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Santa Barbara

Composing with the Land: Permaculture Listening Practices and Grotesque Ecologies

A dissertation submitted in partial satisfaction of the

requirements for the degree Doctor of Philosophy

in Music

by

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June 2023

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Composing with the Land: Permaculture Listening Practices and Grotesque Ecologies

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by

Brian Alexander Karvelas

ACKNOWLEDGEMENTS

In writing this dissertation, I have had the privilege of receiving abundant guidance and support from my committee, my fellow graduate students, my family, and my community. I give thanks first to my advisor Timothy Cooley, who has supported my intellectual efforts for well over a decade, from my first years as an undergraduate to the completion of my doctoral degree. Professor Cooley's unwavering patience and keen, openminded inquiry played particularly crucial roles in the incubation of this somewhat unorthodox study, and I am humbled by the generosity he showed me through countless hours of reading, editing, and discussing my work through each stage of development. David Novak, who I also had the privilege of working with throughout both my undergraduate and graduate studies, has consistently offered me insightful, supportive critique and his reading of my work has fundamentally shaped not only this dissertation but my intellectual process generally. Scott Marcus has been a deep source of inspiration for me, again, since my first years of undergraduate study. Professor Marcus opened my eyes, ears, and mind to the discipline of ethnomusicology and has welcomed and encouraged me at every step; I am grateful that his meticulous sense of scholarly rigor graces these pages. David Pellow showed incredible generosity and kindness throughout my graduate study, guiding me in shaping my interdisciplinary approach and providing timely and generative commentary for my M.A. thesis, my qualifying exams, and my dissertation. Mary Hufford, whose writing inspires the central argument of this dissertation, has met my work with a number of incisive inquiries that continue to shape my thinking and my goals as a scholar and researcher. Jeff Todd Titon offered thorough and illuminating commentary and generously made himself available for correspondence and conversation throughout my

research phase. Professor Titon's impressively expansive modeling of interdisciplinarity also stands as a central inspiration for this dissertation. At the individual and collective level, I could not have asked for a more compelling and compassionate committee.

I give thanks to all of my fellow graduate students for their insights and friendship. In particular, I want to express gratitude to Eugenia Siegel Conte for taking so much time and care with my writing. I learned a huge amount from her discussion of my work, and from her own work, and I am grateful for the sense of scholarly camaraderie that she instilled in me. I give thanks I give thanks to the American Indian and Indigenous Collective, to Margaret McMurtrey, Alesha Claveria, and Candace Waid for cultivating such a vibrant space for friendship, scholarship, and prayers for futurity. I hold deep gratitude for Mia Lopez, her family, and the Coastal Chumash community, who showed such kindness to me as a newcomer on their ancestral lands during my years of study at the University of California, Santa Barbara. I give thanks to my wife Magnolia, for her patience, love, intelligence, and willingness to accompany me on my journey. I would not have been able to write this dissertation without her partnership and support, intellectually, emotionally, spiritually, physically, and financially. I give thanks to all of my friends for their encouragement and confidence, and particularly to Mazyar Karandish, who provided me with a strong, constant foundation of companionship and kept my morale high throughout my studies. I give thanks to my family, my mother and father and brothers for their love and guidance; it is from them that I first learned how to care about people and about the earth. I give thanks to the earth, to the California soil on and of which I was born, and which continues to nourish me, shelter me, and provide me with the strength to live. I give thanks in particular to the land of Hidden Waters in Petaluma, to the garden there and to Rachel

Kaplan, who tended the garden before me, alongside me, and after me. I give thanks to the beings and being-ness of that garden for inspiring me to write the following pages. I write from all of these places and these people, and I write for them, with deepest gratitude.

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ABSTRACT

Composing with the Land: Permaculture Listening Practices and Grotesque Ecologies

by

Brian Alexander Karvelas

This dissertation presents an analysis of permaculture listening practices as a set of strategies for perceiving and participating with more-than-human ecological subjectivities (Diehm 2002: 29-33; Posthumus 2017: 26). Today, permaculture is a grassroots social movement for ecological regeneration and eco-social justice grounded in a three-fold ethics of "earth care, people care, and fair share" (Henfrey 2018: 33). These conceptions of care are rooted in a worldview that asserts the irreducible "coconstitution of nature and culture" (Trauger 2017: 40, Mollison 2002: 95) and in a relational practice of ecosystem observation, immersion, and co-composition. Recognizing permaculture's global and internally diverse character, my study combines ethnographic engagement with permaculture practitioners in Northern California, ethographic engagement (Rose and Van Dooren 2016) with more-than-human ecological subjectivities, and extended analysis of permaculture texts and discourses. Positioning my research in the intersections of ecomusicology, sound studies, and environmental humanities, I consider the ways in which listening operates both discursively as a conceptual tool for communicating permaculture values and ethics, and practically as individuals and communities work with landforms and ecosystems. One of my primary objectives is to critically assess the specific participatory character of permaculture listening as a crucial aspect of multispecies cohabitation (Feld 2017: 84; Tsing 2015: 29) and sociality (Rose and Van Dooren 2017). From my situated analysis, I argue that permaculture listening

strategies gesture toward and enact a grotesque (following Hufford 2019: 22) more-than-human musicality. This thesis contributes to emergent discourses in ethnomusicology concerning disciplinary responses to the challenges of posthumanism (Silvers 2020; Titon 2020: 255-274), and to broader environmental humanities discourses on the cultivation of "arts of living on a damaged planet" (Tsing et al. 2017).

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Introduction: Regenerative Design and Regenerative Resonance

> I assumed climate change would be loud, appropriately wrathful, apocalyptic. We would all be chastised by a fist-pounding all-knowing force shaking us from the heavens. I wasn't prepared for silence, for stillness. The sound and feel of what was not there.
>
> —Denise Von Glahn, "SEM President's Roundtable 2018, "Humanities Responses to the Anthropocene"

In her contribution to the 2018 Society for Ethnomusicology President's Roundtable on "Humanities' Responses to the Anthropocene," Denise Von Glahn speculates that "silence may be the final, ultimate sound of climate change" (Von Glahn 2020: 316). While this statement comes as a part of her reflection on the collapse of the energy grid in Tallahassee, Florida in the wake of Hurricane Michael in 2018, she also references Rachel Carson's prophetic work on the effect of synthetic pesticides in industrial agriculture. These silences are, of course, intimately interwoven, and they amplify one another. The grinding, static hum of industrial life masks the deepening silence of mass extinction, and when cataclysmic events disrupt the electric pulse of industrial infrastructure, listeners are confronted with a doubly disturbing sense of absence. The most telling and chilling sound of environmental disaster is silence; the lack of regeneration. Degenerative silence is an ecological echo of industrial extractivism, a mute signal that life systems have been violated or stressed beyond their capacity to persevere or recover. This silence intervenes in posthuman cyborg theories that would collapse and conflate the agency and vibrancy of computers or couches or plastic bags with the liveliness and creativity of soil communities and the squelching, yelping, hollering, humming bodies that emerge from and merge with soils and waters. The always not-quite-ness of this silence, though, reaffirms the need to think with porosity and

permeability, and to practice discernment between and within the many shades of potential and actual liveliness and deathliness.

The necessary relationship between silence and listening—and between listening and embodied experience—also serves as a reminder that the sounds of climate change are always perceived from specific listening positionalities; silence is a relative perception that emerges in the consciousness of sounding bodies, and "it depends on the types of entities that produce and perceive it" (Ochoa Gautier 2015: 189) as well as on the forms of hegemonic perception that operate on those entities. As Ana María Ochoa Gautier points out, "central to the biopolitics of silence is the pervasive dialect between recognition and negation that is constitutive of the modern" (ibid.: 186). Modern subjectivity, Ochoa Gautier argues, "demanded a specific type of listening constituted by silent attention, understood as a crucial dimension of an ideal, rational subject that is in control of the production of meaning," which in turn "required the cultivation of an enlightened notion of the senses, which involved the silencing of irrational or noisy forms of listening" (ibid.). The disciplining force of modern subjectivity shapes not just perceptions of silence and sound, but notions of who and what can listen and make sound:

> In Western culture, audition (or lack thereof) is associated mostly with humans and animals; but in some other cultures, entities such as stones, wind, and other types of nonhuman forms also have the capacity to listen, to lose hearing, or to provoke silence. The question then rests on the changing metaphysics and physics of the definition of forms of life across cultures and history…. The presence or absence of sound then stands as the very mediator of the presence or absence of life, showing us how myths (or cosmologies) can tie events into structures. But the acknowledgement of such a relation—based as it is on admitting the agentive acoustic dimensions of nonhuman entities in the affairs of humans—is largely based on an understanding of the relations between humans and nonhumans that unsettles the historically constructed boundaries between nature and culture, the human and the nonhuman, in Western modernity. (Ochoa Gautier 2015: 189)

Following Ochoa Gautier's analysis, modern experiences of silence as the ultimate sound of climate change are shaped by a particular biopolitics of silence in which the perceived presence or absence of sound mediates the perceived presence or absence of life. Listening for climate catastrophe in this sense becomes a culturally situated act of identifying auditory thresholds of liveliness and deathliness, and the concept and experience of silence thus holds deep explanatory power and affective force in narratives of loss, destruction, displacement, and death. This is crucial point in understanding the relevance of sound studies to the cultural and ecological crises of climate disaster: experiences of climate disaster, tethered as they are to experiences of colonial displacement, genocide, and ecocide, are thoroughly entwined with human experiences of silence and silencing as shaped by the construction of modern subjectivity. The deliberate use of sound as a tool for colonization, for the breaking of certain silences and the imposition of other silences, situates listening, and listening bodies, in the midst of ongoing histories of violence, resurgence, and regeneration.

In his essay on "The Sound of Climate Change," Jeff Todd Titon suggests that "you don't have to be a soundscape ecologist to know that a loud, buzzing, honking, croaking, singing patch of forest is a healthy [ecosystem], or that a silent spring is not" (2016: 28). Here Titon situates sound as a manifestation of ecological health; the listener (human or otherwise) discerns thresholds of liveliness and deathliness through moments of copresence with sounding entities, or through moments of absence. It is worth pointing out here that loudness, the presence of sound, is not always indicative of ecological health and silence is not always indicative of ecological ruin (the loudness that accompanies industrial extraction, for instance, reverses this relationship). In either case, Titon charges the listening subject with the task of discerning between regenerative and degenerative resonance, and, at the

same time, foregrounds copresence in sound as a critical step in building ecological knowledge. To this same point, Denise Von Glahn offers a slight counter to Jeff Todd Titon's assertion that expressions of ecosystem health and dysfunction are intuitively self-evident. Returning again to Rachel Carson's foundational work, she offers that "Rachel Carson heard the silence, but she was listening; you can't hear the silence if you aren't listening. And you wouldn't know there was silence if you hadn't noted the sounds before" (Von Glahn 2014: 23). Von Glahn indicates the need to cultivate specific practices for "increasing listening, attentiveness, and awareness" (ibid.) as a crucial step toward ecological discernment. While listeners certainly may not need to be soundscape ecologists to determine the health and dysfunction of ecosystems, they do need to have intimate experiential knowledge of how specific ecosystems express their health and dysfunction, their degeneration and regeneration.

This dissertation responds to the question of how ecological regeneration is perceived, conceptualized, and engaged in specific cultural and ecological contexts: How do ecological relationships come to be conceptualized and experienced as sounded copresence? How and why are sounding and listening operationalized in creative strategies for collaborative survival in the midst of escalating ecological crises? In my specific iteration of this inquiry, I investigate the role of listening in permaculture land-tending work and demonstrate the importance of listening practices and discourses to the critical work of ecological regeneration. I approach permaculture as a method for ecological-social design that prioritizes and emulates the regenerative capacity of biodiverse ecosystems and that is characterized by specific listening practices and specific understandings of sound, pattern, sociality, and musicality. Through engagement with teachers, students, and pedagogical

texts, I explore how the experiential context of permaculture practice frames listening as an embodied act of more-than-human sociality that sets practitioners in conversation with the ethos and subjectivity of those ecosystems and landforms.

When tending land is framed as conversation, the goals and results differ from those of conventional horticulture and agriculture. For instance, in the permaculture garden that I tend with my landmates, two mature wild radishes block a section of the walking path that leads toward the berm-and-swale beds on the high side of the semi-rural-suburban property; they form a lively impasse that hums lightly in the daytime with the flight and forage of pollinating insects; their roots wend slowly through the hard clay soil under the woodchip mulch that we laid in the fall to define the path. We don't pull the radishes. We walk around them or shimmy between them, listening for the hum of pollination, the small resonances of regeneration that persist into dry heat of early summer. As the bodies of radishes emerge from the land, they call our bodies into conversation in the etymological sense of 'turning with'; they rise in our path and compel us to turn, to respond. The subtle sonic expression that emanates from the radish-soil-insect assemblage constitutes one aspect of their sympoiesis, their creative, collaborative survival (Haraway 2017: M27). It is toward this sympoiesis that permaculture listening tends—perceiving and participating in regenerative sympoietic patterns constitutes the fundamental goal of permaculture. So, in conversation with the wild radishes, we celebrate their growth and the pulse of abundance that they provide to what had previously been a silent stretch of wood-mulched path. If silence, following Von Glahn's speculation, signals an ultimate state of climate disaster, then the cultivation and amplification of these subtle sounds—the resonance of insect bodies and

plant bodies and the slow, cycling growth of soil life—signal a different kind of futurity characterized by liveliness and regenerative entanglements.

