Covert Plants: Vegetal Consciousness and Agency in an Anthropocentric World

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An Ear to the Ground

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In late 2015, I was given the opportunity to be part of a song journey of sorts, led by a group of song custodians who were active in passing on the tradition to young people from the community. The location of this particular song site is a secret, the area is not marked on any map and the entrance to the site itself is kept under lock and key. The topographical features of the site are unique in the area—a profusion of white sand surrounded by sharp rocky outcrops that gives the space a cathedral like appearance, and remarkably vibrant acoustics. Due to mining activities, trespass, and clandestine land sales in and around the site, it is extremely vulnerable to intrusion, which is why I take great pains to protect the location of the site and the identity of the people. It was here, a thousand kilometers from the nearest city, that I encountered a particularly vibrant tree, a tree that made me want to understand if and how a tree may listen and respond to situated bodies.

I have participated in similar song journeys in the past, but this site was of particular interest as its topographical features produce the acoustic effects of an amphitheater, making it a unique and highly prized site for ceremonial song practices. As such the site is a unique place for cultural maintenance and is closely guarded by the small community who are the custodians of the site. The 20-strong community have ties to this song site which stretch back into millennia, and the performances are vital to maintain the health of the culture, the people and the country. The location of the song site is not marked on any map not because of its cultural significance, but because the site now lies
within the boundary of a mining lease. The custodians fought the mining company to gain access to the site, which was granted but limited to cultural purposes only.

Sites such as these are important places for cultural production because of their acoustic characteristics, which means that the site has served as a venue for a wide variety of cultural performances for thousands of years. To the Western eye the site looks wild and untouched, but in fact the site is managed and maintained as a performance venue, the vegetation, sand and ochres are carefully prepared for this express purpose. The particularly vibrant tree plays its role of nurturing the local birds and insects with its sweet nectar, in turn, the birds and cicadas provide a pleasant background ambience during the interlude before falling silent during the performance. It appears as if the strong vibrations produced by the footfalls of the dancers resonate through the soil and up into the tree.

It is this perceived ability of the tree to respond to the vibrations of the performance which prompted me to perform some experiments at the site with the vibrational energy produced through the performance. I had already done some studio-based research into the ways that these vibrations travel through substrates, but never had the chance to apply these techniques in the field. Vibrational energies are produced in abundance by human and non-human bodies within the world but is largely ignored as it falls at the intersection between different human sensory systems.1 Aboriginal song custodians are tacitly cognizant of different sensory modes and perceptual models and would appear to have different sensitivities to these vibrational energies both within a specific range of country, particularly at places of confluence within the topography, such as rocky outcrops, which gives them unique acoustic and vibrational characteristics. Sounds which travel through sand, water, and air change when the to-

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1 ‘The perception of vibration is not a simple matter of ‘feeling vibration in the bones.’ The way in which different types of whole-body movement make their presence known is not entirely clear, but it is obvious that movement may be perceived by several different sensory systems.’ M.J. Griffin, *Handbook of Human Vibration* (Amsterdam: Elsevier, 2004), 226.
pography changes dramatically, making rock-walls, caves, and outcrops ideal places for staging performative song and dance practices as the form natural amphitheaters. These changes in the topography cause changes in the acoustic and vibrational response of the place, and as such become attractive sites for song custodians to make and stage songs and dances that can foster cultural production.

The powerful footfalls produced by the dancers at the site were revealed more fully when I sat on the sand and could feel the thudding footfalls travelling up through my body. Listening to the microphones and vibration sensors I had placed near the tree and within the sand I could also hear the movement of the Desert Grevillea, I hear not only the tree in itself, but I hear the tree as part of an Indigenous connection to country; living and non-living, human and non-human, present, past, and future. The tree and its ancestors have lived in this same place for tens of thousands of years as have the song custodians and their ancestors, in a never-ending cycle of coming out of and going back into country. This being-in-place over such extended periods of time is unimaginable to my Western body, which has hundreds of itineraries imprinted on it, and whose ancestors moved freely across continents and oceans. It is this being-in-place that attracts me to the tree and to the Indigenous ways of embodied listening and knowing that might help me to understand the conversation that is going on in this country.

This particularly vibrant tree — a Desert Grevillea — sat in the distance, a flurry of small birds, honey eaters, drinking from the tree’s nectar rich blossoms. But when the dancers changed paths, the birds suddenly disappeared. In order to use them in my artworks, I needed to inscribe this interaction between the tree, the sand, the birds, and the wind. I set up apparatus that could detect and inscribe low frequency vibrations, placing ultra-sensitive microphones, hydrophones, and transducers at the base of the tree, near its branches, and under the soil. Using these non-traditional techniques and technologies I was able to inscribe data that suggested a tree’s point of audition rather than a human’s.

