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Mapping Sonic Futurities

Alex Wand

Mapping Sonic Futurities (MSF) combines sound art, listening practices, and ecological research to trace the present and future histories of ecological habitats. The project involves twenty-four-hour “sound vigils” in outdoor spaces and habitats with tenuous futures. During these retreats, the keeper of the vigil commits to being in one location for an entire day and night. For each of the twenty-four hours, they dedicate time to acts of ecologically engaged listening and sounding.¹ This involves making field recordings of the space, performing music that responds to nearby sounds, and/or sitting in meditation with a focus on modes of listening outlined in a series of guided prompts. All the while, the participant keeps a journal about these experiences. The final expression of the sound vigil is a ten-minute video piece that is divided into twenty-five-second segments that represent each hour of the vigil. The segments contain videos, still images, field recordings, and performances that develop a narrative about the habitat and the vigil keeper’s dialogue with the habitat. Each video piece is accompanied by field notes taken during the vigil. Collaborators include myself (musician, vigil keeper); Alex Jones (UCSC Campus Natural Reserve manager, adviser); Tiffany Theden (naturalist, vigil keeper); and Stephanie Cheng Smith (creative coder). MSF is presented as an interactive website at mappingsonicfuturities.com and as a sound art installation that premiered in December 2021 at Indexical,² an experimental music venue in Santa Cruz, California.

MSF at UCSC

In 2021, the University of California, Santa Cruz adopted the 2021 Long Range Development Plan (LRDP), a set of blueprints to develop new roads and buildings on the campus. If all aspects of the LRDP are fully implemented, there will be loss of habitat and a shifting of landscape connectivity farther to the north. The planners took many constraints into consideration when determining land-use designations, including geology; light, sound, and air pollution; hydrology; sensitive species and habitats; cultural sites. Much of this analysis relied on prior reports and remote analyses. We seek to document one aspect of the on-the-ground reality that is lost in this process: the actual moment-to-moment soundscape of UCSC, in the context of the LRDP.

This inaugural MSF project takes place in different locations on UCSC's campus at sites where the LRDP plans to pave roads and erect new buildings in the next twenty years. The locations are named after their inhabitants: Coyote Corner, Hawk's Prairie, Court of Cicada, Hall of the Hermit Thrush, and Newt's Niche. The video pieces and accompanying field notes function as a rendering of the ecological sounds that define these spaces and a baseline from which to measure change should development occur. We will also use the recordings as ways to document and research the presence of native species whose habitat may be degraded once roadways or buildings are built.

Guidelines for MSF Sound Vigils

The project has developed a series of questions and prompts that the vigil keeper uses as a guideline for how to engage with the environment (i.e., drawing, singing, playing an instrument, or listening). While the documentation of the vigils is an important aspect of the project, the substantial artistic experience of MSF is the vigil itself and the relations that emerge between the environment and the vigil keeper.

Record five-to-twenty-minute segments of your chosen location every hour for a given duration of up to twenty-four hours. Each segment will represent one hour of the day. The final recording that represents each space will be a compilation of twenty-five-second segments representing each hour (for a total of ten minutes representing the day).

For each segment, you have the option to make a sounding, drawing, and/or poem that responds to the space in some way. The sounds don't necessarily need to be musical in the traditional

sense—they could be the rustling of leaves with your hands for a few seconds or they could be the sound of you slowly walking through the space. If you do go the musical route, consider something sparse like singing a long tone, a single pluck of a ukulele, or the ringing of bells. Perhaps try playing with proximity—that is, singing the note twenty feet away from the recorder. Or try making a sounding that explores the subjectivity of a tree or an animal. Think of yourself as being in the same camp as the critters—both as listeners and as sound makers.

Journal about your experience. This may be anything from a freewrite to descriptions (or transcriptions) of the sounds, animals, cars, and plant life. The purpose of the journal is to create a narrative about the soundscape and the habitat but also our experience of the habitat.

During the recordings, you have the option to engage in the following listening prompts (or make up your own!). These prompts are listed in order of their perceived difficulty. They all require a committed attentiveness to sound that is facilitated by a calm and present mind. If thoughts and mental distractions arise, take it as an opportunity to observe the thoughts with equanimity. Then gently redirect your attention to the listening prompt. This gentle and equanimous redirecting of attention is great practice for the mind, and with repetition, you'll be able to go deeper with your engagement with the soundscape.

SOUND SWEEP

Listen for specific frequency ranges starting with high frequencies and slowly sweeping down to mid frequencies, then to low frequencies, and then back up. If you don't hear anything in a particular frequency range immediately, give it some time just to make sure—then move on to the next frequency range (i.e., high frequency: bird calls; midfrequency: human voice; low frequency: car engine). Write about your experience. Were there any subtle sounds that you picked up on as a result of this kind of listening?