This vignette demonstrates one of the main differences between permaculture and conventional agriculture or horticulture in the Western context. While conventional landscaping, gardening, or monoculture farming generally holds no functional place for wild radishes or other weeds—and would just as soon see them pulled up and discarded as inconvenient intruders—permaculture begins from a place of curiosity about what the plant is expressing in, about, and as the landform. The permaculture approach asks how the radishes interact—generatively, degeneratively or both—with the other creatures and elements of the landform, and allows this inquiry to be answered by the synergistic expression of the landform as a holistic entity, a phrase for which Donna Haraway offers the contraction holoent (Haraway 2017: M45). This does not mean, of course, that radishes and other so-called weeds or feral plants are never pulled or killed—permaculture is a non-innocent ethical practice of developing situated, partial relationships with place. The decision of whether or when to take life, however, is in principle situated first and foremost in a caring conversational relationship with the ecological subjectivity of the place and not in an economic rationality or abstracted morality (Puig de la Bellacasa 2018: 153-155).

Permaculture: Movement, Method, Worldview

Permaculture is a globalized social movement for ecological regeneration and restorative eco-social justice grounded in three fundamental ethical imperatives; “earth care, people care, and fair share” (Henfrey 2018: 33). These particular conceptions of care are rooted in a worldview that asserts the irreducible “coconstitution of nature and culture”

(Trauger 2017: 40, Mollison [1988] 2002: 95), and this epistemological commitment forms the basis for permaculture as a "scientific and artistic design method" (Planting Justice 2020). The term eco-social denotes a conceptual and experiential merger of the ecological and social realms. The permaculture slogan "the ecological is social" communicates an activist orientation to integrative strategies that ultimately understand earth care and people care to be one in the same. The term eco-social is also utilized in environmental studies and the environmental humanities to address the limitations inherent in theorizing social systems as distinct from ecological systems (or ecosystems). The idea of eco-social systems, or social-ecological systems, helps to "emphasize the integrated concept of humans-in-nature…. In this perspective, the delineation between social and ecological systems is understood to be arbitrary and artificial" (Neudoerffer et al. 2005: 12, also see Berkes and Folke 1998, Waltner-Toews et al 2003, Folke 2004; Shinall 2015). The integrative concept of eco-social, then, is transdisciplinary in the sense that it is utilized in academic and grassroots contexts. In both of these contexts the concept of the eco-social functions in the construction of ecocentric identities (scholarly, activist, and otherwise), where ecocentric refers to an emphasis on articulating and demonstrating "interconnectedness between all life forms" and a critical interrogation or displacement of hierarchical "notions of individual human worth" (Bretherton 2001: 19).

Permaculture and its diverse communities of practitioners around the globe have received relatively little scholarly attention, most of which is situated in critical geography and environmental ethics. Within this small body of research, scholars identify the permaculture movement as a crucial node of grassroots organizing for eco-social justice (Trauger 2017: 46) and a "timely intervention at the heart of contemporary awareness that we

live in a *naturecultural* world" (Puig de la Bellacasa 2018: 127). Building an interdisciplinary body of research and analysis of the historical, cultural, philosophical, and ecological aspects of permaculture, in this sense, constitutes an important contribution to natureculture theorizations in environmental humanities scholarship, as well as in environmentally oriented music and sound studies scholarship. The term natureculture, "a synthesis of nature and culture that recognizes their inseparability in ecological relationships that are both biophysically and socially formed…is a concept that emerges from the scholarly interrogation of dualisms that are deeply embedded within the intellectual traditions of the sciences and humanities" (Malone and Ovenden 2017: 1). Natureculture theories grapple with the limitations of these dualisms as well as the roles they play in narratives that normalize and perpetuate ecological degradation and climate catastrophe. As a grassroots movement that articulates and acts on these same concerns, permaculture is good to think with in academic efforts toward identifying and cultivating "arts of living on a damaged planet" (Tsing et al. 2017). Scholarly engagement with functional natureculture frameworks such as permaculture become increasingly urgent in the context of escalating climate collapse as Nature/Culture binaries, "those old saws of Western philosophy and political economics, become unthinkable in the best sciences, whether natural or social…. Seriously unthinkable: not available to think with" (Haraway 2016: 30).

Working from a music and sound studies lens, I am centrally interested in how permaculture's ethical and epistemological grounding gives rise to particular ways of knowing the world through sound, what ethnomusicologist Steven Feld calls "acoustemology" (Feld 2015, 2017). In examining permaculture's ethical, epistemological, and acoustemological orientations, I also give critical consideration to the movement's

complex and contested relationships with diverse Indigenous ecological knowledges (Peña 2017: 348, Angarova et al. 2020), and to the challenges and opportunities that permaculture inherits in the U.S. context as a settler-dominated cultural framework oriented toward decolonial modes of eco-social relationality (Dolman 2016: 54).

I will give more in-depth discussion and analysis of permaculture as an eco-social movement, agriculture method, and natureculture worldview in the following chapter. In my discussion, however, I do not intend to present a broad, comprehensive analysis of permaculture; instead, I will focus my attention specifically on those aspects of permaculture that are relevant to listening discourses and ways of conceptualizing and perceiving sound and music in ecosystems or landforms. As a result, my account of permaculture is, by design, partial. There are many issues important to permaculture that are not explored in detail in this study, such as the role of permaculture communities and organizations in coalition building towards political mobilization and just transitions, the relationship between permaculture and the Transition Town model, the Extinction Rebellion movement, the youth-led Sunrise movement, or other environmental justice movements. My focus here is on qualitative analysis and experiential knowledge of how permaculture ethics and practices orient listening human bodies toward eco-social participation, collaboration, and more-than-human musicality.

Positioning my research in the intersections of ecomusicology, sound studies, and the environmental humanities, I consider the ways in which listening operates both discursively as a conceptual tool for communicating permaculture values and ethics, and practically as individuals and communities work within ecosystems and with the organisms and landforms (hills, creek ravines, meadows, gardens, etc.) that constitute them. Listening, as a term, is

highly malleable across cultural frames and "encompasses a wide variety of modes, qualities, or types of auditory attention" (Rice 2015: 99). Listening is also conceptualized and experienced differently in relation to the senses, and while it is centrally associated with perception of acoustic signals, "the meanings of 'listening' have proliferated into nonauditory spheres" (ibid.: 100). Through my analysis of relevant permaculture texts, engagement with permaculture discourses, and reflexive experiential practice, I present a figuration (in the sense articulated by Neimanis 2017: 7-8) of permaculture listening as a multisensorial form of eco-social participation oriented toward more-than-human conversations (Hufford 2019; Rose 2002) that emerge within and between ecological subjectivities (Posthumus 2017). Listening, in this research context, refers to the direction of attention to the multisensorial texture of copresence with landforms. This figuration of permaculture listening constitutes the fundamental object of inquiry throughout my dissertation. One of my primary objectives in taking up this object of inquiry is to critically assess the specific participatory character of permaculture engagements with more-than-human ecological subjectivities, and to ask if and how listening becomes a crucial aspect of multispecies cohabitation (Feld 2017:84; Tsing 2015:29) and sociality (Rose and Van Dooren 2017) in the permaculture context. From my situated analysis, I argue that permaculture listening strategies gesture toward and invite a kind of more-than-human musicality. My intention in making this (admittedly somewhat provocative) assertion is to contribute to emergent discourses in ethnomusicology concerning disciplinary responses to the challenges of posthumanism (Silvers 2020; Titon 2020:255-274), which I discuss in more detail below.

Research Methods and Positionality

In this study I combine focused analysis of permaculture texts with multispecies "ethographic" (Rose and Van Dooren 2016) approaches and ethnographic engagement with permaculturists' everyday practices and discourses. These three methodological modes inform and support one another in crucial ways. Ethnographic engagement with permaculturists, specifically with regard to listening practices, demands taking seriously the more-than-human lives that permaculturists themselves orient toward in their discourse and practice, and thus calls for a sustained multispecies sensitivity. The theoretical and practical challenges of multispecies or more-than-human relationship-building, furthermore, need to be understood in relationship to permaculture's unique histories, worldviews, and philosophies as expressed in written texts, which provide fundamental and ongoing inspiration for permaculture practice. My interpretations of permaculture texts are set in direct dialogue with my interpretations of permaculturists' conversations, and also in direct dialogue with the actual, lively, more-than-human encounters that are prompted and anticipated by these texts and conversations. In this way I engage permaculture writers, teachers, and practitioners as people who "for a diverse range of reasons, make it their business to understand other forms of life" and whose "knowledges must be evaluated for what they teach us as well as, with a critical eye, for the particular political and technical architectures of framings within which they are produced" (Rose and Van Dooren 2016: 86). I craft my methodology with an intention toward both intimate participation in and critical understanding of how permaculture, as a social movement and a method for ecological regeneration, asks people to listen and what it asks people to listen to.

Permaculture's epistemological and methodological commitments align in significant (if partial) ways with academic discourses on ecocentrism and natureculture: in this sense my

project of writing with rather than about permaculture also becomes, to a great extent, a project of writing with relevant academic discourses and of seeking moments of both alignment and tension between permaculture and academic scholar-activism around issues of climate disaster and natureculture entanglements. The interweaving of the 'etho,' 'ethno,' and 'eco' in my methodology reflects my intention to explore these alignments; to follow Puig de la Bellacasa's call to think with permaculture as a naturecultural intervention into contemporary awareness, and to take seriously the more-than-human subjectivities (plants, animals, landforms) that permaculture practice steps into conversation with. Both the 'ethnos' aspect of this study—human permaculturists—and the 'ethos' aspect—plants, animals, landforms, and collective ecological subjectivities—converge around the question of embodied copresence. The discourses and embodied practices that permaculturists engage in around listening to landforms, for instance, bring them into a visceral experience of immersion with and within other bodies; plant, animal, soil, water, landform. The experience of being a listening, expressing body amongst other listening, expressing bodies constitutes the basic condition and context for permaculture's fundamental endeavors to compose, be in conversation with, and befriend specific landforms. As such, my inquiry into permaculture listening practices is situated in my own embodied experience of doing permaculture listening practices and setting myself into conversation with the ecological subjectivities that permaculture discourse orients toward.

While a significant portion of the research and argument in this dissertation deals directly with permaculture texts and discourses that circulate within and across permaculture communities around the globe, my fieldwork and the overall analytical scope of my research is focused in Northern California, and specifically in the coastal region of Sonoma County.

Even within the relatively small territory of Sonoma County, my study must be understood as partial; permaculture is practiced and conceptualized in many different ways by local practitioners in the area with distinct ancestral lineages, spiritual orientations, and specific social-ecological visions. My access to these various iterations of permaculture practice is shaped by my positionality as an academic researcher of European-settler descent; it is not my intention, nor my place, for instance, to represent the kinds of permaculture practiced by Black-led permaculture projects focused on Afro-diasporic ecological knowledge traditions. Nor is it my intention or place to represent local Indigenous re-appropriations of permaculture practices. While I seek out and welcome dialogue with these communities, the content of this dissertation engages with public-facing discourses and does not represent the practices of local Indigenous, Afro-Indigenous, or Afro-diasporic communities.

This aspect of my methodology honors a refusal, expressed to me by these communities, of what Dylan Robinson describes as "Western premises of knowledge acquisition and dissemination" (Robinson 2020: 21) that conflict with and violate their own knowledge-sharing protocols. In this sense, my writing is shaped by "strategies of refusal," blockade, or subversion articulated both by Black and Indigenous permaculture practitioners and by Black and Indigenous scholars (Robinson 2020: 22-23; King 2019: 19; Garneau 2016: 26; Simpson 2014: 11). I am compelled in this sense also by Deborah Wong's aspiration, specifically with respect to issues of Indigeneity, "to claim no knowledge, no authority, and maybe not even request collaboration" (Wong in Robinson 2020: 246). In acknowledging the limits of my positionality, I do not, however, step away from the necessity of recognizing Indigenous and Black contributions to, and critical interventions in, permaculture as a movement. I address this topic through analysis of public-facing discourse about identity

politics in permaculture and the role of Black and Indigenous communities—which is itself abundant enough to write on extensively (see Escovedo 2021; Angarova et al. 2020; Penniman 2018a, 2018b; Peña 2017; Akuno 2016; Baxter 2015: 7-8)—and through the context of my study at the Occidental Arts and Ecology Center, which is a settler-and-Indigenous led permaculture organization that prioritizes coalition building with Indigenous communities and Black-led permaculture projects.

While the dense entanglements of decolonizing efforts and traditional ecological knowledge are critically relevant to any study of permaculture, and while they shape my methodology in concrete ways as described above, they are not the central focus of this dissertation. In developing my own analysis of permaculture listening discourses, I move from a recognition of these entanglements toward a situated analysis of listening discourses bounded within the contours of my ethnographic and ethographic relationships (outlined below) and within the more distributed mycelial context of permaculture texts that circulate through and inform distinct permaculture communities. I am confident that the scope of my research, while necessarily bounded, allows me to develop an analysis of key issues pertinent to permaculture listening practices that have real bearing on both the experiences of local practitioners in Sonoma County and on the ethical and practical concerns of permaculture communities more broadly. With this said, more detailed study of different communities, projects, and places would surely yield important insights relevant (and hopefully challenging) to my findings and my arguments.

