert situation, with the piece ‘spatialised’ around them. In a sense the physical building itself becomes a virtual artefact - or ghost. The temporal structure in this case is predetermined or composed. The composer is required to make critical decisions about how time passes. For a sound designer, unused to dictating terms on how a soundscape will be heard, this poses the first of a number of challenges.

4. UNDERLYING SONIC STRUCTURE
The sonic layout plan for ACMI was derived from the orientation of the building on Melbourne’s CBD grid, or more generally, on the cardinal directions NESW. Each
The sound of footfall or footsteps representing the habitation of an urban space were delivered into stairwells. And, in recognition of the cultural institution housed within the building, the sound of a hand clap, was the basis for sounds generated for the central atrium - for it has been said that in 1932 an audience erupted into spontaneous applause when they heard the well-known sounds of Australian birds in the soundtrack of one of the first ‘talkies’ to be shown in Australia, Cinesound’s ‘On Our Selection’.

This schematic is maintained as a structural element in the Sound Work. Unlike the visitor wandering freely around the building, for the Sound Work the composer must decide and commit to a specific path through this structure. The chosen trajectory begins in the central atrium and stairwell, moves through a transition air lock and out onto the street to the North. The listener is then taken back into the building and down a corridor to the toilets on the ground floor. The trajectory passes back through the atrium and to the three levels of the eastern stairwell and ultimately out to the southern plaza. These decisions are guided by the need to create an overarching narrative which includes periods of contemplation, transitions, forward impetus and a sense of recapitulation and departure.

5. GENERATING AND PERFORMING THE CONTENT

An image of an acoustic space can be created using the scientific technique of the impulse response. A short impulse is sounded in the space and the response is recorded as the sound reflects off the structure and decays over time. For the project 'iconic' sounds of Melbourne, rarely heard in their prime form within ACMI, are departure points (impulses) for the creation of the content both in terms of inspiration as well as the actual production of a large library of sound materials. The impulses themselves are very short sounds, a hand clap, a train horn, a tram bell, a bird call or a drip of water each lasting for only a few seconds. An ambient soundscape running for 12 hours a day or more will demand great variety and a non-repetitive duty cycle. The 'response' sounds are the product of extensive DSP manipulation of the impulses using granular synthesis, time stretching, multiple echo and convolution reverb effects.

In the ACMI soundscape a computer programme randomly selects sound files from the library and streams them into the various areas of the precinct. It is highly unlikely that a visitor will hear any sound repeated in the time they will be in the building. It is even less likely that they will hear one of the prime sounds. This unpredictability is essential for maintaining a sense of freshness over months and years of operation. In a 25 minute sound composition such randomness may be desirable for compositional reasons however it is not a requirement.

Within ‘What U might have heard..’ all of the prime sounds are performed unaltered at some point in the composition. They are embedded into the layers of related processed sounds so that the relationship between the real and unreal can be explored by the listener. In the same way that one may wonder if that tram bell heard out on the street is from an actual tram, one may also question whether those bird like sounds are actually a bird or some other unknown source. The use of granular synthesis is particularly useful for generating a vast array of sounds from a small fragment or prime sound. A single short magpie call can generate sounds across a wide range that are either clearly derivative or almost unrecognisable from the original. This interplay is exploited much more overtly within the ‘contemplative’ sections of the piece than would ever have been possible in the original soundscape.

In order to create a balanced and well structured composition a number of other devices were adopted. The piece is punctuated with dynamic surprise sounds such as a loud bell, wild applause or sounds with a very wide frequency range. These sounds could never be performed so overtly in a public space such as ACMI. They are, however, perfectly acceptable with the bounds of the concert hall.

The selection and layup of sound files within the digital studio (Digital Performer) was often informed by the rhythmic elements within the sound files. Such control over rhythm would not be possible in the random file selection process in the ACMI soundscape. Any resulting rhythmic structure would be the result of pure coincidence.

Finally, in order to master the piece into an 8 channel format for a concert diffusion system, the output was spatialised using convolution reverb processing. The desire was to attempt to replicate or create a sense of the precinct of ACMI and its soundscape delivered from 48 channels and 120 hidden loudspeakers.
6. CONCLUSION

This paper concentrates on the challenges of moving from the modality of design to that of art. It has been proposed that many elements such as content may remain essentially unchanged. However the performance of that content will require a whole new set of considerations in order to be successful. The physical realisation of all sound needs to conform to a performance licence. Such a licence is derived through careful assessment of the physical and functional requirements of any given space. The freedom of a controlled space such as a concert hall cannot be transferred into a public or urban precinct or that of an institution such as ACMI, Melbourne. A designed soundscape may not perform well as a sound art work without thoughtful reworking of numerous performance parameters.