RECEPTIVE SOUNDING

Listen to your environment as if you were actively making the sounds you hear. While this requires a bit of imagination, it's not too far-fetched, as the human ear actually emits sounds (i.e., "otoacoustic emissions"). This inverts that idea that we are passively taking in sounds as we hear them. Instead, we are co-creating them in a dance between our perception and the soundscape. . . . After listening like this for a while, start singing long tones. Now make a shift in your listening perspective to one of receptivity. Focus on the tones as if you were passively receiving the sound of your own voice. Notice how your sensing body responds to all of this. Write down any observations.

PERSPECTIVE LISTENING

Begin by listening to all sounds. Your ears are an open book. After several minutes begin to zoom in and focus attention on a sound that stands out to you. Then begin to listen from the perspective of where the sound source is coming from. If you're hearing a bird, listen as the bird—if you're hearing the hum of an AC unit, listen from the perspective of the AC unit. There is an element of speculation involved here. Write down any observations, insights, or challenges.

OWL MIND

Notice your body in space, your visual field, and the soundscape all at once.

After a time, turn your attention to the noticing itself. Who is doing the noticing? Can you locate that noticer in space?

Return to your bodily sensations, your visual field, and the soundscape. Imagine the noticer of all this sense data as an owl perched on an imaginary branch just behind you. The owl is now your surrogate mind. Let the owl notice all your sense data with equanimity.

TIME SWEEP

Listen to individual sounds that stand out to you and focus on their texture. Notice how the environment might shape their sonic character. Then “zoom out” and listen to the soundscape more globally as a set of sonic entanglements (the opposite of the “zooming in” during perspective listening). Listen to all sounds as a whole, as a single sheet of experience.

Notice your visual field. If your eyes are closed, what do you see? Patterns of light coming through your eyelids? If they are open, what do you see? Different objects in space? Begin to observe them not as discrete objects but as a single sheet of raw experience. Then notice any sensations in your body. Your breath, the pumping of your veins, the wind against your face, or more subtle energetic movements in your body. Observe them as a superposition of sense data that results in a single sheet of experience. Then merge these three domains—sound, vision, bodily sensations—as a single sheet of experience. Practice perceiving them not from the point of view of a listener but from the point of view of the sounds, visions, sensations themselves.

Now observe the experience of time passing. Observe it as a pattern of energy from which you can drop back. As you drop back, what do you see/hear/feel? Include this as part of your sheet of experience alongside the other senses.

This practice is an invitation to enfold our perceptions onto one another and observe them as one necessarily entangled sheet of experience. The aim is to stretch the mind and spark imaginative ways of noticing one's environment, one's body, and one's sense of temporality.

The Arts of Noticing and Remembering

MSF's acts of listening and sounding resonate with what the anthropologist Anna Tsing calls the "arts of noticing." In her book *The Mushroom at the End of the World*, she writes that this includes noticing webs of coordination between life forms and "wider rhythms and histories of landscapes."³ The vigil keeper's attentive observation of the environment for an entire day is meant to be an inquiry into how such a commitment can develop one's awareness of sound and reorient one's relationship to the natural world. MSF conceives of the natural world as being inextricably entwined with human activity. This is expressed in MSF's field recordings, which include animal and insect sounds alongside human-caused sounds (i.e., vigil keeper performances, passersby, airplanes, train horns, distant traffic noises). The view that humans are always a part of nature is a given in many Indigenous cosmologies. For example, the Anishinaabe and Haudenosaunee scholar Vanessa Watts writes that what constitutes "society" for the Anishinaabe revolves around interactions between human and nonhuman worlds, not solely interactions among human beings.⁴ She uses the term *Place-Thought* to describe an Anishinaabe conception of place based on the premise that "land is alive and thinking and that humans and non-humans derive agency through the extensions of these thoughts."⁵ By contrast, Tsing says that since the Enlightenment, Western conceptions of the environment show us a Nature that is "grand and universal but also passive and mechanical" and "a backdrop and resource for the moral intentionality of Man, which could tame and master Nature."⁶ To subvert such a view, Tsing asks, "Can I show landscape as the protagonist of an adventure in which humans are only one kind of participant?"⁷ She takes a particular interest in sites of human disturbance as the protagonists of such stories: "Human-disturbed landscapes are ideal spaces for humanist and naturalist noticing. We need to know the histories humans have made in these places and the histories of non-human participants."⁸

As a relevant example of such a space, Ingrid M. Parker has investigated the ecological history of UCSC's Great Meadow, an iconic landscape on campus filled with thick annual grasses that turn golden every summer. Her research reveals that the landscape is almost entirely devoid of native plants. In one study, Parker and her colleagues found that 84 percent of the plant species in the Great

Meadow were introduced by Spanish colonists beginning in the eighteenth century, including familiar European plants like wild oat, ripgut brome, wild radish, Italian ryegrass, and wild mustard.⁹ These introduced species also dominate the plant cover, constituting a full 90 percent of the vegetation growing in the Great Meadow.