I have been involved in grassroots permaculture projects in Northern California, as well as internationally in Greece and New Zealand, for the past ten years, and this depth of experience informs and facilitates my fieldwork. Through my extensive involvement, I have

come to recognize Sonoma County as an important node in global permaculture networks and also as a critical zone for confronting the immediate impacts of extractivist-driven climate disaster (particularly the compounding effects of long-term drought and the escalation of wildfire). Permaculture organizations in this area also emphasize the importance of Indigenous leadership and collaboration with local Indigenous communities, which in the western part of Sonoma County include the Coast Miwok and Southern Pomo people, who together won federal recognition as the Federated Indians of Graton Rancheria, and the Kashaya Pomo, whose ancestral homelands are to the northwest of the Graton Rancheria. Coast Miwok, Southern Pomo, and Kashaya Pomo lands are home to several prominent permaculture centers and programs, including Starhawk's Earth Activist Training (which operates in Kashaya Pomo territory, with headquarters also in San Francisco on Ramaytush Ohlone land), Pandora Thomas' Earthseed Permaculture Farm, recently established in Coast Miwok and Southern Pomo territory in 2021 as the first Black-owned and Black-run permaculture center in the county, and the Occidental Arts and Ecology Center, a prominent regional and global hub for permaculture activism established in 1994, also located on Coast Miwok and Southern Pomo ancestral land.

Of these multiple permaculture centers, my research in this dissertation focuses largely on the Occidental Arts and Ecology Center (henceforth abbreviated as the OAEC). Much of my analysis in the following chapters of permaculture listening practices draws directly on pedagogical materials from the OAEC's permaculture design course, which I completed in the spring and summer of 2021. While I had relocated to Sonoma County in 2020 to facilitate both my ethnographic interaction with local permaculturists and my qualitative immersion in the ecosystems that they tend, my ethnographic pursuits were

significantly impacted by the deepening of the Covid-19 pandemic. The OAEC's permaculture design course was held remotely over zoom meetings, and my interactions with the teaching staff and my fellow students were entirely virtual during this period. The course's virtual format, particularly in the context of the pandemic, did significantly limit my capacity to engage with my classmates. My efforts to follow up with my cohort outside of the virtual classroom, for interviews and email correspondence, yielded initial enthusiasm but very little in the way of sustained participation. Whether this can be attributed to the collective and individual stresses of the pandemic, the particular character of the cohort, my failure to present compelling invitations to my classmates, or a combination of these and other factors, it is the case that most of the ethnographic data that I present from this course is gathered from in-lecture conversation and discussion. The twelve weeks of lecture materials and discussions, however, do constitute an ample body of qualitative data to engage with, which I analyze alongside my previous and ensuing interactions with local permaculture practitioners.

Recognizing these challenges, the virtual format of the permaculture design course also facilitated my research in unexpected ways. Most prominently, it facilitated my focus on ethographic engagement with more-than-human research subjects and on my own embodied practice of the listening exercises that I center in my study. This more-than-human research focus followed in large part from the structure of the OAEC course itself, wherein students were instructed to apply the course materials to the design of their own permaculture site. The design site could be a backyard, a community garden, a sidewalk strip, an apartment balcony, or a forest ecosystem; wherever and whatever the nature of the site, the focus was on the application of permaculture principles toward some end goal that expresses or aligns

with the basic ethics of earth care, people care, and fair share. This is a standard format for permaculture design courses across the globe, and in this way the otherwise intensely disruptive character of the pandemic actually facilitated the trajectory of the course: instead of meeting collectively in one place and then going back to our field sites to apply the lessons we had learned, we attended our classes virtually while immersed physically in our field sites or design sites. The teaching staff noted this as an unexpected benefit of the remote learning format that was specific to the permaculture design course structure. We were also prompted to carry out regular observation exercises, called sit spot listening exercises (described in more detail below), in our respective sites. Without the benefit of in-person meetings, carrying out the sit spot exercises became a primary way of integrating the lessons and discussions from the classes and course materials, and prompted, in my experience, a foregrounding of the embodied experience of listening that permaculture pedagogy emphasizes.

Because I had moved to an already-established permaculture garden in Petaluma (thirty miles southwest of the OAEC in Coast Miwok territory), I chose to apply my educational experience from the design course to my engagement with that existing garden. This approach made sense to me on several levels; first, it allowed me to carry out my research within the constraints of the pandemic without leaving my residence; second, it put me into regular contact with the land-owner, Rachel Kaplan, a permaculture teacher-practitioner and somatic psychotherapist who had originally established the garden and who continues to be the garden's primary caretaker. Rachel is a well-recognized permaculture practitioner and teacher in the Sonoma County area, and the author of a permaculture book focused on urban homesteading (Kaplan and Blume 2011). I worked, along with my partner

Magnolia, in Rachel's garden from 2020 through 2022, and during this time Rachel became an important interlocutor and conversation partner in my research project. Throughout the dissertation I set my interactions with Rachel in dialogue with the pedagogical material from the OAEC course and with my own engagements with more-than-human entities of the garden. The garden as a being, in turn, became a primary research subject in their own right. The experience of living in intimate proximity with(in) the garden's many fleshy, earthy, fibrous, bodies who ventured up to and quite literally into my front door (curious cleavers in the springtime curling their way around our door frame and into our small studio) facilitated an in-depth, immersive ethographic study of the garden. My relationship with the garden is ongoing, but for the sake of creating a bounded structure for this dissertation, I focus mainly on a yearlong period of daily observations and participatory interactions with the garden, from the winter of 2021 to the winter of 2022. This approach enabled me to collect qualitative ethographic data throughout a full four-season cycle, bringing temporal and seasonal depth to my study.

In positioning a garden as a primary research subject, I follow Deborah Bird Rose and Thom Van Dooren's framework of ethography, a field methodology "grounded in an attentiveness to the evolving 'ways of life' (or *ēthea*; singular *ethos*) of diverse forms of human and nonhuman life" (2016: 77). Rose and Van Dooren's concept of ethography is situated within "an extensive and growing body of work in the humanities and social sciences in the broad area of 'multispecies studies'" (Rose, Van Dooren, and Chrulew 2017: 4); other related sub-labels within multispecies studies include multispecies ethnography (Kirksey and Helmreich 2010), etho-ethnology (Lestel, Brunoies, and Gaunet 2006), anthropology of life (Kohn 2013, anthropology beyond humanity (Ingold 2013), and more-than-human

geographies (Lorimer and Driessn 2014; Whatmore 2003). While these labels represent distinct approaches to the study of multispecies worlds, "all these approaches are united by a common interest in better understanding what is at stake—ethically, politically, epistemologically—for different forms of life caught up in diverse relationships of knowing and living together" (Rose, Van Dooren, and Chrulew 2017: 5). Ethography itself weaves together natural sciences orientations toward biological and ecological processes with the qualitative and participatory imperatives of cultural anthropology, and the philosophical commitments of environmental ethics in order to understand and articulate "multispecies stories in which entangled becoming across all of the kingdoms of life is an unavoidable reality" (Rose and Van Dooren 2016: 86-87).

I integrate this ethographic method of multispecies attentiveness with a phenomenological approach to fieldwork that prioritizes an experiential "knowledge-of" as opposed to a positivist "knowledge-that" (Titon 2008: 27) and positions fieldwork as a fundamentally intersubjective and reciprocal encounter (ibid.: 37). The emphasis on knowledge as relational and situated (Haraway 1988) is crucial in all research contexts but becomes particularly important in more-than-human encounters, where experiential knowledge thoroughly evades human-linguistic frameworks. The evasive character of experiential knowledge, particularly with regard to more-than-human encounter, poses theoretical and methodological challenges; how do human bodies contain or perceive more-than-human experience? And what is at stake in rendering these experiences through a human-specific linguistic framework? Here I am inspired by Astrida Neimanis' feminist approach to posthuman phenomenology, in which she argues that "while our bodies…are clearly human, *we are also* more-than-human bodies in ways that question the boundedness,

autonomy, and coherence of the human subject" (Neimanis 2017: 29-30). Neimanis reminds us, in the current discussion, that Titon's experiential "knowledge-of" is also, critically, a knowledge-as; we experience the world as bodies-in-relation, "both above and below the level of the human individual as classically conceived in liberal humanism, and as scaled to a human spatiotemporal sensibility" (ibid.: 29). My engagement with the garden as an ethographic subject takes seriously this destabilization of the bounded human individual, not simply as a philosophical abstraction but as a critical affective step in more-than-human methodology. Attending to more-than-human lives, from this perspective, entails coming to terms with one's own more-than-human-ness, permeability, and polycorporeality; another register of reflexivity. Ethography, I hold, offers a helpful methodological frame for this kind of work.

It is important to note that my focus on more-than-human encounter is informed not only by these academic frameworks but also by permaculture's own theories and methods, which emphasize attending to more-than-human conversation, befriending place, and composing with landforms (concepts that I analyze at length in the following chapters). The observational emphasis and the more-than-human orientation of permaculture techniques align nicely with both ethographic and ethnographic approaches to developing relationships in (and with) the field site. Permaculture methods and modes of eco-social participation, as such, merge with and fundamentally shape my field methods, and selected portions of my field notes and descriptions from specific sit spot listening sessions are included and discussed throughout the second, third, and fourth chapters of this dissertation.

Throughout my yearlong period of focused ethographic observation I carried out daily sit spot sessions in the garden, wherein I would sit still and apply the techniques and

concepts to my observational practice, gradually developing my familiarity with the practice and my capacity to interpret increasingly subtle expressions from the garden's ecological subjectivity. For the sake of regularity, I returned to one of the same two spots each time; one was on the west side of the garden, under the limbs of a coast live oak, and the other was opposite on the northeast side, also under the canopy of several coast live oaks. I chose these locations because they provided some visual shelter and allowed me to be right at the garden's edge without making myself too obvious to the other animals who frequented the garden and might be discouraged by my presence. Once seated, I remained still for a minimum of thirty minutes, and sometimes closer to an hour, depending on what events or expressions took place during the flow of each sit spot session. In making these decisions I was guided by the OAEC's pedagogy (itself drawing from field methods of wildlife biology), which suggests that "it can take up to twenty minutes for the animals and birds in the immediate area to settle down after you first arrive." The logic behind this technique is that "by staying for a longer period, you increase your ability to merge more fully with the landscape, and to experience the beings of that place in 'baseline,' without threats" (OAEC 2021: 22). The idea of 'baseline' is somewhat deceptive here because threats and disturbances are a constant aspect of most suburban ecosystem niches—the idea, however, is that after about twenty minutes of relative stillness on my part, my own presence would begin to merge as a more stable aspect of the place. Birds would start to hop on the branches directly above my head, or drop down to the ground around my feet to and forage for seeds and bugs in the duff.

After completing my sit spot session, I would often step into the garden to begin working, walking, crawling, or lying down to observe the soil and the small creatures on and

below the surface. I participated with the garden's ecological subjectivity through cultivation of the soil, watering, planting, casting seeds, pulling weeds, harvesting fruits, roots, flowers, and seeds from the various plant beings of the garden, and sharing space, time, and breath with the garden. Part of my fieldwork entailed tracking how my presence and subjectivity both affected and was (and is) affected by the distributed ecological subjectivity of the garden; in this respect I again follow Rose and Van Dooren's articulation of ethography as a practice of witnessing wherein "to witness is also to participate in the world in its relational becoming" (Rose and Van Dooren 2016: 91). Another keyword for Rose and Van Dooren's ethography framework is responsibility: "Responsibility and ethography are delicately and recursively entangled…. Responsibility requires attention to ethographic context, to others' forms of worldly responsiveness, while ethography draws us into new relations and forms of response-ability" (ibid.). Ethography, as a scholar-activist project, also holds within it a responsibility toward a different kind of storytelling:

> Storytelling is one of the great arts of witness, and in these difficult times telling lively stories is a deeply committed project, one of engaging with the multitudes of others in their noisy, fleshy living and dying. It is the aim of lively ethnographies to seize our relational imagination. It is an engagement with the joys, passions, desires and commitments of Earth others, celebrating their ēthea in all their extravagant diversity. (Rose and Van Dooren 2016: 91)

In carrying out an ethographic study of a permaculture garden at the semi-rural edge of Petaluma, then, I hold several key questions: How do I witness and participate in the relational becoming of the garden? How does my body become-with the garden's body? What does that becoming-with sound like? What does it mean to cultivate response-ability in relation to the garden? How do I carry out storytelling in a way that reflects and enacts this response-ability and this relational becoming? What is the noisy, fleshy, living and dying of the garden?

These ethographic questions, again, interweave with a parallel set of inquiries regarding the ways in which permaculturists witness and participate in the relational becoming of the landforms or eco-social systems that they tend, how they cultivate response-ability in relation to these landforms, and how they perceive and apprehend their noisy, fleshy living and dying. I address these questions through my engagement with permaculture practitioners (as outlined above) and also, substantially, through close reading of permaculture texts, which themselves constitute a dynamic arena of philosophical and pedagogical discourse on the subject of cultivating more-than-human relationality. As a social movement with a clearly identifiable (if contested) literary canon, which I will introduce and describe in the first chapter, permaculture cannot be understood without careful study of its texts. This, in any case, is my assessment as a longtime student of permaculture and participant in grassroots permaculture projects, and this understanding informs my methodology. Text-based study becomes even more imperative in the context of my argument regarding more-than-human musicality, which is in part a philosophical one. As such, I frequently foreground permaculture texts as sources of philosophy that inform practitioners' actions and worldviews. With this said, my intention is to weave these three methodological approaches in generative dialogue with one another; ethographic engagement with the ecological subjectivity of the garden, ethnographic engagement with permaculture practitioners, and critical analysis of permaculture texts.