Sonic Environment in Vanuatu: Exploring Water Music TRACES

Sally Ann McIntyre
Independent Artist

ABSTRACT

Huia Transcriptions: re-collcting Colonial era witness accounts of extinct birdsong
In classical acoustic-ecological conceptions of the soundscape, the technological preservation of a sound mark might be understood to positively relate to the preserving of memory of place. But what of the sounds beyond (recorded) memory, that are already missing? Might there be value in suspending the fantasy of a natural plenitude of sonic fecundity, and its status as a potential recorded totality, to adequately acknowledge this haunting, or gap; to hear the past and present withdrawal of sound from an ecosystem and its soundscape, through ecological destruction?

And once we have listened to this silence, how best to memorialise this loss? In a series of works focusing on what Dugal McKinnon has termed “ecological silencing” I explore the possibility for practice based research to investigate the lost birdsongs found within New Zealand colonial narratives, asking what it might mean to re-collect, through interventions into archival records, notation, and other material traces, the songs of bird species lost before the invention of recording technologies, and then to situate these lost songs back into hearing, including placing them back within what might be now listened to, and represented in phonographic or field recording practice, as the 'natural' soundscape.
TRACES IN/OF/WITH SOUND: AN ARTIST’S EXPERIENCE OF AUDIO-VISUAL SPACE

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ABSTRACT

Traces in/of/with Sound\(^1\) was an audio-visual performance series, instigated as part of the author’s practice based PhD research into the process of sound arts practice (Garrelfs 2015). The initial idea for the project resides in the realm of visual music and an interest in the influence that the relationship between sound and image has on the music that is produced within performance. The research employed a modular methodology that includes creative practice as a key space - or in-vivo laboratory - in which the process of this practice can be studied.

As a piece of creative work, Traces in/of/with Sound made use of a field of juxtapositions: a projection of recorded and digitally mediated drawings with improvised and digitally processed voice; notions of archetypes across sound and vision; a range of complex conceptual concerns with a performative experience. In its inception, several strands of thought combined. These included recognising a similarity between Norman McLaren’s images (Barbeau 2005) and some of the author’s drawings (see Figure 2); a concern with movement - as explored in her previous locative mobile phone pieces override (2011) and In A Day’s Work (2011) - that transferred onto the relationship between the eye’s movement and still images (Brown 2006). In addition, the notion of archetypes expressed through line drawings (Ingold 2007) and vocal expression met with digital processing techniques.

Between 2011 and 2013, six performances and one installation took place, each with a different audio-visual spatial configuration, ranging from mono sound / single screen video to eight-channel sound / two screen video. Each of these versions brought with it adaptations of the core material, as a response to the preceding incarnation.

What remained stable was the method of performing: sound used live improvised voice, manipulated and diffused across a multichannel system (where applicable) via Cycling 74’s Max software. This sound material was created as an improvised response to a pre-prepared “film” of digitally manipulated drawings using Adobe Creative Suite packages Photoshop and Premiere. As the series developed, working within this complex field of juxtapositions led to a change of focal points. Whilst the project began by essentially considering movement and a contrapuntal relationship between sound and vision as a property of time, it shifted to an exploration of a joint audio-visual spatiality, understood as a perceptual experience established by the interlaced movements of both sound and vision.

In its development, Traces in/of/with Sound was situated in a broader context of contemporary audio-visual performance. Its theoretical underpinning drew from a range of discourses, including New York School and London School thinking on sound art practice (Brown 2006; Ingold 2007). It also engaged with the notion of the performative aspect of sound art practice (Garrelfs 2015). The project was further informed by the author’s previous research into locative mobile phone sound and vision (Garrelfs 2011), and her work on the relationship between sound and image (Garrelfs 2015).

Figure 1: Stills from a later version of “Traces in/of/with Sound”

Figure 2: On the left is depicted one of Norman McLaren’s images (Barbeau 2005). The image on the right is an early still image from “Traces in/of/with Sound”

This paper will chart the development of the piece over a two-year research period from 2011-2013, including the presentation of relevant stereo extracts and the work’s relationship with theoretical concerns and wider creative praxis. Within this narrative it will pay particular attention to the author’s emergent experience of a speaker & screen based audio-visual spatiality. Some conclusions as to strategies that may promote experiential coherence or disunity in the perception of an audience with respect to screen based audio-visual space will also be put forward.