She also speculates on what the meadow looked like before these plants arrived from Europe. One hypothesis is that the fields were originally dominated by perennial native grasses such as purple needle grass and creeping wild rye. Another possibility is that they were filled with native wildflowers. She cites Richard Minnich, who makes this argument in *California's Fading Wildflowers* based on a range of historical and ecological evidence.¹⁰ According to descriptions in this book, at the time of European contact, spring in California was a “riot of color.”¹¹ In addition to Minnich’s evidence, research on phytoliths (plant microfossils) now supports the theory that the original California grasslands were dominated by wildflowers. Native wildflowers thought to have populated the hills include blue lupines, baby blue-eyes, pink owl’s clover, prickly yellow fiddlenecks, scarlet paintbrushes, and white fairy lanterns.¹²

Parker states that these wildflowers “are like ghosts to me” and that their absence in the hills of the Great Meadow has a haunting quality. She uses the Great Meadow’s ecological history as an example of an “amnesia” that she says currently pervades the relationship of many humans to their surrounding environments.¹³ In the case of the wildflowers, there is no formal record of their disappearance. She notes the Amah Mutsun’s important role in shaping and maintaining open meadows and forest edges through their use of controlled fires (among other practices) and how such cultural practices have also been dormant and at risk of being lost.¹⁴ While most tribe members currently live outside their historic lands, the tribe is beginning to regain its role as stewards of a small portion of these lands that its members traditionally occupied.¹⁵ Their absence from most of these lands, a direct result of the ongoing erasure and disruptions of tribal life that began during the Spanish missions, also haunts the Great Meadow. In this case, the amnesia exists as a loss of ecological and human histories due to the past and present forces of colonialism. The plant fossils are a kind of material haunting of these precolonial ways of life and show the land itself to be the holder of these lost memories.

Parker’s research is particularly relevant to MSF’s project at UCSC because the LRDP aims to develop on several stretches of nonnative grassland on campus, including portions of the Great Meadow itself. Two of our sound vigils have occurred on these grasslands: Coyote Corner and Hawk’s Prairie. A crucial part of these sound vigils involves the telling of these histories and listening for (and with) the specters that haunt the landscapes. Hauntings are most directly experienced by

the vigil keeper but are also hoped to be transmitted to the viewer and listener who engages with the vigil's documentation. In the context of MSF at UCSC, much of the vigil keeper's field recordings at night appears virtually silent. At night, the noise floor of the microphone is sometimes the most prominent sound in the recording. The recordings of this (near) silence reflect the habitat's cycles of activity and inactivity, but they also reveal a "speaking stillness"—a haunting expression of the landscape that renders it animate. In the case of Hawk's Prairie, one might consider the presence of the Great Meadow's ghosts, as described by Parker, to be revealed through the silence and stillness of the vigil keeper's nocturnal recordings.

The vigil keeper also mediates a dialogue between the present landscape and its past and future history. If these habitats are developed on in the next twenty years, then the video art pieces will function as reminders of the species of plants and animals that perhaps no longer inhabit these locations due to the development of the LRDP. The video functions as a future haunting of past ways of life found in the habitat that would hopefully counter the "amnesia" that Parker says pervades our relationship to landscape.

Sense-able Sonic Practices

The MSF listening prompts form part of the "sense-able sonic practices" as outlined by the inhabitants of the Imaginary Town of Moses (ITM), a yet-to-be artist collective founded by the musician/cyclist Alejandro Botijo (aka Alex Wand).¹⁶ They take inspiration from the composer Pauline Oliveros's writings on what she calls "quantum listening."

In her paper "Quantum Listening: From Practice to Theory (To Practice Practice)," Oliveros frames quantum listening as the context of her deep listening practice that balances two modes of listening, focal and global: "Focal listening garners detail from any sound and global listening brings expansion through the whole field of sound."¹⁷ She writes that quantum listening is "listening in as many ways as possible simultaneously."¹⁸ It is a kind of attentive listening that "leads you to notice that you are listening"; in other words, quantum listening involves "listening to our listening."¹⁹

Quantum listening simultaneously creates and changes what is perceived. The perceiver and the perceived co-create through the listening effect. All sounds are included in the field. This creates potential, cultivates, surprises, opens the imagination, and approaches and even plunges over the edges of perception into the mystery of

the universe predicted by quantum field theory. Quantum listening is the ability to discern all that there is in a single moment—point in space.²⁰

Oliveros's concept of "deep listening" and "listening to listening" dates back 2,500 years to the Buddhist concept of "experiencing Sonic Vedanā."²¹ This practice encourages practitioners to attempt to listen without preference to one sound over another. This equanimous listening aims to cultivate nondual awareness.²² His Holiness the Dalai Lama writes that in Tibetan Buddhism, nonduality refers to the idea that the "mind and its object, or experience and its contents—always come together as one entity."²³ To cultivate such a nondual awareness in the context of sound, he writes that Tibetan Buddhist practices encourage the practitioner to shift a focus of attention toward "the cognitive process that is occurring" in "the arising of a sound and the hearing of it."²⁴ MSF's "Owl Mind" and "Time Sweep" orient the participant toward this experience of consciousness as well. They aim to help develop a kind of awareness that is also described by the researcher Alvin Noë, who argues that consciousness is not limited to the physical confines of the mind: "Consciousness does not happen inside; it's not like digestion; it's more like a dance."²⁵ This is meant to provide pathways to think of oneself outside the paradigm of the "bounded individual."