As a result of this weaving, this study does not attempt a classic ethnography, a prototypical ethography, or a self-contained critical analysis of relevant literature; rather, I draw from each of these methods and seek synergy between them. Each of these methods converges on the central question of listening in permaculture practice. I track my analysis of

how listening practices are represented in permaculture literature alongside my analysis of how my interlocutors discuss and experience listening as well as my own embodied practice of listening within the discursive, pedagogical, and experiential context of permaculture. My situated listening practice brings me into intimate embodied encounter with the ecological subjectivity of the garden, and in this way the sounds and silences of the garden themselves also figure into my study. This multi-layered inquiry into permaculture listening is also set in dialogue with a constellation of scholarly discourses on sound, listening, and ecological subjectivity, to which I will now turn.

Literature Review

Interdisciplinary Discourses on Sound, Music, Ecology, and Natureculture

My research is situated at the intersections of ethnomusicology and the environmental humanities, and deals particularly with an inquiry into the relevance of environmental humanities discourses to ethnomusicology's engagements with environmental issues and ecologically-oriented posthumanism. Posthumanism poses a fundamental challenge to ethnomusicology, a discipline, as Michael Silvers notes, "inherently focused on the human and social aspects of music" (2020: 199). The particular anthropocentrism that characterizes ethnomusicology is also challenged by what Aaron Allen calls "the problem of ecology" (2018)—the tendency toward reductive and humanistic interpretations of ecological concepts and processes. This study of permaculture listening practices constitutes one (hopefully generative) effort at grappling with both the challenge of posthumanism and the problem of ecology as they pertain to ethnomusicology specifically; as such, it is necessary to give an account of how these challenges are conceptualized, defined, and approached in the

literature. While the challenges of ecology and posthumanism are articulated separately by Allen and Silvers, and while they are independent from one another in important ways, I argue that the problem of ecology, for music and sound studies, necessarily entails the challenge of posthumanism; that to relocate music and sound, both analytically and experientially, from the realm of social life to the realm of ecological life, demands a reworking of fundamental concepts such as sociality, liveliness, and musicality.

This reworking, at least at the analytical level, requires a thorough interdisciplinary engagement both with ecological disciplines (ecology, acoustic ecology, environmental humanities) and various threads of posthumanism. The main arterial inquiry of this dissertation, which concerns the role of listening in permaculture practice, is formulated through a synthesis of interdisciplinary approaches to sound and posthuman re-figurations of ecology. My discussion will weave in and out of these multiple disciplinary frameworks, setting them in generative dialogue with one another; the purpose here is not just to give a broad account of the intellectual terrain from which the present study emerges, but to notice synergies across disciplinary boundaries and to mobilize those synergies toward productive engagement with the ethnomusicological challenges of ecology and posthumanism. In this regard my discussion aligns with Steven Feld's call for ethnomusicologists to "add a critical posthuman and posthumanist perspective to the continued insistence on the centrality of human practice and agency" (Feld 2017: 84). While I follow Feld's appeal to "reimagine the object of study more expansively, more philosophically, more experimentally" (ibid.), I also follow Donna Haraway's critical refusal of posthumanism as the default paradigm for this (and other) re-imaginings. Haraway's alternative formation of what she calls a "compostist" (Haraway 2017: M45) frame is particularly salient to my study of permaculture, which also

centers compost and de/re/co-composition in its worldview and practice. I will arrive at a discussion of the compostist frame toward the end of this chapter, after a synthesis of relevant literature in ethnomusicology and environmental studies.

I begin this interdisciplinary encounter with an assessment of the reciprocal relationship between music and sound studies on the one hand and environmental humanities on the other. The main subfield of music and sound studies in which this reciprocal engagement occurs is ecomusicology—as such, I will center the first portion of this literature review on an exploration of ecomusicology, its guiding questions, and its key concerns. I will build on the extensive work of Aaron Allen and other scholars in the subfield, and offer my own understanding of ecomusicology's prospects and problems (following Allen 2011), particularly with regard to developing "ecocentric" (Allen 2020: 200) modes of musical-cultural-ecological research, analysis, and practice. Critical appraisal of ecomusicology will necessarily entail dialogue with adjacent formations of environmentally and ecologically oriented music and sound studies, and particularly with Ana María Ochoa Gautier's counter-formation of acoustic multinaturalism, which advocates for more direct ontological unsettling of the music concept (Ochoa Gautier 2016: 123) and Steven Feld's concept acoustemology, which articulates a shift from studying "music in culture, music and culture, [or] music as culture" toward a consideration of "the nature of human sonic interaction with all other species, with environments, [and] with technologies" (Feld 2017: 94), and stands as a crucial precedent and resource for all ecologically-oriented ethnomusicological work. Having established the current trajectories of music and sound studies, I will turn to the question of how problems of ecology become entangled with the challenge of posthumanism—and how ecofeminist and environmental humanities approaches can (and do) inform

ethnomusicological grapplings with more thoroughly naturecultural conceptualizations of ecology. This will entail close readings of ecofeminist science and technology studies (Haraway 2017), phenomenology (Neimanis 2017, Hufford 2019), and anthropology (Tsing 2015), tracking the ways in which classical conceptions of ecology are thrown into question, crisis, and regenerative mutation by posthuman and alter-posthuman frameworks.

The “problem of ecology” and the “challenge of posthumanism,” I suggest, are not things to be solved or overcome. Drawing inspiration from Donna Haraway’s emphasis on “staying with the trouble” (2016), my intention is rather to take time to think on and dwell in troubled states of ecology, both as its conceptual level and at the level of the earthly lived relations that the concept references. To do this in the context of an ethnomusicological study means, for me, to encounter music in and as the trouble, and to encounter the trouble as music. What is the musicality of climate collapse? What is the musicality of Gaia as an intrusive event (Stengers 2015: 12), and how is that musicality heard or ignored, amplified or silenced by different actors in different contexts? Can ethnomusicology accommodate, theoretically and methodologically, a concept (or a plurality of concepts) of Gaian musicality? The following literature review and synthesis gives context to these questions and to their relationship with my study of permaculture.

Music Studies and Environmental Studies: Disciplinary Intersections

In considering the reciprocal relationship between ethnomusicology and environmental studies, it is necessary first to recognize the internal diversity of each of these scholarly domains. Just as ethnomusicology as a discipline defies a “precise, concise, and readily intelligible definition” (Nettl 2005: 1), any simple naming of environmental studies

would obscure a (certainly even greater) multitude of different theoretical orientations, research methods, ethical commitments, and guiding questions. Without getting mired in an exhaustive overview of all the component research frames of environmental studies (a task beyond the relevant scope of this dissertation), I will foreground the interdisciplinary field of ecomusicology as an organizational space and focus mainly on those sub-disciplines from environmental studies that actively contribute to or are represented in ecomusicological discourse. This decision is grounded in two assessments; first, that the question of potential reciprocity (or its absence) between disciplines is best approached from the sub-field level (which for examples see Mark 2016; Post and Pijanowski 2018), rather than trying to deal with the unwieldy, amoebic literatures of two internally diverse disciplines; and second, that ecomusicology stands as "the most common moniker for environmentally relevant research in musicology and ethnomusicology" (Pedelty 2020: 311) and the most prolific arena for environmentally-oriented music and sound scholarship.

Ecomusicology itself, of course, "represents a panoply of other fields and disciplinary influences" (Allen 2018: 6), drawing broadly from acoustic ecology, soundscape ecology, ecocriticism, the environmental humanities, and environmental justice studies in the effort to generate interdisciplinary strategies for confronting issues of environmental and cultural sustainability that center the role of sound-making and music-making practices and discourses. This intellectual project is motivated by the conviction that culturally situated understandings and experiences of music and sound have direct outcomes for the integrity of eco-social systems, that these outcomes are worthy of scholarly attention, and that music and sound scholars are well-positioned to wield their particular expertise in the study of these outcomes (Allen 2019: 52-53). These studies are approached in a variety of ways, such as;

ethnographic study of the effects of climate change and desertification on music cultures (Post 2019), or of the relationship between music-making and concern for the environment (Guy 2009; DeWitt 2019: 96), quantitative analysis of the effects of industrialism and ecological degradation on soundscapes (Post and Pijanowski 2018), and the entanglements of environmental and cultural sustainability that figure into the production of musical instruments, performances, and media (Allen 2019: 49; Titon in Cooley 2020). The disciplines named above, it must be noted, operate with overlapping but divergent understandings of ecology, environment, and nature as key concepts—thus, as Aaron Allen emphasizes, "for ecomusicology at least, it is important to distinguish the key environment (and/or nature) themes into those that are oriented to the specific scientific discipline of ecology and those that are oriented to the interdiscipline (or transdiscipline) of the more general environmental studies" (Allen 2018: 8). In making this distinction, however, it is also important to recognize that all of these diverse disciplinary influences are mobilized under the unifying (if multi-faceted) scholar-activist goal of meeting a perceived need within music studies to develop more robust understandings of ecological realities and the naturecultural mechanisms of climate disaster (Allen 2011: 417).

This scholar-activist orientation takes on serious theoretical and methodological challenges; theoretical in the sense that ethnomusicology as a discipline remains "inherently focused on the human and social aspects of music" (Silvers 2020), with the result being a marginalization or reductive simplification of ecological aspects of music (Allen 2018: 6); and methodological in the sense that while ethnomusicologists are thoroughly prepared to study music as social life (Turino 2009), we are generally less prepared to engage with music as an ecological process or an expression of a distributed ecological subjectivity—with music

as eco-social life. Aaron Allen argues along these lines in his 2017 explication of ecomusicology, asserting that "we may study music and sound in human context, but, notable exceptions notwithstanding, we still have not expanded well enough to the planetary, non-human, and abiotic contexts that make human context possible" (Allen 2018: 5). This disciplinary inertia becomes less and less tenable particularly as ecosystem collapse results in planetary contexts that are less and less conducive to human habitation—riffing on Allen's argument, we can no longer assume that the planetary context will make the human context possible, or vice versa. Ecomusicology coalesced, in large part, as an activist (in Allen's treatment of the word, see Allen 2018) effort to advocate for "research dealing with environmental justice, biodiversity, and ecological crises like climate change, pollution, overconsumption, and overdevelopment" (Pedelty 2020: 311). This activist effort is expressed in one of the subfield's fundamental guiding questions: "Is the environmental crisis relevant to music—and more importantly, is musicology relevant to solving it?" (Allen 2011: 392). This inquiry, rather than asserting some elevated importance of music or music scholarship, attempts to mobilize the particular qualities and capacities of music and sound studies in contributing dialogue with environmental studies. In this interdisciplinary space, disciplinary knowledge of music cultures and methodological approaches to their study are framed within a critical centering of environmental crises (Allen 2011, Post 2019, Cooley et al. 2020) and the colonial, neocolonial, and neoliberal arrangements that drive them (Cooley 2019a: xxxii). As such, ecomusicology endeavors to push against disciplinary inertia by centering questions of ecological relationality, futurity, and survivability.

This critical orientation compels and provokes dialogue with various disparate post- and decolonial frameworks including multinaturalism (Ochoa Gautier 2016, Seeger 2016:

93), ecofeminist science and technology studies (Kisliuk 2019: 221), and critical environmental justice (Mark 2016, Cooley 2019a). In particular, Ana María Ochoa Gautier has critiqued the field for inadequate interrogation of the conceptual ground of music, sound, culture, and nature and, more importantly, their historical complicity (or symbiotic functionality) with European colonialism (2016: 109-111, 119). In her critique of ecomusicology, she argues that the subfield operationalizes hegemonic conceptualizations of its key terms; nature, culture, and music that ultimately leave Western philosophical commitments to the Nature/Culture binary intact. Ochoa Gautier challenges ecomusicologists to "drastically rethink the political implications of keeping the underlying ontology that [the relation of 'nature' culture, and music'] implies," and advocates for more radical questioning of "our very concepts of sound/music" (ibid.: 140-141). Her counter-formation of acoustic multinaturalism takes inspiration from Eduardo Viveiros de Castro's anthropological framework of multinaturalism or perspectivism, which the Brazilian anthropologist developed through ethnographic encounter with Amerindian groups in the Amazon. Multinaturalism, articulated in opposition to the concept of multiculturalism, intends toward a radical ontological departure from Western academic theory. The analytical force of multinaturalism lies in its elegant disruption of the Nature/Culture binary, or what Viveiros de Castro describes as the distinction "between the cosmological and anthropological orders, forever separated" (Viveiros de Castro 2011: 4), with the cosmological corresponding to Nature and the anthropological corresponding to Culture.

Ochoa Gautier argues that "in the case of music, this 'separation between the cosmological and anthropological orders' takes the form of rekindling the long historical debate in the West about sound and music as phenomena that lie between nature and culture,

but one moved by an urgency that it did not have in earlier periods, now posed by the 'intrusion of Gaia' in the affairs of humans" (Ochoa Gautier 2016: 108). In referencing the "intrusion of Gaia," Ochoa Gautier sets Viveiros de Castro's multinaturalism in dialogue with ecofeminist science and technology studies discourses (Haraway 2017) and with counter-hegemonic theorizations of ecology. Drawing on Lynn Margulis and James Lovelock's Gaia hypothesis (Haraway 2017: M27), Donna Haraway articulates "Gaia as an intrusive event…that undoes thinking as usual" (ibid.: M47). The Gaia hypothesis—the hypothesis that living organisms regulate the atmosphere in their own interest (Lovelock 2003: 769)—has been broadly critiqued within evolutionary biology and the ecological sciences as teleological (Turner 2023: 323) and at odds with prevailing theories of natural selection (Barlow and Volk 1992: 688; Kirchner 2002: 400-402), but has been received with greater interest in the environmental humanities as a paradigm-shifting intervention against the hegemony of reductionist thinking and the veneer of moral neutrality that characterizes Western scientific thought (Barrota 2011: 96). The concept has been adopted into contemporary more-than-human discourse as a way of naming "complex nonlinear couplings between processes that compose and sustain entwined but nonadditive subsystems as a partially cohering systemic whole…Gaia is not reducible to the sum of its parts, but achieves finite systemic coherence in the face of perturbations within parameters that are themselves responsive to dynamic systemic processes (2016: 42-43). The intrusion of Gaia is also implicated, in the context of multinaturalism, as the intrusion of the animate into the mechanical, of the cosmological into the anthropological (Ochoa Gautier 2016: 108-109). Most importantly, perhaps, the intrusion of Gaia is an intrusion of animist modes of thought into or against hegemonic Western intellectualism (Haraway 2017: M45).