ACKNOWLEDGEMENTS:

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REFERENCES


\(^1\) Documentation is available from http://irisgarrelfs.com/traces-inofwith-sound
Huia Transcriptions: re-collecting Colonial era witness accounts of extinct birdsong

Sally Ann McIntyre
Independent Artist

ABSTRACT

In classical acoustic-ecological conceptions of the soundscape, the technological preservation of a sound mark might be understood to positively relate to the preserving of memory of place. But what of the sounds beyond (recorded) memory, that are already missing? Might there be value in suspending the fantasy of a natural plenitude of sonic fecundity, and its status as a potential recorded totality, to adequately acknowledge this haunting, or gap; to hear the past and present withdrawal of sound from an ecosystem and its soundscape, through ecological destruction? And once we have listened to this silence, how best to memorialise this loss? In a series of works focusing on what Dugal McKinnon has termed “ecological silencing” I explore the possibility for practice based research to investigate the lost birdsongs found within New Zealand colonial narratives, asking what it might mean to re-collect, through interventions into archival records, notation, and other material traces, the songs of bird species lost before the invention of recording technologies, and then to situate these lost songs back into hearing, including placing them back within what might be now listened to, and represented in phonographic or field recording practice, as the ‘natural’ soundscape.

These works have re-collected the distress calls of birds such as the extinct huia, by placing notation of their songs written in the late 1800s back into the audible world, situating them within mnemonic technologies that are not current, but classifiable as 'heirloom' media. These technologies are not focused on as technological fetishes or museum pieces, but as functional material witnesses to the birds themselves, and include the wax cylinder and the programmable music box, they have facilitated the making-audible of the bird songs and have allowed them to be placed back within the soundscape of New Zealand bird sanctuaries, and other environments including galleries and radio programmes.

This paper will focus on these issues through a discussion of the works, and also explore how they articulate a tension between the need to memorialise such loss in the veneration of individual species, and the recognition that the lost remain as traces within the wider physical and acoustic environment, drawing together the current soundscape and museums and archives, notation, written narratives and other recordings, in an attempt to historicise the practice of listening to nature. Just as George Gibbs relates in his book Ghosts of Gondwana that the Moa is still visibly present in the New Zealand landscape through the defence mechanisms of the Lancewood tree’s juvenile stage, might we also be able to locate a sonic equivalent in the after-echoes of the songs of the Huia within the songs of extant species? Perhaps, as John C. Ryan suggests in his essay, Why Do Extinctions Matter? “A more tenable ecological conceptualisation of mourning needs to consider connectivity, rather than unified subjectivity, as a tool for exploring the deep channels of grief over the loss of the more-than-human.”
ON SOLO – A PROGRESS REPORT

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ABSTRACT

This paper reports on an ongoing research project around Karlheinz Stockhausen’s historical work Solo (Solo, für Melodie-Instrument mit Rückkopplung 1965-6). Together with Dr. Juan Parra Cancino from ORCIM Ghent, we are teasing out the consequences of the (nowadays common) software replacement of the elaborate tape delay system that was used at the time of the work’s inception. Many of the technical elements (e.g. in and output levels, delay feedback level, output levels) were operated as prescribed by the score by no less than three technicians. These roles have now been integrated into software patches (e.g. MaxMsp or PD (Sluchin 2000)) but also an app for i-Phone and pad (Petrolati 2016). Software approaches integrate and automate the score to different levels, with one version going as far as integrating the soloist’s sound source into the digital domain (Esler 2006).

Even thought this work’s score is strongly prescriptive, like many of the composer works, performances and recordings of Solo have been augmented in different ways, most notably the addition of a layer of electronic music in the work’s first recording with trombonist Vinko Globokar (from 1969). Another freedom provided in the score for this work is the choice of different timbral modes (e.g. a choice of mutes in the case of brass players).

Where the proto-affordance of analogue tape is reproducibility, the proto-affordance of a computer simulating a tape system is much richer, with its ability to compute and facilitate interaction. At the same time, a computer these days implies a network, commonly the Internet. To simply reduce the computer to a simulator of older technologies and not exploring what digital technology affords seems to go against the grain of this influential work, and of electronic music performance.

In our research project we attempt to pull apart the distinct layers of input (soloist), delay system (software), level of control and loudspeaker system output (usually four channels). We have produced some concerts with these four layers performed either in the same venue, or in different venues (and even countries).