While sound is the still anchor of the MSF prompts, we emphasize words that engage multiple senses (not just hearing) such as "sensing," "noticing," and "experience." Several ecological-minded composers and sound artists have placed a primacy on the aural over the visual in their work. These include R. Murray Shafer, Oliveros, and David Dunn, among others. Stated reasons for such an orientation have been a desire to stay within one's domain of specialization as a composer and an interest in subverting the primacy of the sight in mainstream Western society—what Schafer calls "eye culture" and what Oliveros considers a "visually oriented society."²⁶

In contrast to this position, MSF prioritizes sound as an entryway to multisensorial experiences of habitats. Studies in neuropsychology have indicated that in perceptual practice, human senses cooperate so closely and, with such overlap of function, that their perceived contributions are impossible to tease apart.²⁷ MSF practices resonate with other cultural examples of multisensory orientations to sound and landscape. One model for an ecological approach to perception can be found in the Yoreme people of northwest Mexico, who consider sound and sight to be interrelated perceptual activities. In an interview with the anthropologist Helena Simonett, the Yoreme musician Berdardo Equer López describes his culture's ceremonies and rituals that involve dance, storytelling, and music. López states

that songs in his native language express both color and sound and explains that the music communicates a mythological time and emerges from “visions of landscapes,” which represent places the performers have traversed or inhabited.²⁸ Often the rituals are based on presenting the subjectivities of these landscapes and the creatures that inhabit them. In these ceremonies, the Yoreme approach musical meaning not from notes, melodies, or rhythms that one can learn to re-create but “from the experience of inhabiting the world.”²⁹ In this way, their music is based on sensorial perceptions that result from ontological experiences of dwelling in the mountain. Through MSF’s listening and sounding activities, the vigil keeper also has an opportunity to inhabit and be inhabited by a landscape in a way that engages multiple senses. In “Owl Mind” for example, the vigil keeper turns “noticing” on itself and creates an overlay of sonic, visual, and kinetic awareness:

Notice your body in space, your visual field, and the soundscape all at once.

After a time, turn your attention to the noticing itself. Who is doing the noticing? Can you locate that noticer in space?

Return to your bodily sensations, your visual field, and the soundscape. Imagine the noticer of all this sense data as an owl perched on an imaginary branch just behind you. The owl is now your surrogate mind. Let the owl notice all your sense data with equanimity.

Exploring Alternative Temporalities

E. P. Thompson’s “Time, Work-Discipline, and Industrial Capitalism” investigates the relationship between the emergence of industrial capitalism and the shift toward clock time in Europe. He argues that industrial capitalism changed society’s predominant conception of time from one that was tracked by the natural world to one that was dominated by a monetary valuation of time as wage labor (time is money).³⁰ Concurrent with this was the emergence of clocks and watches that regulated the “new rhythms of industrial life.”³¹ He argues that it was not only the emergence of clocks and industrial capitalism that brought on this new conception of “time-discipline” but also cultural forces such as Puritan notions of work ethic.³² It is this paradigm of time that Walter Benjamin calls “homogenous empty time.”³³ It connects to a Newtonian conception of time as an empty container of successive discrete moments. Karen Barad writes that this conception of time is the “time of

capitalism, colonialism, and militarism.”³⁴ The Chilean philosopher Alejandro Vallega also makes this claim with his discussion of the “coloniality of time” as a temporality that places civilization at different points on a universal and unidirectional sense of history that culminates in European modernity.³⁵ Daniel Wildcat, drawing on the work of the Indigenous philosopher Vine Deloria, has a similar critique of clock time’s effect on conceptions of human history:

It is of critical practical importance that some cultures express history as primarily temporal and others express history as fundamentally spatial in character. Once history-as-time is universalized and human beings are, so to speak, all put on the same clock, it is inevitable that in the big picture of human history some people will be viewed as “on time,” “ahead of time,” or “running late.” It makes little difference that the clock hands rotate in circles, for they are thought of and acted on as if they were wheels moving down a single road called progress.³⁶

In *The Mushroom at the End of the World*, Tsing attempts to think outside modernist conceptions of time:

Progress is a forward march, drawing other kinds of time into its rhythms. Without that driving beat, we might notice other temporal patterns. Each living thing remakes the world through seasonal pulses of growth, lifetime reproductive patterns, and geographies of expansion.”³⁷

Part of what Tsing calls the “arts of noticing” involves attuning to these other kinds of rhythms, a tracking of the natural world through the seasons, ocean tides, and weather patterns in a way that is less mediated by modernity. Tsing continues: “This is not a simple empiricism where the world invents its own categories. Instead, agnostic about where we are going, we might look for what has been ignored because it never fit the timeline of progress.”³⁸

MSF sound vigils also aim to go beyond “homogenous empty time” or “clock time” by cultivating a noticing of other temporal patterns (the ecological rhythms of activity and inactivity, weather patterns, migratory patterns, seasonal growth, sunrise, sunset). Part of the vigil keeper’s work is to tell stories of these temporal patterns. For example, in *Court of Cicada*, we explore the life cycle of the cicadas found on Upper Campus. As Alex Jones notes,