I experimented with my own footsteps fifty meters away from the tree, and again the particularly vibrant tree fell silent. When I listened back to the recordings made from the tree’s point of
audition, I observed that the tree was acting as an antenna, transmitting and receiving energy between the loose white sand, the birds, and the air. I could feel the subtle vibrations made by the bird’s activity on the branches, the creaking of the trunk in the breeze, and the straining of the roots in the loose sand. My attempt to embody what the tree was hearing, feeling, and expressing in this sacred country enabled me to get a sense that the tree was vibrant in ways that I was only just beginning to understand.

My practice explores the energetic, temporal and ecological aspects of Aboriginal song and its complex systems of connections with what can be considered to be a sentient and responsive country. My research is based upon a model of listening that extends beyond audibility, to sub-audible energies and Vibrotactile phenomena and, thus, suggests a more complex and grounded notion of sound, perception and a connection to the environment. It challenges the compartmentalization of the dominant euro-centric sensorium where sound has become something that can be easily quantified, recorded, reproduced, stored, and disseminated through technological means and attenuated by digital media practices. Sound and listening is instead situated energetically, perceptually, corporeally, and environmentally, enmeshed with place and culture through practices connecting human to non-human bodies and entities. My creative practice is derived from my experiences and collaborative work with Aboriginal communities in song practices evincing a very deep, connection to ‘Country’ developed through highly trans-sensory attention and activation of place, and iterative through time unimaginable in Western cultures.

My thirty years of practice as a cinematic sound designer and artist means that my default mode of perceiving a place is anthropomorphic and Western, and as such it is primarily audiovisual. This becomes problematic when attempting to understand the ways in which other cultures perceive a place, and even more so when one attempts to account for the ways in which animal, mineral, and vegetable bodies perceive the same space. I will use this particularly vibrant tree as an example of how this mode of audiovisual perception can make it difficult to apprehend different ways of sensing place. The visual and aural acuity of humans is poor when compared to what we know about the audiovisual
acuity of most animals. We are even able to make these types of comparisons because we use human scale techniques and technologies to measure the acuity of individual aural and visual sensors, but this tells us little about the ways in which non-animals perceive place.

In his 1902 publication, *Response in the Living and Non-living*, Jagadish Chandra Bose, a Bengali, polymath physicist, biologist, botanist, and archaeologist tapped into this vegetal vibration, suggesting that plants have a nervous system, a form of intelligence, and are capable of remembering and learning. He came to these conclusions by conducting a series of scientific experiments which relied upon the development of new methods and new apparatus which he devised for recording plant responses. The devices: the Phytograph, Kunchangraph, Morograph, Shoshungraph, and the Crescograph were only some of the many devices developed with great confidence by Bose. The colorful names and lavish claims behind some of these devices led to much skepticism within the scientific community at the time, but his confidence had its roots in Indian literature and mythology. As far back as the 4th century, the ‘Mahabharata’ described plant philosophy, physiology, and sentience, explicitly mentioning the senses of touch, hearing, vision, smell, and irritability. Bose’s experiments were his attempt to scientifically prove the vegetal sentience and intelligence that he knew existed.

Bose’s experiments were radical for their time and produced equally radical results that showed in graphical form that plants had a nervous system, a form of intelligence and are capable of remembering and learning, as well as understanding pleasure and pain. Bose’s experiments studied the flows of energies within a plant, measuring electrical response, sap flow, and minute movements of leaves, branches, and roots. The graphs produced by his various machines provided a highly detailed account of the inner workings of a plant throughout its lifecycle, including death, where Bose’s *Morograph* reveals that a sharp electrical spike occurs to signal the exact moment where life ceases.

My interest in this research area comes from my film and music work within urban and remote Aboriginal communities, but my Western body and its particular corporeal schema makes it difficult for me to fully understand my experiences of listening
to country. I know that the embodied experience of song performances on country always makes an indelible mark on me, but I still struggle with my ability to attenuate my Western corporeally located body and technology to Aboriginal bodies and schemes, to expand one corporeal schema as it were to another. This has meant a process of tuning and adjusting sensitivity thresholds for my senses as well as similarly tuning my technologies to adapt to the Aboriginal mode of listening to country. Listening as a professional and aesthetic practice is one of inscribing and reproducing sound as audio-media, which involves particular apparatus; the microphone and headphone, and it also involves the entire Western corporeal schema. My ears are finely tuned to the thresholds of sensitivity to acoustic energy inherent in the apparatus, but this mediated, single sense focus, prevents me from connecting with the inaudible, subtle vibrations of country which for me characterized Aboriginal listening to country. It is this pressure that drives my research and pushes me to experiment with new ways of listening, inscribing, and experiencing the songs and sounds of country.