Computer network connections are used to share timing information and distribute audio between different performers and audiences. For instance, by having the soloist in a different venue than the public, the mixer (i.e. sound projection and level control) and loudspeakers, we can query the technological and human agency, of each of these steps. An additional research element of using network audio connections is that, not dissimilar to the build-up of noise in a tape-loop system and other analogue tape trademarks, the digital sonic artifacts (e.g. network ‘sounds’) become an audible element of the performance. In a way, those instances give a voice to the, ordinarily auditory hygienic, digital processing.

In addition to a series of concerts, the project comprises of interviews with some of the key players in early performances and integration with our respective research interests: the role of loudspeakers (Mulder 2013) and the performance practice of computer music (Parra Cancino 2014). The academic outputs of this project consist of a number of conference performances/papers and a journal article.

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LISTENING FOR PRESENCE

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ABSTRACT
The question of sound as experience is critical to discussions about environmental listening. I have come to think of sound as a viscous material, a vibrating energy field that has texture and density and a physicality that is unlike most other media. I arrived at this view through a combination of several experiences and practices. The first being a process of duration environmental listening and the second, an invitation to be part of an Australian indigenous dreaming ceremony at Bundanon in NSW. These experiences brought me to a point of knowing that everything is part of an $N$ dimensional vector field - where by energy fields can be attracted together to form a presence in the world. I came to think of sound in these terms. Sources move, perhaps in relation to each other and in relation also to environmental forces, all making up a manifold and complex morphology, a rich and largely invisible to me interconnectedness. This interconnectedness is an experience I have sought increasingly deeply through durational listening where I ask myself, “what does it mean to be truly present”, is it possible to continuously deepen that sense of presence through repeated practice?

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Sonic Placemaking in the American Southwest: The Listen⁷ Project

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ABSTRACT
Sound gives life to our environment. Sound heightens our experience of place. Initiated in 2013 by composer Garth Paine, the Listen⁷ project capitalizes on the vibrancy of environmental sound in the American Southwest. As indicated by its title and superscript n, the project explores multiple ways of listening, promoting listening in physical and virtual locations. It is collaborative and interdisciplinary, combining science, media art, technological innovation, and community engagement. This presentation provides insight into Listen⁷’s fieldwork in parks of the American Southwest to create, with ambisonic recording technology, the largest online database of geo-located field recordings representing these places.

Light is shed on a series of compositions crafted from these recordings and community workshop. Attention is also drawn to virtual reality experiences of place created through the pairing of desert sounds with 360-degree photographic panoramas of the sounds’ place for display on the Oculus Rift headset (EcoRift) to allow distant communities to be remotely present in a landscape. Listen⁷ builds on acoustic ecology-based research and art and sound mapping (Biosphere Soundscapes, Nature Sound Map, Living Symphonies), but it is unique in its scope, extended time span, multi-platform design and engagement of local and global communities.
WHAT CAN WE LEARN FROM LISTENING TO NATURE?

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ABSTRACT
Natural soundscapes provide a wealth of information, both to
the casual listener and the research scientist. This ranges from
aesthetic pleasure, to identification of species repertoire and
behaviour, and measures of ecosystem health.
When we consider repertoires in an evolutionary context, we
can understand sonic strategies as not only shaping behaviours
and survival adaption, but being fundamental to speciation
itself. This has been documented in certain insects, and can be
speculated upon in higher animals.
This leads to an enquiry into the possible role of sonic
communication in hominin development, and the suggestion
that rhythmically synchronised communication (music) may be
viewed as a biological rather than cultural phenomenon, unique
to humans, of great antiquity, the result of which has been a
gradual development of the higher brain functioning and
eusociality distinctive to the hominin lineage.
While sound and acoustic communication may have shaped us,
we are changing the natural soundworld at the very moment we
are beginning to study and appreciate its richness. Natural
sonic environments are coming to be seen as in need of
preservation, and healthy soundscapes important for our
wellbeing too.
Listening has been described as the universal sense. If music is
culturally important as more than simply entertainment,
personal taste or product, then it needs to address the
challenges of our time; to help us find our human place in the
natural world.

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2.
Sonic Environment in Vanuatu: Exploring Water Music TRACES

Sandy Sur
Leweton Cultural Group

ABSTRACT
Sandy Sur’s research focuses around the Water Music of Vanuatu and its connection to the environment. Water connects everything on earth and is essential for survival. At a time when the world is facing so many environmental challenges it is more important than ever before to deeply understand the role of water in our life. Understanding the sound and rhythm of Vanuatu Water Music allows us to explore the environment in new ways and develop a deeper understanding of the role sound plays in the environment. The Water Music of Vanuatu is site-specific and deeply inspired by the surrounding environment. This inspiring tradition is now evolving in response to rapidly changing climates that are affecting island communities.