The cicada nymphs live underground for usually two years, sucking sap from roots of redwood trees, and then in the spring they crawl out of their exoskeletons and climb up to the tree's foliage. The females make a little slit in the branches where they lay eggs, the adults die, the eggs hatch out and the nymphs drop to the ground to burrow down and suck sap for a couple years.³⁹

The vigil keeper also observes diurnal cycles that are nested within this larger life cycle, such as the patterns of cicada mating call activity throughout the day, which correspond to the sunrise and sunset (they take a break at night). On our respective sound vigils, Tiffany Theden and I also observed the rhythms of their mating calls: a unified and consistent pulsing of clicks that is a result of the cicadas listening to and spontaneously syncing with neighboring cicadas.⁴⁰

In addition to attuning to these natural rhythms, MSF vigil keepers practice ways of imagining a conception of temporality that has been outlined by quantum field theory. To explain quantum field theory, Barad writes about patterns of diffraction. An example is the dropping of two stones in a still pond. The stones create two oscillation sources that entangle with each other, creating a diffraction pattern in the water. In quantum physics, particles exhibit diffraction patterns when in a state of superposition. Barad describes this superposition as a state of being “indeterminately here-there.”⁴¹ In this way, particles have the capacity to behave like waves. Particles also exhibit patterns of temporal diffraction where a given entity can be in a state of superposition of different times—for example: yesterday, today, and tomorrow.⁴² This temporal diffraction points to what Barad calls “an ontological indeterminacy of time.”⁴³ Quantum physics provides a view of space-time that disrupts what Barad calls “the imperialism of universal space and time.”⁴⁴

In “Time Sweep,” the vigil keeper is invited into this temporal indeterminacy:

Listen to individual sounds that stand out to you and focus on their texture. Notice how the environment might shape their sonic character. Then “zoom out” and listen to the soundscape more globally as a set of sonic entanglements (the opposite of the “zooming in” during perspective listening). Listen to all sounds as a whole, as single sheet of experience.

Notice your visual field. If your eyes are closed, what do you see? Patterns of light coming through your eyelids? If they are open, what do you see? Different objects in space? Begin to observe them not as discrete objects but as a single

sheet of raw experience. Then notice any sensations in your body. Your breath, the pumping of your veins, the wind against your face, or more subtle energetic movements in your body. Observe them as a superposition of sense data that results in a single sheet of experience. Then merge these three domains—sound, vision, bodily sensations—as a single sheet of experience. Practice perceiving them not from the point of view of a listener but from the point of view of the sounds, visions, sensations themselves.

Now observe the experience of time passing. Observe it as a pattern of energy from which you can drop back. As you drop back, what do you see/hear/feel? Include this as part of your sheet of experience alongside the other senses.

This prompt is an invitation to enfold our perceptions onto one another and observe them as one necessarily entangled “sheet of experience.” Time is a part of the fabric of this sheet of experience (not a container for it, as in “homogenous empty time”). While the goal of experiencing time as “indeterminately here-there” (as a particle in a quantum field) may seem a leviathan challenge, a broader aim of this prompt is to stretch the mind and spark imaginative ways of noticing relations between one’s environment, one’s body, and one’s sense of temporality.

The Selves of Octopuses (and the Joy of Fishes)

In *Metazoa: Animal Life and the Birth of the Mind*, Peter Godfrey-Smith writes that an octopus’s nervous system is decentralized—about two thirds of its neurons are not in its brain, and connections between its arms and brain within the nervous system are “rather slim.”⁴⁵ Octopuses often exhibit unified behavior in certain instances (throwing debris, jetting around), but at other times, their tentacles wander and explore in ways that may not be directly controlled by the central brain.⁴⁶ Hence, Godfrey-Smith invites the reader to consider the possibility that an octopus is a “being with multiple selves.”⁴⁷ Several octopus selfhood proposals follow: 1 self (central brain), $1 + 8 = 9$ selves (central brain + 8 tentacles), and $1 + 1 = 2$ selves (brain + the composite of the 8 tentacles as a unified network).⁴⁸ Godfrey-Smith explores the possibility that an octopus is able, to some extent, to switch between being a unified single subject and nine subjects. That is, the tentacles may be able to produce their own locally controlled responses to what they sense, and, at some moments that require focused and coordinated action, the octopus may impose central control.⁴⁹

Godfrey-Smith's speculations on octopus subjectivity provide grounds for imagining how humans might be able to cultivate such forms of subjectivity through kinetic and sonic awareness. Donna Haraway also suggests this in her book *Staying with the Trouble*. She proposes that "tentacular thinking" can be a metaphorical model to think outside Western ideals that underpin hegemonic worldviews such as "human exceptionalism" and "bounded individualism."⁵⁰ She investigates the etymology of the word *tentacle*: from the Latin *tentare* meaning "to feel, to try." She writes that "tentacularity" is about "life lived along lines—and in such a wealth of lines—not at points, not in spheres" and invites the reader to consider humans not as bounded units but as assemblages that are in constant entanglements with other subjectivities: critters, plants, and microbes.⁵¹