The other main thread of Ochoa Gautier's acoustic multinaturalism framework is Steven Feld's theorization of acoustemology. She sets ecomusicology as a field in "contrast with Feldian acoustemology as a tradition that—through its links to sound studies, acoustic practices, and structuralism—suggests a different entry point in the problematics of sound/music, the anthropological, and the cosmological" (Ochoa Gautier 2016: 109). Feld's articulation of acoustemology precedes the formation of ecomusicology, and his speculative rendering of echo-muse-ecology (1994: 3) also anticipates the kinds of inquiries and orientations that have become central to ecomusicology. It is along these lines (perhaps among others) that Ochoa Gautier accuses ecomusicology of appropriating "the sense of urgency that the topic of sound/music and nature has acquired today" (ibid.: 113). While Feld's work has been fundamentally influential to ecomusicology, Ochoa Gautier argues that the subfield has not, by and large, "explored its full importance" (2016: 132). Ochoa Gautier argues that Feld's work "proposes a radically different set of possibilities than that proposed by ecomusicology today" (ibid.), specifically in its focused "exploration of different ontologies that do not take the idea of nature and culture for granted" (ibid.). Toward this focused exploration, she identifies an alignment between acoustemology and multinaturalism, arguing for the synergy of these two theoretical frameworks as an entry point toward "unsettling the ontological grounds of 'nature' and culture'" (ibid.: 111).

Without delving too deeply into the friction between acoustic multinaturalism and ecomusicology as adjacent scholarly frameworks (see Ochoa Gautier 2016 and Cooley et al. 2020), I will suggest that the radical ontological disruptions of multinaturalism and acoustemology are not incompatible with the pluralism and permeability of ecomusicology as a field of interdisciplinary encounter. Following Ruth Hellier, I understand that while

“there are so many terms, ideas, practices,” theoretical and methodological frameworks, the important thing is that “now is the time for all music scholars to be concerned with the environment” (Hellier in Cooley et al. 2020: 308-309). Hellier’s call for broadscale environmental engagement is presented as both pragmatic, in her advocation for the development of course curricula that attends and responds to local social-ecological realities, and theoretical, in her expressed commitment to “enabling the interrogation of of the constitution of ontological categories” (Hellier 2020: 308, here in direct dialogue with Ochoa Gautier 2016: 113). But immediately the question arises of how different disciplines (and different scholars within and across them) bring different epistemological and ontological commitments into their understanding and interrogation of these categories, and, on a more basic level, to their use of the term ‘environment.’ To be concerned with the environment means something quite distinct for acoustic ecologists using state of the art recording technologies and super computers to capture, ‘salvage,’ and archive the sounds of fast-disappearing species and ecosystems than it does for environmental justice scholars who document the damaging effects of waste-industrial soundscapes in marginalized communities, neighborhoods, and cities. It means something different again for ethnomusicologists seeking to open conversations around the social, political, and ecological lives of musical instruments (Bates 2012; Allen 2019) or the musical lives of nonhuman beings (Keller 2012). Ecomusicology, in some sense, succeeds as a scholar-activist project to the extent that it is able to accommodate epistemological and methodological pluralism without compromising high standards of scholarship (Allen 2018: 417) and without diluting (by way of over-theorization) the sense of urgency that motivates environmental research.

The "problem of ecology," identified by Aaron Allen and introduced at the beginning of this section, constitutes one of the main challenges with regard to both scholarly standards and activist urgency concerning climate injustice. Allen argues that the multivariant evolution of the ecology concept, since its coining and definition by Ernst Haeckel in 1866, invites co-optation and misuse as well as generative re-use and re-purposing by non-ecological disciplines. Particularly "when incorporated into music and sound studies, the term ecology has often lost touch with the complex contexts (i.e. those both organic and inorganic) and is instead re-simplified to focus only on the human organism" (ibid.: 6). This re-simplification often results in purely metaphorical uses of ecology and ecological processes, or what Australian music scholars Brent Keogh and Ian Collinson term "the appropriation of ecological principles to articulate and explain human musical activity" (Keogh and Collinson 2016: 1). The value of such metaphorical uses of ecology continues to be the source of much scholarly debate (Allen 2017, Titon forthcoming), but such debate buries or ignores nonmetaphorical engagements with ecology and the more-than-human. Whether engaging ecology as metaphor or heuristic model (Titon forthcoming), or as the site of more-than-human musical expression, ecomusicological scholarship grapples with the problem of ecology and its contested epistemological and ontological dimensions (Titon 2020: 224). Of preeminent and enduring concern for ecomusicology moving forward is the deepening of scholarly capacity to develop "ecocentric" (Cooley et al. 2020: 305, also see Titon 2012) conceptions of sound, music and culture that more effectively account for the concept of ecology, the critical ontological challenges posed to ecology (and music studies) by posthumanism, and the existential challenges posed by ecological injustices (environmental racism, industrial extractivism, the commodification of land and life).

Various articulations of the relationships between musical and ecological processes have a longstanding precedent in ethnomusicology (Archer 1964, Feld 1982, Seeger 1987, also see Silvers 2020: 201-203 for a current review of relevant literature), but these earlier studies have tended to relegate ecological aspects and nonhuman actors to more passive roles in the production of musical culture—the more-than-human holds a subjugated relevance and utility in (often unreciprocated) servitude to human culture and human music. This persisting anthropocentrism has, in one sense, contributed to the limited character of music scholars' engagement with ecology as a scientific discipline as described above. Through deepening interdisciplinary engagement, however, music and sound scholars express an optimistic intention to "join our colleagues in the sciences, especially ecologists, in an effort to move toward a 'third culture' in which humanists and scientists are co-investigators" (Cooley 2019a: xxv, Allen and Dawe 2016: 5, also see Post and Pijanowski 2018). It must be noted, however, that the sciences (including ecology) are largely motivated by the same underlying epistemological assumptions and anthropocentric motivations as the humanities (Haraway 1988, also Haraway 2017). Nonetheless, ecomusicology has emerged as an important space for dialogue across disciplinary boundaries of historical musicology, ethnomusicology, sound studies, and the environmental humanities.

Ecomusicology first gained currency at the turn of the twenty-first century in the context of historical musicology (Rehding 2002, Allen 2016). Within this framework, scholars leveraged familiar methods of textual analysis (both musical and literary) toward philosophical considerations of the trope of Nature in culture and music (Edwards 2016: 157, Ingram 2016: 221, Von Glahn 2013), attending particularly to "the physical and emotional responses that music induces in listeners and how they shape our view of the world"

(Grimley 2011: 395). Sharing ecocriticism's "investment in cultivating environmental consciousness" (Opperman 2011: 153), musicological approaches to ecomusicology have contributed centrally to a particular rhetoric of scholar-activism that advocates for critical reflection on sustainability discourses (Allen 2016, 2019), as noted above. Historical musicology's text-based analytical methods often focus on the symbolic value of Nature and ecological interaction (Allen 2016: 647-651), and normalize a metaphorical (as opposed to embodied or sensual) treatment of environments. It is in this respect that ecomusicology benefits from ethnomusicology's methodological commitment to ethnographic fieldwork.

Given its proximity as a sibling discipline to musicology, ethnomusicology has both been influenced by and contributed to the intellectual terrain of ecomusicology since its inception. Ethnomusicological engagements with ecomusicology have also been influenced by ecocriticism (Guy 2009: 219), and while earlier iterations of ecocritical musicology, influenced by literary ecocriticism, focused mostly on interpretations of musical works with demonstrable relationships to natural environments and places (Grimley 2011: 394; Allen 2018: 7; Titon 202: 226), ethnomusicological approaches have integrated ecocritical discourse with ethnographic methods, bringing the academic and activist orientations of ecomusicology (Allen 2011: 393; Redhing 2011: 411-412) into fieldwork contexts. Furthermore, postcolonial and feminist interventions into the ecocritical frame (Gaard 2010, Heise 2013) have opened the possibility for engaging the ethnographic field not just as a human cultural space but holistically as a multispecies ecological space. Jennifer Post's work on eco-social soundscapes in both New Zealand and Mongolia (Post 2019: 76) offers an example of how this re-envisioning of the ethnographic field as, perhaps, an ecographic field, can open up new insights into the complexities of human-landform relationships.

Ethnomusicology, of course, has a well-established precedent of research that recognizes the multispecies character of music-making and, as Michael Silvers notes, discipline-defining work such as Steven Feld's *Sound and Sentiment* (1982) and Anthony Seeger's *Why Suya Sing* (1987) precedes and anticipates growing scholarly concern for ecologically-informed approaches and the development of posthuman theory (Silvers 2020: 200-203), even as the discipline as a whole remains committed to the humanist enterprise of studying "people making music" (Titon 2016). Jeff Todd Titon's concept of a sound commons stands as another important precedent in ecologically focused ethnomusicology that advocates for more integrated eco-social approaches to the study and experience of sound as a cross-species commonwealth (Titon 2020: 220). These various threads of ethnomusicological research engage with a widely interdisciplinary turn toward more-than-human research, which is characterized as "research that has sought—in one way or another—to take nonhuman life, and the entanglements of human/nonhuman life, seriously and thus to step away from the modernist dismissal of nature and nonhumans as anything but resources" (Bastian et al. 2017: 2). The concept of the more-than-human has emerged as one of the main interdisciplinary tools for addressing "the two great conjoined 'issues of shared planetary life—social and ecological injustice," which "seem to be entering new levels of starkness and volatility" (Bastian et al. 2017: 1) with the escalation of climate catastrophe, habitat loss, and mass extinction. In their introduction of the concept of more-than-human participatory research, environmental humanities scholars Michelle Bastian, Owain Jones, Niamh Moore, and Emma Roe explain:

> Attention has also been called to the uneven ways that the consequences of living in this changing world are felt and experienced by specific humans and nonhumans. The vast scale of these changes, which are having profound effects on communities living on land, in the sea and air, have prompted calls for the 'ecologicalisation' of

> knowledge as an essential step in moving away from Enlightenment philosophies of rational, self-aware humans in a machine-like world". (Bastian et al. 2017: 1-2; also see Plumwood 2002; Latour and Weibel 2005; Code 2006; Hinchliffe 2007)

Following Bastian et al.'s description of the concept, the more-than-human can be understood as a branch of posthuman critique that focuses on the entanglements of living organisms, their differences, and their situated experiences in the context of climate collapse. The collective sense of urgency toward the ecologicalisation of knowledge and the terms of knowledge production clearly resonates with disciplinary concerns in ethnomusicology and music studies regarding the challenges of posthumanism, the problem of ecology. The concept of the more-than-human stands as an entry point for deepening interrogation of the theoretical and ontological grounds of core disciplinary concepts such as music, culture, and nature.

Ecomusicology, from an ethnomusicological standpoint, moves toward a more-than-human frame to the extent that it re-positions the study of music in or as culture to the study of music in or as ecosystem or environment (where the distinction between in and as takes on new significance). Here the terms music, culture, environment, and ecosystem remain contested, porous, and multivalent place-markers (Allen 2011: 392; 2018: 7) which signal, even in their inadequacy and partial failures, the urgent need for new ways of framing, naming, and describing the generation of creative resonant expression within ecosystems (as physiological, ideological, economic, political entanglements) and across species and forms (Seeger 2016: 89). Efforts to define, re-define, and reframe these basic terms of engagement have at times become stymied by an underlying epistemological commitment to music as a given (special) category of sound and a given category of (uniquely) human cultural production in opposition to sound or noise (Windsor 2016: 165-166). This commitment,

returning to Ochoa Gautier's critique, runs counterproductive to the urgent task of finding ways to confront and comprehend the "intrusion of Gaia" (Haraway 2017, Latour 2014). She observes that "ecomusicology has tended to affirm a multiculturalist ethos—that is to say, an ethos that accounts for all forms of diversity under a single epistemological umbrella, the concepts of 'nature' and 'culture'" (ibid.: 111), and that rather than "unsettling the very ontological grounds of 'nature' and 'culture,' [ecomusicology] seeks to establish a musicological holism on a disciplinary foundation that takes such terms for granted" (ibid.). This claim is both confirmed and problematized in the literature of ecomusicology. For instance, in Kevin Dawe's expanded definition of a musical instrument as a "creation of nature and culture, where knowledge of how to exploit the acoustic and aesthetic properties of materials is developed as part of a 'sensual culture'" (Dawe 2016: 110), the normalization of nature and culture as unexamined categories, as well as the normalization of exploitation as the prevailing relational mode between the two, is hard to miss and dangerous to ignore. It must be noted that Dawe's focus here is not philosophical—but then this is precisely Ochoa Gautier's point; that this particular ontological binarism is pervasive in academic thought to the point of invisibility, it being the intellectual air that scholars breathe.