Sandy is one of the only people in the world holding the knowledge to lead research on water music and over the last decade he has directed a wide spectrum of research projects designed to bring water music to the world. Sandy’s research showcases this tradition as a way for understanding the environment at a time when we urgently need to listen to nature. His research is realised as live performances, films, recordings and web based media designed as tools for reaching the world.

Sandy Sur is the Manager of the Leweton Cultural group. While the water music of Vanuatu is a once-in-a-lifetime performance that needs to be seen (and heard) to be believed – the Leweton Cultural group deliver a range of customary artisanal performances and workshops including dances, weaving, carving, mixed-media/found objects, environmental art, and instrument-making. Sandy coordinates residencies for the group at international festivals and events with deep connections to people of place. The Leweton Cultural Group has stunned audiences at World Expo 2008 in Zaragoza, several European Union diplomatic functions, the Rainforest World Music Festival in Borneo, the Bellingen Global Carnival, Queensland Music Festival, and the Floating Land Festival in Australia and the Lukaotem Gud Santo Festival in Vanuatu. Sandy is a ranked man and leader from Merelava in Vanuatu. A skilled carver, weaver, craftsman, and curator Sandy is adept at using elements of the natural world as well as found objects and ubiquitous technical items such as wire, rope, etc to create functional and beautiful objects.

This research paper explores the sonic environments of Vanuatu and the role of Water Music.
The Piano Mill

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ABSTRACT
It has been suggested that as many as three out of four Australians may have had a piano by the end of the nineteenth century. (Rose 2008). In fact, between 1788 to 1888, Australia possessed more pianos per head of population than any other country. But how did the parlours, pianos, and their players, translate to the Queensland bush? The Piano Mill is in part an investigation of this story that connects place and music. The Piano Mill is a purpose built structure and musical instrument in the Granite Belt near Stanthorpe, Qld. A collaboration between architect Bruce Wolfe and composer Erik Griswold, this structure houses 16 found pianos over 2 levels. The audience listens to the “mill” from outside, unable to view the workers (16 pianists) as they interpret Griswold’s score, Alls Grist That Comes to the Mill

The Piano Mill, examines the pioneering history of Australia through the gaze of now discarded pianos; celebrating place, community, environment and above all, listening. This was constructed as a one-off performance event, probing ideas of nostalgia, transformation of land and function and the sheer joy of creativity.

This presentation will weave together the perspective of the architect, the composer, audience members, performers, and directors, to gain a kaleidoscopic view of the event that was the Piano Mill. As a piece of architecture, a sounded building, and an integral part of a larger artistic vision, this multi-dimensional approach is necessary to glean something of the intense joy that has gathered in and around the mill.

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Exploring Internet Environments in Sound Arts

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ABSTRACT
Contemporary environmental sound art is often linked with geographically dispersed local cultural practice and/or natural environmental sound. And recently explored in tandem, the development of telematic sound art are dominated by linking electroacoustic music studios and/or concert halls. Yet urbanised life often involves inhabiting bodies, local environments and digitally interconnected global environments including people, computer-based agents, and aggregates real-time informational data streams. Current eResearch suggests this new environment will increase through: connectivity, greater bandwidth and processing power; smart/embedded technology and the Internet of Things; artificial intelligence and automated decision-making; data streams and making knowledge out of information with machine learning. What role can sonic art practices play in navigating increasingly complex relationships, represented particularly in multiple aggregated information flows?

Recent work on radical embodied cognition, reacting against older computational views of intelligence using symbolic processing and absent bodies, suggests human cognition is situated and time-pressured, is environmentally relational, used for action, and that much offline cognition is body-based. Accordingly, while current data streams, such as news feeds, can be rendered visually, we partly interpret these through mood, metaphor and movement, similar to music reception.

A meeting point for telematic sound arts and networked life that practitioner might further explore is in affective composition/performance models coupled with the sonification of real-time information streams. This involves further amalgamating research on the affective dimension of electroacoustic music with real-time data sonification techniques to extend performance-based electroacoustic music languages. And this process could further be automated with the integration of emerging research that adopts machine learning techniques in the gestural mapping of sound, together with the application of intelligent-agent decision making technology used in sound arts, thus enhancing rendering efficiency.

This allows for the sonic exploration of our place in a matrix of increasingly networked and non-linear relationships with dynamic meanings through creating new knowledge. And we may find new patterns in data streams only possible through aural means, allowing us to reimagine our networked presence and relationship with place.