Both Godfrey-Smith and Haraway are talking about a particular kind of consciousness that is inherent in tentacular beings and cephalopods. Does human consciousness have any hint of such a capacity for a decentralized version of awareness, or an awareness that complicates Western cultural notions of individuality? Godfrey-Smith considers this. Though the last common ancestor (bilaterians) of humans and octopuses existed over six hundred million years ago, he speculates on the possibility that the consciousness of this common ancestor may have been well developed at that point, giving us a common genealogy of consciousness/subjectivity. If this is the case, this would gesture toward the human brain having evolutionary roots in a decentered cognition. Godfrey-Smith outlines cases where this kind of consciousness might exist in humans: (1) with the Wada tests, where one hemisphere of a patient's brain is put to sleep with an anesthetic (when the left side is asleep, the patient usually can't speak but remains conscious); and with (2) the independence of brain hemispheres of epilepsy patients who have undergone split-brain surgery.⁵² While these are compelling examples that exist within the region of the brain, Godfrey-Smith makes no speculations about the kind of subjectivity that might extend outside the brain region (e.g., kinetic awareness through nervous system pathways).

One avenue for a human capacity to cultivate a "tentacular" subjectivity is through meditative practices of sonic and kinetic awareness. Vipassana meditation, for example, is based on cultivating an awareness of (and equanimity toward) sensations in the body. The approach of this meditation practice does not center the brain as the perceiver of these sensations but instead allows the meditator to observe these sensations as awareness itself. This is true for many other forms of meditation. Godfrey-Smith does briefly mention meditation practices in relation to consciousness. He states that some who have written about meditation have

proposed a view of consciousness known as “transparency,” where conscious experience always points toward something else, and consciousness itself is not more than this pointing or representation.⁵³

Practices of meditation could play an important role in developing human capacity for experience beyond the point of view of the brain-as-perceiver and of the human-as-bounded-individual. The sounding and listening prompts build on each other and develop the capacity of the vigil keeper to be available to such an experience. MSF’s “Perspective Listening” prompt is one example:

Begin by listening to all sounds. Your ears are an open book. After several minutes begin to zoom in and focus attention on a sound that stands out to you. Then begin to listen from the perspective of where the sound source is coming from. If you’re hearing a bird, listen as the bird—if you’re hearing the hum of an AC unit, listen from the perspective of the AC unit. There is an element of speculation involved here. Write down any observations, insights, or challenges.

Perspective listening takes inspiration from and is in resonance with the goals of *Becoming Sensor* (2014–present), a project by the filmmaker/dancer Ayelen Liberona and the anthropologist / sound artist Natasha Myers. In this project, Myers and Liberona highlight the agency of more-than-human subjectivities. In the project’s website they ask, “What would change if you knew that the trees were watching you?” They approach the project primarily through field recordings and abstract photographs taken at Toronto’s High Park that document the remnants of ancient black oak savannas. They frame *Becoming Sensor* as an attempt to “detune the settler common sense that informs conventional ideas about the living world” and to “push up against the forces of a scientific rationalism that disavows nonhuman sentience and commodifies nature as resource.” They write that “detuning” demands an art of cultivating “new modes of embodiment, attention, imagination.”⁵⁴

The perspective listening prompt also calls for an element of imagination when considering subjectivities outside one’s regular point of view. Godfrey-Smith writes about the human capacity for two kinds of imagining: “perceptual” imagining, which is imagining seeing or hearing something, and “sympathetic” imagining, which is imagining *being* something.⁵⁵ While Godfrey-Smith claims that applying imaginative exercises to other beings is not always informative, he does speculate that more “rigorous” forms of imagination may have a role in understanding animal subjectivities in a way that “has more of a chance of being true to the animals’ lives.”⁵⁶ MSF explores how music, sound, and storytelling can help cultivate these more rigorous forms of imagination, potentially leading the listener to an expanded ecological awareness.

Consider a story found in *The Way of Chuang Tzu*,⁵⁷ the verse/chapter titled “The Joy of Fishes”:

Chuang Tzu and Hui Tzu
Were crossing Hao River
By the dam.

Chuang said:
“See how free
The fishes leap and dart:
That is their happiness.”

Hui replied:
“Since you are not a fish
How do you know
What makes fishes happy?”

Chuang said:
“Since you are not I
How can you possibly know
That I do not know
What makes fishes happy?”

Hui replied:
“If I, not being you,
Cannot know what you know
It follows that you
Not being a fish
Cannot know what they know.”

Chuang said:
“Wait a minute!
Let us get back
To the original question.
What you asked of me was
‘How do you know
What makes fishes happy?’
From the terms of your question
You evidently know I know

what makes fishes happy.