As a counter-example, however, Anthony Seeger's contribution to the same volume warns explicitly that "we have to be especially careful about the way the words 'nature,' 'animals,' 'humans,' and 'music' are defined and used" and offers to "demonstrate how different concepts of nature, animals, humans and music can be understood from the post-Cartesian Western philosophical perspective" through his case study of the Kisedje in Brazil. Indeed, the problems of disciplinary inheritance have been relatively central to ecomusicological discourse since its inception. In his contribution to the 2011 *Journal of the*

American Musicological Society colloquy on ecomusicology, Aaron Allen critiques the concept of environment as “the nonhuman world” which “while useful…can promote a problematic human-other duality” (Allen 2011: 392). Alexander Rehding also acknowledges the importance of interrogating and deconstructing such terminology but expresses some reservation regarding the intellectual and pragmatic goals of philosophical and linguistic deliberation. He argues that “while the deconstructive movement has greatly advanced our understanding of rhetoric and authority surrounding the term nature, it is often in direct conflict with specific ecological aims. From its skeptical post-structuralist vantage point, which centers on language as a site of conflict, it is all too easy to dismiss ‘nature’ as a discursive construct.” (Rehding 2011: 411). The concern here is that the real tasks of halting or reversing environmental degradation and ecosystem collapse might become deconstructed themselves along with deconstructions of nature and culture. Rehding argues, to this end, that “the step from identifying nature as a cultural construct to dismissing it as ‘just’ a cultural construct is but a small one” (ibid.).

Redhing’s reluctance to unsettle the ontological grounds of nature and culture emerges out of pragmatic concern for the integrity and success of environmental movements which can tend to lean into these constructed notions and rely on them in community organizing, fundraising, and legislative efforts. From this perspective, a focus on applied work that centers and uplifts on-the-ground environmental activisms is just as urgently necessary as philosophical critique of the categories that those activist communities might make use of. Thus, the tendency for ecomusicological research to operate with anthropocentric notions of music reflects, perhaps more than some kind of willful ignorance, a pragmatic orientation and a conscious, strategic choice. As a result of this pragmatism,

much important work has been done under the rubric of ecomusicology that deals explicitly with human musicking; the ways in which songwriting, composition, and performance relate to cultural and political orientations to the environment, be it the "ideology of ever-expanding economic growth and development" (Guy 2009: 230), gendered perceptions of the natural world (Von Glahn 2013), or the tense negotiations between settler colonial and Indigenous aesthetics and ethics (Hurely-Glowa 2019: 105); the complex and limited role of popular music in galvanizing environmental consciousness (Dewitt 2019: 95); the toll of the music industry on ecosystems (Pedelty 2012); music as a strategic performative mode of climate activism (Pedelty 2016, Mark 2016); or music as a constellation of material and spiritual relationships to threatened environments (Post 2019, Dirksen 2019).

In my own assessment of this internal debate around the merits of deconstruction versus pragmatic application, I lean strongly toward a 'both and' approach. I share Rehding's concern over the possibility of dismissing actionable responsibility toward the natural world through the insistence on nature as a discursive construct, and I also share Ochoa Gautier's frustration over the ways in which the discursive construct of nature allows for the dismissal of ontological multiplicities and the reduction of difference to a hierarchical binary. Rehding's position regarding deconstruction, I will suggest, compels a direct engagement with the problem of ecology (a la Aaron Allen); it asks scholars to prioritize the immediacy of real ecological crises and the "very real urgency of the issues expressed by the ecological movement" (ibid.: 411). Conversely, Ochoa Gautier's multinaturalist intervention compels engagement with the challenge of posthumanism (a la Michael Silvers); from this perspective, any effort to address ecological crises without disentangling from the

anthropocentric philosophies that precipitate and justify these crises will do little to effectively confront them.

As stated at the outset of this literature review, my understanding is that the problems of ecology and posthumanism must be engaged simultaneously and in relation to one another. Ontological unsettling of the grounds of encounter is only meaningful to the extent that the encounter is actually lived, experienced, and communicated. And without unsettling the grounds of encounter, ecological or environmental activisms can tend to reinforce the fundamental logics of separation and extraction that enable environmental degradation—it is in this way that activism often re-creates and strengthens the object of its struggle. My study of permaculture listening practices is situated precisely in these parallel tensions; on the one hand between activist efforts against the systemic causes of environmental degradation and conservative recursions that strengthen these same systemic causes; and, on the other hand, between pragmatic environmentalism and radical posthumanist/compostist ideals. Returning to María Puig de la Bellacasa's assessment of permaculture as "a timely intervention at the heart of the contemporary awareness that we live in a *naturecultural* world" and her assertion that permaculture "is not understandable along the reductive lines that oppose romantic environmentalism to a pragmatic noninnocent acknowledgement that there is no such thing as 'nature'" (2018: 127-128), I engage permaculture as a (nature)cultural formation that upsets the terms of the ongoing debate amongst music and sound studies scholars described above.

The concept of natureculture, coined by Bruno Latour in his 1991 monograph *We Have Never Been Modern*, has been developed as a key ecofeminist intervention in both humanistic and scientific paradigms that insists on the inseparability of nature from culture

and their co-constitution in and as social-ecological relationships (Haraway 2008: 15-16, 32; Birke and Holmberg 2018: 118). While the necessary synthesis of nature and culture might read as painfully obvious and simple, everyday practices of living into natureculture relationships quickly become highly politicized, contested, and precarious acts of alternative worldmaking in the shadows and cracks of the heroic (and hegemonic) narrative of the Anthropocene, which clings stubbornly, and violently, to myths of human separate-ness. The work of the natureculture framework, and the work of ecofeminist and environmental humanities scholars who make use of it, is to challenge, re-envision, and re-inhabit the concepts of ecology, of home (*oikos*), of knowledge (*logos*), and to allow (through these re-figurations) for creative re-thinkings and re-makings of the relational threads that inform and form all experiences of living and dying together in and as the world. My intentions in engaging natureculture as a concept and framework are to engage ecofeminism as a critical arena for the development of ecocritical thought and to build continuity with other ecofeminist concepts that I will engage throughout the dissertation. I approach ecofeminism as a pluralistic constellation of diverse feminist lineages, and as a body of scholarship that has been marginalized, misrepresented, and appropriated in ecocritical discourse (Gaard 2010: 643-646). In my own writing, I do not presume to represent the entirety of ecofeminism's diverse intellectual terrain, which "for four decades…has been encouraging [scholars] to recognize the connections between the derogation of human bodies and a mistreatment of environmental bodies" (Neimanis 2017: 11, also see Åsberg and Braidotti 2018: 10; Kings 2017). I recognize that my engagement with ecofeminism is somewhat narrowly focused on its critical re-figurations of ecology and corporeality: in considering these re-figurations, I am primarily occupied with addressing the volatile and morbid socio-

ecological issues of the present, what Isabelle Stengers calls the "intrusion of Gaia" (Stengers 2015: 12), and in the intellectual-corporeal task of "facing Gaia," (Latour 2012). In dialogue with Stengers, Donna Haraway emphasizes that the intrusion of Gaia "undoes thinking as usual" (2017: M47) and makes traditional concepts of nature, culture, ecology, and humanity "seriously unthinkable, not available to think with" (2016: 30). The bluntness and awkwardness with which nature and culture are shoved together into natureculture—the word is a hasty bricolage, one that communicates the broken-ness of its parts as urgently as it does the necessity of their imaginative abandonment—lends the word affective power: natureculture is fashioned as a patchwork intellectual handbag from "the crumbling of the foundational distinction of the social [and natural] sciences—that between the cosmological and anthropological orders" (Viveiros de Castro in Ochoa Gautier 2016: 108).

In this sense natureculture, as concept and lived reality, becomes directly relevant to diverse ethnomusicological efforts toward ecocentric, multinatural, or otherwise non-anthropocentric re-figurations of music and sound. Whether under the rubric of ecomusicology (Allen and Dawe 2016), environmental ethnomusicology (Ramnarine 2009), acoustemology (Feld 2017), acoustic multinaturalism (Ochoa Gautier 2017), or other emergent subfields, music scholars working in these inter-disciplinary spaces articulate an urgent need to (re)think and (re)approach the study of music and music cultures with an ear toward the escalation of global ecosystem collapse and the enmeshment of human and more-than-human lives.

It is toward this rethinking that I engage in the present study of permaculture listening practices and their implications for the study of music and musicality in contexts of naturecultural worldmaking. I have structured my argument so as to engage, in stepwise

manner, the question of more-than-human musicality as prompted specifically by permaculture listening practices. As such, I begin my argument with a focused description of permaculture as a social movement and ethical framework, moving first into a consideration of how permaculture ethics inform permaculture listening on a practical level, and then into a consideration of how these listening practices and their ethical underpinnings are related to permacultural articulations of more-than-human musicality. Having established this relationship between ethics, listening, and musicality, I move toward a theoretical framing of the kind of more-than-human musicality that permaculture conceives, perceives, and participates in. I give a more detailed overview of my chapters below—for now my intention is to emphasize in advance that the structure of my dissertation itself responds to key questions central to the concerns of environmentally-focused ethnomusicology regarding listening, sound, music, and nature, incorporating rigorous engagement with environmental humanities and ecofeminist scholarship as instrumental to this central disciplinary task. These questions have of course been asked and answered in myriad ways, as described above. In this sense it is not my intention to bring any kind of resolution or closure to these generative interdisciplinary dialogues, but to present a specific context, in the case of permaculture listening, wherein more-than-human musicality becomes relevant to projects of ecological regeneration and the cultivation of utopian eco-social futurities.

Chapter Summaries

The first chapter begins by identifying and working through the problem of defining the permaculture concept. I set sociologist and permaculture scholar Terry Leahy's interpretation of permaculture's utopian vision of sustainability society (2021: 38) in

dialogue with Amy Trauger's assessment of permaculture as defined by an underlying "ontology of integrativeness between nature and culture" (2017: 44). Following Trauger, I argue that this natureculture ontology is crucial to permaculture's identity both as a methodology for ecological and agro/horticultural practice and as a global social movement. I engage with key permaculture texts to contextualize this ontology within permaculture's historical emergence, its motivating concerns, and its core strategies. An examination of this ontological orientation, furthermore, entails critical consideration of its entanglement with Indigenous ecological knowledges and decolonial or counter-colonial discourses. Recognizing the global diversity of permaculture, my discussion in this chapter centers around the context of my study at the Occidental Arts and Ecology Center (OAEC) in Sonoma County, California. In this context, I assess permaculture as a meeting ground for settler and Indigenous activists; the implications of white-settler appropriations and syntheses of Indigenous ecological knowledges in the uneven terrain of a settler state, and the generative influence of Indigenous interventions into permaculture discourse and practice.

In the later portion of the chapter, I ground these considerations in the example of the Aboriginal Australian concept of dadirri, a philosophy of listening which is incorporated into the OAEC's permaculture design course as a pedagogical model for permaculture listening practices. Following Dylan Robinson's discussion of critical listening positionalities in settler-Indigenous encounters (2020) and Philip Deloria's theorization of "playing Indian" (1998), I track the ways in which both Indigenous and settler permaculture activists identify listening as a rhetorical resource in articulating permaculture's social-ecological purpose. This chapter builds a contextual base for understanding how permaculture's core ethical, ontological, and political orientations shape its discourses and practices of listening.

The second chapter opens with a description of how listening is situated as a fundamental skill and concept in permaculture discourse, coming into focus on the pedagogical approach of the Occidental Arts and Ecology Center and specifically on the OAEC's presentation of the sit spot exercise as a framework for practicing deep listening. The sit spot exercise serves as an analytical focal point for examining key terms and concepts that shape the "habits of thought and expression" (Turino 2008: 103) and perception (Novak and Sakakeeny 2015: 1) for permaculturists. I give particular attention to the ways in which concepts of (1) composing with land, (2) listening to landform conversations, and (3) befriending land orient permaculture listening toward intersubjective encounter (Robinson 2020; Feld 2017) and eco-social engagement with landforms. This leads to a theoretical consideration of ecological subjectivity (Posthumus 2017) wherein I articulate points of convergence between ecofeminist ethics (Puig de la Bellacasa 2018), science and technology studies (Haraway2017), more-than-human anthropology (Tsing 2015), and sound studies (Kapchan 2015; Novak 2015) that serve to contextualize the implications of permaculture listening practices within broader trans-disciplinary discourses. I argue that the permacultural intention to "listen differently," as expressed by Melissa Nelson in the previous chapter, involves a practice of perceiving and dialoguing with ecological subjectivities, which I theorize in relation to Michael Bell's concept of grotesque ecology (Bell 1994) and Mary Hufford's theorization of grotesque ecological dialogism (Hufford 2019: 22-23). Through discussion of my ethnographic and (more predominantly) ethographic engagements, I demonstrate how the permaculture intention to dialogue with ecological subjectivities is grounded and enacted in specific iterative practices. In articulating a particular kind of grotesque ecological subjectivity relevant to permaculture practices, I build the conceptual

ground for the following chapters' discussions on grotesque musicality and participatory eco-sociality.