The directions were simple enough. Head south from Darwin and drive for about twelve hours. Driving in a straight line from sunrise to sunset causes enormous fatigue,\(^2\) which is exacerbated by the continuous vibrations inherent in any type of road journey. Throughout the journey my guides told stories about places and people along the way. The road we followed was built by settlers, a bitumen road recently improved by mining companies and the military, whose massive vehicles ply the roads twenty-four hours a day. Journeys like this are increasingly common in the Northern Territory, where a Toyota 4WD and a bitumen road make new song-lines through country, lines drawn with a ruler and built by economic necessity. These new ways of

\(^2\) Whole-body vibration studies in humans are quite rare, but experiments have been carried out on motor vehicle seats, which consider the types of vibrations transmitted to the body through a combination of road and drive train. Experiments by Azizan and Fard at RMIT University (Melbourne, Australia) in 2014 show a clear connection between driver fatigue and low frequency vibration as experienced by a motor vehicle driver. These results were noted after only twenty minutes.
traversing the land bring new ways of knowing, remembering, and listening to country.

As we neared her home, one of the women told of making the same journey on foot as a fourteen-year-old child, when she and her best friend escaped an Aboriginal girls home in Darwin, a place she was taken to when she was stolen from her family. Their journey back to their home took three weeks by foot, they could not follow the road or hitch rides, in case they would be caught by the authorities and taken back to Darwin. The fast pace of our journey connected places within country in quick succession, which triggered the memories of her escape to stream out in vivid detail. These memories drive her to teach young people the stories and the songs from her country and is also why I have driven twelve hours to get to this particular place.

My work within Aboriginal communities spans a period of more than thirty years, but as an artist whose medium is sound, my perceptual experience has always been guided by my ears, which invariably becomes guided by technologies of media inscription and reproduction. This time, however, I am being guided by vibration. My cinematic training in sound design has given me a framework that has become a default mode of perception, which, as Randy Thom suggests, is to ‘starve the eye and feed the ear.’ This framework makes me feel that by using my ears, I am using a faculty that has been rendered invisible by audiovisual culture, which by default gives me a superior perception of the world. But this perception is shaped by media technology — that is, the tools of my trade (the microphone and the headphone, e.g.), which allow me to focus my attention on specific sonorous objects within space, and to ignore others. The aesthetic pleasure gained by this intense aural focus is not tacit, but it is learned through this mediated process. The sound of a bird flapping its wings, the wind singing through casuarina trees, or the creaking of a tree in a gentle breeze become fetishized sound objects for those with the tools to perceive these sounds, and for those with the cultural knowledge to aestheticize them.

This journey is different. This time I do not have the tools of my trade, but tools of a different trade, one that seeks the vibrations that fall into the hole between the heard and the felt, the audible and the inaudible, the sonorous and the somatic. For this I need to follow my guides and do what they do. In this secret, sacred place, they must first sing out to their ancestors, then they must burn the spear grass before getting down to business. The spear grass burns fast and hot, and the burning gives the place a different look, a different smell, and a different sound—even a gentle breeze causes the dried spear grass to hiss. After the ground has been prepared for the ceremony, my guides sit down and talk a little, but mostly they listen. The ground here is loose white sand atop which sits hard-faced rocks that rise to about ten meters in height. The rocky outcrop surrounds us on all sides, forming a cavernous roofless room of sorts. It is this geographical feature that makes this a secret, sacred place, as during the rainy season all the families from the low-lying surrounding area would take shelter here until the rain eased off. With the spear grass burnt away, the view of the shelter becomes much clearer, as does the sound of the shelter. It is now easy to hear frantic chirping from a small group of birds hidden from view by a rock face on the opposite side of the shelter. It is also much easier to hear and feel the footsteps of the young dancers, as they learn the steps from their elders, their feet impacting the loose white sand with sharp percussive stabs.

I sit on the sand with my guides, who are the song custodians, while the other elders concern themselves with teaching the dance. My training in acoustics kicks in as I begin to listen not to the sound object, but to the way the place responds to the sound. People who work with sound as a medium spend their lives perfecting this practice of listening to the sound of a place rather than the sound itself. The theory behind this is that the sounding object makes the same sound in itself, but our perception of that sound changes as the object moves within space, with each space having its own signature way of responding to the object. In the space between the object and the listener, the space itself responds to the sound object with resistance or pressure that changes the sound.
The response of the space varies with the pitch, energy, and timbre of the sound that is put into the space. Interior spaces such as rooms are typically closed at the top, bottom, and on all sides with flat, non-porous surfaces arranged in a rectangular fashion. In this space, the sound from an object reaches the listeners’ ears directly, but also indirectly from the multitude of reflections created by the sound bouncing back from the surfaces. In this situation, the room is responding to the sound by changing the way that the sound is perceived by the listener. With basic acoustic science, this response can be quantified and modelled in a way that the sound of any room can be reproduced in a studio environment. For example: a typical tiled bathroom has a fast and dynamic response to sound but will respond to high and low frequencies quite differently. A church or concert hall typically has a slow, sustained response that amplifies even the quietest sound, to the extent that it fills the space. Although the signature is fairly constant, variations in the signature can be dramatic, as in the case of a concert hall which has two quite different signatures based on whether it is full or empty. The signature of the room changes when bodies fill the seats and stage, with each body absorbing a small amount of sound pressure, which adds up to a significantly different room response. The nature of audible low-frequency sounds mean that they contain significant energy, which can produce an excess of pressure in a room unless it is absorbed by the room or by bodies within the room.