“I know the joy of fishes
In the river
Through my own joy, as I go walking
Along the same river.”⁵⁸

In this story, Chuang Tzu claims to see the subjectivity of the fish through a shared resonance: “joy.” This claim is, of course, not founded on scientific knowledge but on poetic and imaginative experience. Perhaps the noticing of resonances between species as illustrated in this story is an example of a more specific and “rigorous” version of imagination that can help humans better appreciate the subjectivity of other beings. I would speculate that a potential prerequisite to such an ecological awareness may be a sustained practice of kinetic and sonic meditation that trains the brain and nervous system to be attentive to such resonances. The fish themselves can model this kinetic/sonic receptivity for us. As Godfrey-Smith mentions in the book, “In fish, the lateral line system mixes touch with hearing. . . . It detects movements, both close by and farther away, and as it encompasses so much of the fish, it must give rise to a strong bodily awareness.”⁵⁹ Godfrey-Smith states that it is not much of an exaggeration to say that a fish’s body “is a giant pressure-sensitive ear.”⁶⁰ The lateral line system is also present in the aquatic larval stages of amphibians such as newts and salamanders.⁶¹ In one of MSF’s vigil sites, Newt’s Niche, the rough-skinned newt thrives in and around the campus’s only perennial stream. Not only is the newt’s skin a shield against predators (containing a highly poisonous toxin produced by symbiotic bacteria), but it also acts as a sensor for movements and pressure oscillations in the surrounding water. The MSF prompts orient the vigil keeper toward a kindred kind of multisensory perception where bodily awareness and sound are threaded together. In these acts of attentiveness and imagination, the vigil keeper aspires to experience shared resonances with living and nonliving beings in the spirit of Chuang Tzu’s “Joy of Fishes.”

Conclusion

The MSF sound vigil is a commitment to listening and sounding as a methodology for engaging with the past and future histories of the vigil sites and for discovering new ways to imagine socioecological and temporal entanglements in these habitats. The MSF prompts form part of ITM’s “sense-able sonic practices” that are meant

to be cultivated through repeated acts of attentive listening and sensing. The experiential shift in perception that unfolds with this practice is what gives value to the prompts. It is hoped that those who encounter the MSF project will get curious about how they might also look at (and with) the environment through such a lens.

* * *

Alex Wand is a composer interested in folk music, ecology, futurism, social practice art, tuning systems, field recording, and dance/multimedia collaborations. His music has been described as having “melody lines that can circle through one’s head for days after listening, begging to be rewound and re-listened and timbres and layers that are supremely joyful and poignant and at times absolutely laid bare in their sincerity” (New Classic LA). His music has been released on MicroFest Records, Hungry Badger Records, and Frog Peak Music (A Composers’ Collective). He studied music at the University of Michigan and at CalArts and is currently pursuing doctoral studies in music composition at UC Santa Cruz.

Notes

¹ In this essay, *sounding* is both a verb and a noun that refers to “making a sound.”

² The installation was presented as a loop of the sound vigil audio/visual pieces (four-channel audio, two-channel video). Audience members engaged with the vigil keepers’ field notes and the MSF listening prompts and were invited to listen to the sound installation with these prompts in mind.

³ Anna Lowenhaupt Tsing, *The Mushroom at the End of the World: On the Possibility of Life in Capitalist Ruins* (Princeton, NJ: Princeton University Press, 2015), 156, <https://doi.org/10.2307/j.ctvc77bcc>.

⁴ Vanessa Watts, “Indigenous Place-Thought and Agency amongst Humans and Non Humans (First Woman and Sky Woman Go on a European World Tour!),” *Decolonization: Indigeneity, Education & Society* 2, no. 1 (2013): 21, <https://jps.library.utoronto.ca/index.php/des/article/view/19145>.

⁵ *Ibid.*, 21.

⁶ Tsing, *Mushroom at the End of the World*, vii.

⁷ *Ibid.*, 155.

⁸ *Ibid.*, 160.

⁹ Ingrid M. Parker, “Remembering in Our Amnesia, Seeing in Our Blindness,” in *Arts of Living on a Damaged Planet: Ghosts and Monsters of the Anthropocene*, edited by Anna Tsing, Heather Swanson, Elaine Gan, and Nils Bubandt (Minneapolis: University of Minnesota Press, 2017), 155.

¹⁰ Ibid., 160.

¹¹ Richard A. Minnich, *California’s Fading Wildflowers: Lost Legacy and Biological Invasions* (Berkeley: University of California Press, 2008), 219, <https://doi.org/10.1525/9780520934337>.

¹² Parker, “Remembering in Our Amnesia, Seeing in Our Blindness,” 160.

¹³ Ibid.

¹⁴ Ibid., 161.

¹⁵ Mary Ellen Hannibal, “The Amah Mutsun and the Recovery of Traditional Ecological Knowledge,” *Bay Nature*, April 6, 2016, <https://baynature.org/article/re-kindling-old-ways/>.

¹⁶ From ITM’s unpublished article titled “Sense-able Sonic Practices for Staying with the Trouble”: “Sense-ability is a play on Donna Haraway’s respelling of the term *response-ability*. ITM inhabitants have the response-ability to sense. To expand their senses and perceptions to encompass ecological ways of thinking and non-human ontologies. It’s a way to sense (but not make sense of) troubled histories, damaged lands, and emancipatory futures. ITM inhabitants research ways of perceiving these otherwise invisible ecological specters through music compositions, installations, and soundwalks.”