The third chapter addresses ethnomusicological discourses concerning the "music of nature" (Titon 2020: 256) and the "nature of music" (Ochoa Gautier 2016: 107), using permaculture concepts of music and listening as case study material for building toward an ecocentric (Allen 2019: 53; Cooley et al. 2020: 304) theory of musicality. I identify divergent disciplinary approaches to the dual challenges that posthumanism and ecological disaster pose to ethnomusicology, attending specifically to the contrast between Jeff Todd Titon's figuration of "sound ecology" (2020) and Ana María Ochoa Gautier's critique of cross-disciplinary tendencies to operationalize sound and "music as political positivity" (2016, also see Keogh and Collinson 2016: 7, 12). I argue that permaculture listening practices, as described in the second chapter, effectively model Titon's sound ecology through their orientation toward more-than-human community, copresence, and non-innocent ethical entanglement, while also demonstrating a certain degree of romantic ecophilosophical reification of music as an essentially positive political force. Relatedly, I suggest that the ecocentric concepts of music invoked in permaculture texts align with Titon's speculative definition of music in the context of a sound ecology and offer a productive (if troubled) case study for the disciplinary articulation of an ecocentric musicality, which I ground in the concept of the grotesque (again building on the second chapter's discussion). In developing this argument, I analyze several key permaculture texts for their ecocentric concepts of music; Masanobu Fukuoka's *One Straw Revolution*, Bill Mollison's *Designer's Manual*, and Starhawk's *Earth Path*. Through my analysis, I arrive at two key assertions. First, permaculture is characteristically motivated by an enduring fascination with the musicality of

nature and oriented toward the perception and participation in that musicality, which I identify as a kind of musical being-in-the-world, and second, these references to the musicality of nature focus on natural patterns (cycles of birth, growth, decay, and rebirth that unfold in landforms) and the capacity to understand these natural patterns. Experiences of this musical being-in-the-world take place for permaculturists in the immersive context of listening practices—epitomized in the sit spot exercise—that orient toward grotesque, holoent forms of ecological subjectivity and their expressive, conversational, and musical capacities. Working from these observations, I argue that permaculture listening perceives and enacts a grotesque musicality, and I present the concept of grotesque musicality as a generative contribution to disciplinary discourses on music and the more-than-human. I address the implications of grotesque/holoent musicality in relation to sound ecology (Titon 2020), and the methodological challenges of a grotesque study of music.

While the previous chapters establish some key orientations or intentions of permaculture listening (the emphases on landform collaborations, conversations and friendships, and the aspiration to perceive music in and as landforms), and the epistemological and political stakes of these orientations (such as the implications of ecological subjectivity and ecocentric or grotesque musicality), these discussions raise as many questions as they answer. What specific forms does "sound knowledge" (returning to Kapchan 2015 and the second chapter discussion) take in this kind of intersubjective encounter? How does the concept and experience of grotesque musicality compare to more normative (anthropocentric) concepts of music, and particularly to ways in which people think, talk, and act about environmental music. I address these questions in the fourth and final chapter, which positions the concept of grotesque musicality within a framework of four

distinct types or renderings of environmental sound. This framework is modeled directly on Thomas Turino's theorization of music as social life, and particularly to his four-field framework of music (Turino 2009). So, in parallel with Turino's four fields of (1) studio sound art, (2) high fidelity recording, (3) presentational, and (4) participatory renderings of music, I construct four fields of (1) soundscape composition, (2) high fidelity soundscape recording, (3) presentational, and (4) participatory renderings of environmental sound and environmental music. In establishing this parallel, I explore the ways in which the intersubjective encounters involved in permaculture's landform listening practices align particularly with participatory and presentational fields. My intention in making this connection is to construct an analytical framework for considering the implications of music as eco-social life, building off of a familiar precedent in ethnomusicology of studying music as social life. More fundamentally, as described above, my intention in adapting Turino's framework to an eco-social context is to contribute to efforts in ecomusicology to locate music and music making within eco-centric contexts (Allen 2016; Cooley 2019). It bears reiterating here that this effort on my part is informed by and in dialogue with important eco-centric precedents such as those named above in Jennifer Post's acoustic communities approach (Post and Pijanowski 2018: 73) and Jeff Todd Titon's sound commons concept (2012, 2020).

A Note on the Grotesque

The concept of the grotesque becomes central to my interpretation of permaculture listening practice and eco-sociality, as well as to my repositioning of music and musicality. As a keyword, and a somewhat cryptic one at that, it demands some introduction and

unpacking. My use of the term follows folklorist Mary Hufford, who engages Mikhail Bakhtin's concepts of dialogism (Bakhtin1981) and the grotesque body (Bakhtin 1984) in her own discussion of ecological conversation. Hufford observes that "Bakhtin's distinction between dialogic and monologic forms of communication…mirrors his distinction between grotesque and classical bodies" (Hufford 2019: 22). In this parallel dichotomy, the closedness of the classical body—which "has no openings" and "represents perfect symmetry and closure, a fixity of social identity and the hierarchies of class society" (ibid.; Bakhtin 1984: 317)—corresponds with a monologic discourse that "violently [shuts] down reciprocities hard-wired into ecologies of social interaction" and renders these reciprocities pathological (ibid.: 28). Hufford associates the concept of monologic discourse with the corporate state, wherein "communications are vigorously scoured of perspective and agency; its subjects lurk under cover of passive voice," and "if a subject does appear, it's a version of corporate personhood" (ibid.). The monological discourse of the classical body is fundamental to modern conceptions of self and subject in Western societies, characterized by an "individualizing way of conceiving personhood, what Bakhtin calls the 'bourgeois ego' that underlies the classical canon" (Bell 1994: 74). Ecologist Michael Bell, who builds on Bakhtin in his own theorization of grotesque and bourgeois ecologies, notes that "the significant feature about the classical body is that it is an individual body" (ibid.), separate from and impermeable to the world.

In contrast to the classical body, the grotesque body does not recognize "the movement of finished forms, vegetable or animal, in a finished and stable world; instead, the inner movement of being [is] expressed in the passing of one form into the other, in the ever incompleted character of being" (Bakhtin 1984: 32). For Hufford, grotesque embodiment is

epitomized in the mycorhizzal associations of soil life. "Mycorrhizal associations," she posits, "exemplify the kind of body that Mikhail Bakhtin described as 'grotesque'—a body made up of two bodies fused in a productive act. The grotesque body is open to the world, always growing, always emerging" (Hufford 2019: 22). Hufford builds on Michael Bell's concept of grotesque ecologies, which, in correspondence with the grotesque bodies that compose them, "display all the stages of life: birth, death, decay, going to seed, composting, harboring all manner of creatures, and so forth" (ibid.). Grotesque ecologies are also characterized by dialogue between and across grotesque bodies—in Bell's words, the grotesque body is a "'territory shared,' the product of a dialogic world" (1994: 73). Whereas bourgeois ecology operates on the principle of individuality and prioritizes the creation of hierarchies and maintenance of boundaries—Hufford suggests the example of the suburban lawn, weeded, leafblown, refusing contamination—grotesque ecology operates on the principle of contamination (Tsing 2014) and polycorporeal entanglement; the messiness of bodies merging with one another is understood in this way by Hufford as the fundamental characteristic of the dialogical world (Hufford 2019: 28).

Bourgeois ecologies pathologize the grotesque realities of the dialogical world (ibid.), and indeed the word 'grotesque' in English is strongly associated with repulsion. But the word is derived from the Italian *grotta* meaning simply cave or cavern, with etymological roots in the Greek word *krypte* meaning "hidden place." Another English cognate with this Greek root, cryptic, can then add to our understanding of the grotesque as that which, in its repulsiveness, is unintelligible. Crucially though, the grotesque does not just resist meaning; as Hufford explains, the meaning that emerges through grotesque dialogue is resisted, or silenced by the hegemony of monological discourses.

The association of caves (grottos, grotesque places) with the feminine and with gestation, emergence, and regenerative power suggests, not surprisingly, a gendered dimension to this pathologizing, silencing discourse. Along these lines, Chickasaw writer and literary scholar Linda Hogan suggests that "caves are not the places for men. They are a feminine world, a womb of earth, a germinal place of brooding" (Hogan 1995: 31). She describes her own experience seated in a cave, saying "I see all around me the constellations of animals. Rabbits are etched by minerals on wet stone walls. Deer are revealed in the moisture…there are the fetal beginnings of life to come, of survival" (ibid.: 32-33). While Hogan does not use the term grotesque, her description here resonates strongly with Mikhail Bakhtin's use of the term; the regenerative unfoldings that she presents are grotesque in that the borders between life and lifelessness, animal and mineral, are seriously transgressed. Despite the most violent and herculean efforts to maintain the classical masculinist body and the bourgeois ecology that it purportedly deserves, grotesque, cavernous logics persist and intrude.

The permaculture worldview, I suggest, assumes and enacts grotesque bodies and grotesque ecologies. Permaculture privileges polyculture over monoculture and seeks to maximize, rather than minimize the symbiotic entanglement of multiple plants and animals (this is the basis of the permaculture concept of the guild, see Mollison [1988] 2002: 19, 59). Permaculture seeks dialogic, conversational relationship with landforms. Permaculture also situates itself in opposition to the hegemony of the individual self and questions "the validity of the existence of *individual* organisms or *separate* events" (Mollison 1982, referencing Birch and Cobb 1984). Bill Mollison, co-founder of the permaculture movement, offers that "organisms such as ourselves exist only as an inseparable part of our event environments,

and are in continual process of exchange with animate and inanimate entities that surround us. We are acted upon and acting, created and creating, shaped and shaping" (Mollison [1988] 2002: 95). Here Mollison gives a concise articulation of a grotesque ecology in which bodies are continually exchanging and merging with one another, shaping, creating, and acting upon one another. In this sense, I see the concept of the grotesque as a useful one in developing a deeper understanding of permaculture thought and practice.

In establishing that permaculture assumes and enacts a grotesque ecology, I return to the questions of listening, sound, and musicality: How is the dialogic character of the grotesque specifically enacted through listening practices? How are the regenerative resonances that permaculture listening attends to understood as more-than-human dialogues, and how does the concept of the grotesque help to ground the concept of more-than-human conversation? Moving from conversationality to musicality, how does the concept of the grotesque help to ground permaculture concepts of a 'music of nature' in a counter-normative concept of grotesque nature? These are reiterations of my central inquiries concerning the role of listening in permaculture practice that deliberately foreground the concept of the grotesque in order to clarify my use of the term. As the concept of the grotesque is developed throughout the dissertation, it enacts an intrusion not just into the body or the ecology of the "classic canon" (Bakhtin 1984: 432-433; Bell 1994: 73; Hufford 2019: 22), but into the musicality that is assumed by the body and ecology of the classic canon.

Concluding Statement

Over the course of this dissertation, my aim is to present a persistent narrative arc: I begin with a description of permaculture as a method for integrating ecological and social systems tending toward biodiversity and regenerative design, and as a global social movement characterized by specific internal struggles relating to the persistent influence of colonial systems. This focused account of permaculture provides a necessary building block in moving toward a focused analysis of permaculture listening practices and discourses; the way permaculture practitioners talk about and do listening to ecosystems, landforms, or places. The second chapter's analysis of permaculture listening brings permaculture discourse into dialogue with academic discourses on ecological subjectivity, grotesque ecology, and sound and noise as registers of grotesque ecological embodiment. My analysis of how permaculture practitioners approach the act and experience of listening to ecosystem processes leads directly into a more focused consideration of how permaculture discourse uses the concept of music to describe ecosystem processes. The concept of grotesque musicality, which I construct in relation to the concept of grotesque ecology (Bell 1994; Hufford 2019), is articulated as a conceptual placeholder for describing and taking seriously the kind of ecocentric music concept that is present in permaculture discourse and practice around listening to landforms. The fourth chapter's adaptation of Turino's four-field model of music functions as a way of grounding the concept of grotesque musicality in ethnomusicological discourse, and of exploring the potentialities and tensions of studying music as eco-social life.

The idea of music as eco-social life is prompted by, or at least evidenced in, permaculture's worldview and listening practice. The concept of grotesque musicality is

similarly grounded in my own interpretation, internalization, and embodiment of permaculture discourse and practice. As such, my argument is consistently woven through with qualitative ethnographic and ethographic interpretation of my interactions with human permaculture practitioners and with the more-than-human ecological subjectivity of the hillside garden. It is through these descriptions of more-than-human encounter that I relate my own ongoing process of grappling with permaculture's particular eco-sociality; with the endeavor to perceive eco-social, more-than-human conversation taking (and making) place in the garden that I tend, and with the troubled endeavor to befriend the grotesque ecological subjectivity of the garden. Ultimately, I argue that this permaculture eco-sociality is intimately linked with an ecocentric concept of music as eco-social participation that informs (however partially or variously) permaculture thought and practice. In this way, the theoretical concept of grotesque musicality emerges, in large part, from my situated integration of permaculture methods of observation and of cultivating a capacity for eco-social participation. This mode of eco-social participation, I suggest, offers a generative (if experimental) model for ecomusicology, and music studies more broadly, of an ecocentric approach to music that unsettles or subverts anthropocentric commitments to music as humanly organized sound.

Chapter 1

Permaculture History, Ethics and Indigenous Ecological Knowledges

Defining Permaculture

> There are as many permaculture definitions as there are permaculturists.
> —Looby Macnamara, *People and Permaculture*

Permaculture is notoriously difficult to define. Permaculture writers, teachers, activists, practitioners, and students routinely comment on the difficulty of the task in their own efforts to come up with succinct definitions of the term (Leahy 2021: 62). This is due in part to permaculture's multivalent character; it exists at once as "a sustainable system of agriculture based on tree crops" represented in written texts and applied in rural and urban settings, and also as a far-reaching "design philosophy for a sustainable society" that galvanizes a global social movement with anti-capitalist, anti-colonialist, and anti-state leanings (ibid.: 16, 82, 115). Sociologist Terry Leahy tracks the progression of permaculture defined first simply as an agriculture of perennials in Bill Mollison and David Holmgren's *Permaculture One* (1978), second as a "sustainable agriculture and settlement design" in Mollison's *Permaculture: A Designers' Manual* (1982), and third, in Holmgren's *Permaculture: Principles and Pathways Beyond Sustainability* (2002), as "a design system for a sustainable society" grounded in an threefold ethical framework (previously outlined in Mollison's 1988 *Designers' Manual*) of earth care, people care, and return of surplus. These three texts are identified by Leahy as the core of the permaculture canon, laying the methodological and philosophical foundation for the movement and charting the expansion of permaculture's definition and scope both as a methodology and as a movement.