Exterior and naturally occurring interior spaces are difficult to quantify and model in this way due to the sheer number of variables and the subtlety of the response. Exterior spaces have complex ground coverings and rely on the presence of trees and rocks to reflect sound from the sides and above. As such the sound tends to dissipate quite quickly, as the space absorbs rather than reflects sound.

In this sacred, secret space, I do not listen to the room as Alvin Lucier did, as in this shelter there is no room as such. The sound dissipates as quickly as it is produced. I do not listen to the silence as John Cage did, as the shelter is abuzz with noise, but I try to listen to the country in the way that my guides do, using an ear that is not located specifically inside the body, and which embodies knowledge that is specific to this country. Sitting directly on
the sand, I can feel the percussive foot stamping from the dancers who are fifty-plus meters away, the vibrations carried easily by the loose white sand. As the sound dancers gain confidence, the percussive strikes become harder as their heels pound into the sand, which make strong vibrations travel through the sand into my body. From this position, the acoustic sound of the dancers is very faint, but the felt sound is very strong. I have felt this same energy coming through the earth in many other ceremony grounds, but here the loose white sand amplifies the vibration of the foot percussion in a way that I have not felt before.

Now my guides, the song custodians, start to sing, and the dancers join in, gaining strength and confidence with every repetition. The energy created by the performance of the song cycles is immediate, and the faces of the children literally light up as the cycles progress. I keep moving my attention between listening to the sound objects and feeling the vibrations produced by the whole performance. In the second part of the song, the dancers first beat the ground with small leafy branches, then beat the earth itself with the flattened palm of their hands, the latter producing a loud sound and strong percussive vibrations. The song ends as abruptly as it started, and I notice that the entire shelter has become quiet and still. In terms of room response, it is as if the space, the country itself, responds by absorbing the sound from the song performance, and for a moment has changed.

The following day I was taken back to the shelter and left on my own to make my own observations. The previous day I sat and listened to the song performance within country, now I wanted to listen to the country itself. I brought some of this equipment with me to the shelter and made a series of experimental recordings within this unique, situated space. The aim of these experiments was to gain an understanding of how vibrations produced by Indigenous song could be re-produced, inscribed, and transmitted using experimental methods. Aboriginal song performances often create vibrations that impact country directly and are traditionally performed standing, sitting, or moving through country. This would suggest a two-way communication between performer and country as the song comes out of, and goes back into, country — directly through vibrational flows between sentient bodies, which in this case is the
sand, the tree and the birds. I experimented by attenuating traditional cinematic sound techniques and technologies to make, transmit, and inscribe these vibrations, as well as attenuating my Western corporeal body in order to listen to these vibrations in a way that embodies Aboriginal ways of listening to country.

Applying these experimental techniques at the site, provided an opportunity for me to sit and listen to country as the song custodians did the previous day, with my hips, feet, and hands in direct contact with the loose white sand, while inscribing the acoustic and vibrational energies with the apparatus that I had set up at the base of the bird-filled tree that I heard the previous day. The tree was still buzzing with activity, the birds obviously too busy drinking the nectar from the profusely flowering Desert Grevillea to notice my activity. It was only when I started stamping my foot into the loose white sand quite some distance from the tree, that I noticed the birds had suddenly disappeared. In the silence, I could hear the tree creaking loudly as its branches moved imperceptibly in the gentle breeze. Gradually the birds reappeared, and through my headphones I could hear and feel the slightest vibrations their feet made as they landed on a branch. The entire tree had turned into a communication hub linking human and non-human bodies with the earth and the air.

The Western body embodies a default audio-visual mode for communicating with and making sense of the world, making much electromagnetic and acoustic energy redundant. For plants and animals, the infrasonic and inaudible low frequencies of the acoustic spectrum have provided a clear channel of communication, which is increasingly being filled with anthropogenic noise—energies that threaten to disrupt the intricate web of connections between human and non-human bodies within country. The Aboriginal mode of listening to country suggest a worldview where bodies are sensitized to these inaudible low-frequency energies, through the tactile vibrations of song performance that come out of and go back into country, a worldview where the health of all bodies within country relies on this capacity to listen.