¹⁷ Pauline Oliveros, “Quantum Listening: From Practice to Theory (To Practice Practice),” Plenum Address for Humanities in the New Millennium, *MusicWorks*, no. 75 (Fall 2000): 1.

¹⁸ Ibid., 2.

¹⁹ Ibid., 1–2, 14.

²⁰ Ibid., 15.

²¹ Jiayue Cecilia Wu, “From Physical to Spiritual: Defining the Practice of Embodied Sonic Meditation,” *Organised Sound* 25, no. 3 (2020): 309, <https://doi.org/10.1017/S1355771820000266>.

²² Bstan-'dzin-rgya-mtsho, Alexander Berzin, and Blo-bzang-chos-kyi-rgyal-mtshan, *The Gelug/Kagyü Tradition of Mahamudra* (Ithaca, NY: Snow Lion Publications, 1997), 60–61, 70.

²³ Ibid., 61.

²⁴ Ibid., 70.

- ²⁵ Alva Noë, *Out of Our Heads: Why You Are Not Your Brain, and Other Lessons from the Biology of Consciousness* (New York, NY: Farrar, Straus and Giroux, 2010).
- ²⁶ Oliveros, “Quantum Listening,” 8.
- ²⁷ Helena Simonett, “Envisioned, Ensounded, Enacted: Sacred Ecology and Indigenous Musical Experience in Yoreme Ceremonies of Northwest Mexico,” *Ethnomusicology* 58, no. 1 (2014): 120, <https://doi.org/10.5406/ethnomusicology.58.1.0110>.
- ²⁸ Ibid., 110.
- ²⁹ Ibid., 116.
- ³⁰ E. P. Thompson, “Time, Work-Discipline, and Industrial Capitalism,” *Past & Present*, no. 38 (1967): 95, <https://doi.org/10.1093/past/38.1.56>
- ³¹ Ibid., 69.
- ³² Ibid., 95.
- ³³ Howard Eiland and Michael W. Jennings, eds., *Walter Benjamin: Selected Writings, 4: 1938–1940* (Cambridge, MA: Belknap Press of Harvard University Press, 2006), 395.
- ³⁴ Karen Barad, “Troubling Time/s and Ecologies of Nothingness: Re-Turning, Re-Membering, and Facing the Incalculable,” *New Formations: A Journal of Culture/Theory/Politics*, no. 92 (September 2017): 92, <https://doi.org/10.3898/newf:92.05.2017>.
- ³⁵ Alejandro A. Vallega, *Latin American Philosophy from Identity to Radical Exteriority* (Bloomington: Indiana University Press, 2014), 106.
- ³⁶ Barad, “Troubling Time/s and Ecologies of Nothingness,” 60.
- ³⁷ Tsing, *Mushroom at the End of the World*, 21.
- ³⁸ Ibid.
- ³⁹ “Court of Cicada,” 2021, Mapping Sonic Futurities, accessed June 25, 2022, <https://mappingsonicfuturities.com/court-of-cicada>.
- ⁴⁰ Peter Godfrey-Smith, *Metazoa: Animal Life and the Birth of the Mind* (New York: Farrar, Straus and Giroux, 2020), 189–90.
- ⁴¹ Barad, “Troubling Time/s and Ecologies of Nothingness,” 65.
- ⁴² Ibid., 67.
- ⁴³ Barad, “Troubling Time/s and Ecologies of Nothingness,” 68.
- ⁴⁴ Ibid., 65.
- ⁴⁵ Godfrey-Smith, *Metazoa*, 129–30.
- ⁴⁶ Ibid., 157.
- ⁴⁷ Ibid., 148.
- ⁴⁸ Ibid., 149.

⁴⁹ Ibid., 150, 158–59.

⁵⁰ Donna Jeanne Haraway, *Staying with the Trouble: Making Kin in the Chthulucene* (Durham, NC: Duke University Press, 2016), 30, <https://doi.org/10.1215/9780822373780>.

⁵¹ Ibid., 31–32.

⁵² Godfrey-Smith, *Metazoa*, 150.

⁵³ Ibid., 116.

⁵⁴ Natasha Myers and Ayelen Liberona, *Becoming Sensor*, accessed April 7, 2022, <https://becomingsensor.com/>.

⁵⁵ Godfrey-Smith, *Metazoa*, 107.

⁵⁶ Ibid.

⁵⁷ Chuang Tzu was a Chinese philosopher from the third and fourth century BCE whose writings form part of the foundational texts for Taoist thought.

⁵⁸ Thomas Merton, *The Way of Chuang Tzu*, rev. ed. (New York: New Directions Books, 2010), 97–98.

⁵⁹ Godfrey-Smith, *Metazoa*, 172.

⁶⁰ Ibid., 173.

⁶¹ Margaret R. Wright, “The Lateral Line System of Sense Organs,” *Quarterly Review of Biology* 26, no. 3 (1951): 264, <https://doi.org/10.1086/398235>.