Leahy notes that permaculture's expanded definition obscures the fact that "texts and activisms are mostly concerned with agriculture" and, I will add, horticulture. The masking or decentering of its agriculture focus, he argues, causes specific problems for the permaculture movement. Namely, it becomes difficult to define the term, as "the ethics of permaculture are not too different from those promoted by other parts of the environmentalist movement" and "a systems approach to design is not all that unusual in the broad environmentalist movement" (ibid.: 86-87). So while, as Leahy notes, "what [ostensibly] distinguishes 'permaculture' from 'environmentalism' is that permaculture is a 'design system' for sustainability, drawing on the insights of systems theory" (ibid.: 55), it can also be argued that "attending to design in the context of sustainability could be considered part of what any sensible environmentalist would do" (ibid.: 87). In this sense, such an expanded definition of permaculture risks becoming "so global in its scope that its usefulness is reduced" (Holmgren [2002] 2011: xix). As the concept drifts further away from its original agricultural-horticultural focus it becomes hollowed out, resulting in confusion around the actual contours and content of permaculture.

Leahy suggests that one way "to approach what truly makes permaculture distinctive from other parts of the environmental movement" is to "point to its particular understandings of the environmental crisis and its particular vision of sustainable agriculture and settlement design" (ibid.: 55). He identifies four main points of distinction in this regard. First, permaculture recommends local production for local consumption and "has little faith in the capacity of renewable energy systems to provide sufficient energy for a globalized industrial culture" (ibid.: 57). This is a radical vision of post-capitalist, post-industrial society grounded in Holmgren's concept of energy descent which dialogues closely with degrowth and

postgrowth theories (Kallis 2018; Nelson 2018: 134-135, 244; Leahy 2021: 23-28; Prádanos 2018: 234-235). Second, permaculture recommends diverse polyculture agriculture with an emphasis on tree crops. As Leahy emphasizes, the "emphasis on perennials distinguishes permaculture from much of sustainable agriculture science and the sustainable agriculture movement; writings that imply the continued dominance of cereals in our food supply" (2021: 58). Third, "in contrast to much environmentalist thinking, permaculture argues against the view [that] rural lands should be emptied of the destructive impact of people. Permaculture aims at repopulating the countryside" (ibid.: 60). While urban permaculture has become a more prominent aspect of the movement in recent years, Leahy determines that permaculture ultimately rejects the notion that industrial cities can be maintained in the inevitable progression of energy descent. Leahy's fourth point of distinction for permaculture is that it "recommends political decentralization as the best social system" and "opposes centralized hierarchical states" (ibid.). Permaculture's rejection of the state aligns with eco-anarchist and degrowth advocates "who also propose rural self-sufficiency and political autarchy" (ibid.), but contrasts sharply with ecosocialist commitments to central planning (Baer 2019) and conservationist strategies that rely on the coercive power of the state (see Jacoby 2003: 2).

Leahy offers a critical and much-needed sociological account of permaculture's core identifying characteristics, both as a body of agricultural-horticultural-ecological knowledge and as a social movement. While much of the following discussion aligns with Leahy's analysis, I suggest that permaculture is also crucially defined by a particular natureculture ontology that at once distinguishes it from many other environmentalist strains and brings it into close dialogue with anti-colonial Indigenous activisms and discourses. An understanding

of this natureculture ontology is critical to my analysis of permaculture acoustemology, and an important building block in my interpretation of permaculture listening practices as a mode of more-than-human eco-sociality. As such, this chapter addresses the historical emergence of permaculture's natureculture ontology, as well as the political implications of its engagement with Indigenous ecological knowledges. While discourses around listening will come to the fore in the later portion of this chapter, the main focus here is on the ontological commitments, and their historical and political situatedness, that underlie these listening discourses.

In the first class meeting for the OAEC's Permaculture Design Course, co-instructor Eunice Neves defined permaculture as, in its essence, a philosophy of "taking responsibility for our own lives and caring, caring for the planet and for the people and for all beings" (Neves, personal communication 2021). This philosophy is realized through a design methodology "that is rooted in ethics and ecological principles, so that we design with nature as nature, and we start thinking like an ecosystem" (ibid.). This definition aligns with what Leahy calls "the broad approach," with its accompanying problematic vagueness. However, what Neves is communicating here is that what defines permaculture is not doing a particular set of things (planting trees or harvesting rainwater) but doing things in a particular way. The rhetoric of designing "with nature as nature," which has longstanding precedents in a diversity of Indigenous philosophies as well as the Western concept of the economy of nature, in which "all natural things…exist in reciprocal relation to other things" (McKusick 1996: 378, also see Worster 1994), communicates a natureculture ontology that subverts hegemonic Western environmental discourses that position "'nature' as raw stuff to be worked on by 'culture'" (Millner 2016: 41). Human permaculture practitioners situate

themselves and their (perma)cultures within the ecosystems they tend, entwined in collaborative coexistence that extends (ideally) even to modes of thought; a fundamental character of permaculture design, for Neves and the other co-instructors at the OAEC, is that it entails learning to think like an ecosystem. This phrase, as will be discussed at length in the proceeding chapters, is more than metaphorical—it refers to an ontological orientation toward a sentient earth that permaculture practices, from this perspective, are fundamentally predicated upon. Permaculture is thus, in feminist geographer Amy Trauger's definition, "a design-based method of crop cultivation that emphasizes an ontology of integrativeness between nature and society" (Trauger 2017:44). It is from this ontological stance that the concept and possibility of thinking like an ecosystem emerges.

The concept and practice of thinking like an ecosystem, furthermore, raises important questions for an acoustemological study of permaculture; as permaculturists endeavor to think like ecosystems or landforms, what kinds of listening strategies do they employ? How do differences in listening positionality (Robinson 2020: 60) motivate and shape listening strategies? What metaphors and values undergird permacultural = sound and listening? How does permaculture's naturecultural ontology shape listening experiences in practice, and how do the acoustic expressions of landforms play into permacultural efforts to think like ecosystems? To begin to address these questions, it is necessary to consider the underlying ethics and cultural history of permaculture as both a global formation of grassroots environmental activism and stewardship (Ferguson and Lovell 2015) and as a transdisciplinary framework for designing regenerative social-ecological systems based on the observation and integration of natural ecosystem processes (Rhodes 2015: 404-405).

Permaculture Origins

It must be noted that this ontological character is not unique or original to permaculture—indeed permaculture is largely a synthesis of pre-existing techniques, sciences, knowledge traditions from across the globe (Leahy 2021: 257-261). As feminist environmental ethics scholar María Puig de la Bellacasa writes, "while permaculture has gained organizational identity, many of the techniques and practices it promotes are not exclusive to this label—they are shared with and/or borrowed from agroecology, biodynamical agriculture, indigenous modes of land care, and more" (2018: 126). Trauger traces the emergence of what she calls "modern permaculture" back to early twentieth century European writings (2017: 44), though she does not cite specific publications or authors. She does identify the Japanese farmer-philosopher Masanobu Fukuoka's *One Straw Revolution* ([1975] 1978) as "perhaps the most enduring treatise on permaculture" (ibid.), although Fukuoka's book precedes the coining of the term, and his work is widely cited not just in permaculture texts but in interdisciplinary academic discourses on agriculture (Münster 2017: 71; Paul and Paul 2009: 10; Prasad 2005: 252; Delcore 2004: 37, 49; Rapoport et al. 1995: 166; Aurora 1991: 120) and social ecology (Biel 2016: 51-52, 113; Sullivan 2014: 236; Chou 2009: 157). Trauger's assessment of Fukuoka's writing as a fundamental permaculture text is justified largely by the permaculture movement's particularly earnest adoption of Fukuoka's philosophy, and the incorporation of his teachings into permaculture pedagogies and practices.

Through poetic explanation of what he calls "do-nothing farming" ([1978] 2009: 11), Fukuoka's *One Straw Revolution* articulates what would become the fundamental principles of permaculture—specifically, the principles of protracted and thoughtful observation of

ecosystems, of modeling agricultural design after spatial and temporal patterns that emerge in landforms (termed the principle of relative location in permaculture parlance), of seeking maximum effect for minimal effort, and of facilitating closed systems that do not rely on the extraction and import of unsustainable external inputs. These principles, of course, hold meaning and context outside of permaculture framework: Fukuoka's own writing and activism is situated within a postwar resurgence of Japan's shokuyō movement, a social movement initiated in 1907 with the establishment of the Shokuyō Association (*Kagakuteki Shokuyōkai*), which historian Sookyeong Hong identifies as "the first society formed in Japan for the purpose of promoting a healthful 'natural' diet for the Japanese" (Hong 2018: 106). The Shokuyō Association, which was comprised mostly of upper class elites—politicians, military officials and medical professionals (ibid.: 105-106)—rallied around the conviction that the cultivation of natural and ecologically appropriate foods and eating habits was "an essential starting point of changing individuals as well as societies" (ibid.: 107). In the postwar context, "actors in a variety of activities—such as the peace movement , consumer movement, the critique of modern biomedicine, organic farming or environmental movement—were also drawn to the idea that the act of eating can be a critical starting point for individual and social change" (ibid.: 108). Hence the ambitious and galvanizing title of Fukuoka's agricultural treatise, *One Straw Revolution*.

Comprehensive description of the Shokuyō movement—its leadership, the particulars of its scientific claims, moral rhetoric, and dynamic political implications—is beyond the scope of this study (for detailed historical analysis see Hong 2018); my aim is rather to situate Fukuoka's work and make clear that, while his name has become synonymous with permaculture (Trauger 2017: 44; De Goudroun 2016: 62), he gained international acclaim in

the broader context of the postwar resonance of the Shokuyō movement and, as such, his philosophy shares some of the fundamental tenets of this movement—particularly concerning the interconnectedness of the human body and the environment (Hong 2018: 107-108). This is significant in part because, as Hong argues, the Shokuyō movement, both in its original iteration and its postwar re-interpretation, was motivated by an anxiety concerning modernization, industrialization, and westernization. Fukuoka, in particular, presents in his writing a thorough rejection of modern industrial farming practices; for instance, he explains his do-nothing agricultural method playfully and succinctly in the following passage:

> The usual way to go about developing a method is to ask 'How about trying this?' or 'How about trying that?' bringing in a variety of techniques one upon the other. This is modern agriculture and it only results in making the farmer busier. My way was opposite. I was aiming at a pleasant, natural way of farming (farming as simply as possible within and in cooperation with the natural environment, rather than the modern approach of applying increasingly complex techniques to remake nature entirely for the benefit of human beings) which results in making the work easier instead of harder. 'How about not doing this? How about not doing that?' That was my way of thinking. (Fukuoka [1978] 2009: 11)

Fukuoka's critique of modern farming, aligned with the philosophy of the Shokuyó movement, clearly advocates for a practice of working in interconnected cooperation with nature rather than working in extractive domination of nature. In this sense his work speaks directly, and inspirationally, to permaculture's fundamental aspiration to work with or as, rather than against or on, ecosystems.

I first came across Fukuoka's seminal text in 2014 during my resident-internship at the Greenstring Institute of Natural Process Farming in Petaluma, California. The book was thin and well worn, pages softened by the hands of hundreds of previous interns. At that time I was deeply inspired by the elegance of Fukuoka's methodology, which applied the deceptively simple question—"what is the natural pattern?" (Fukuoka [1978] 2009:11)—to

the daunting tasks of plant cultivation, tree pruning, and soil building. At the Greenstring Institute my fellow interns and I crawled and twisted our way through thickets of thistle and devil's claw to harvest tomatoes from sprawling vines—the weeds certainly slowed our harvesting operation, but they were respected as crucial contributors to the regenerative pattern of soil health—cycling nutrients, dispersing and deterring insects and other animal pests, balancing surface temperatures, and ultimately ensuring stronger crop yields while minimizing needs for pesticide application and, to some extent, human labor.

Similar to Fukuoka's do-nothing approach and the natural process techniques I learned at the Greenstring Institute, one of the crucial outcomes anticipated within a permaculture framework is a shift from mechanistic labor inputs to observation-based labor. As Mollison and Holmgren write, "rather than the menial and repetitive labour of sowing, ploughing and reaping in a labour-intensive annual crop system, work in the permaculture system usually involves observation and control functions rather than power functions" (1978: 9) Power functions generally require high levels of energy inputs, which are needed to maintain a system's superficial functionality; monoculture row-cropping of annual plants requires intensive inputs to eradicate insect and microbes, to supplement degraded and exhausted soils, and to transport water into waterless zones. The industrial monoculture would quickly breakdown without these inputs and the economies and technologies that they require. Alternatively, a permaculture system oriented toward perennial polycultures (trees and shrubs) and the diversification of yields (gathering multiple kinds of harvests from a system or area) will reach a mature state of regenerative equilibrium (ibid.: 1978: 7) where plants and soils are sustained largely through their own symbiotic interactions and intelligences. Mollison and Holmgren's reasoning here closely mirrors the ethos of

Fukuoka's *One Straw Revolution* ([1978] 2009: 11-12), though the book is not explicitly cited, probably owing to the two texts' simultaneous publication. Fukuoka's work is referenced in Mollison's subsequent publication, *Permaculture: A Designer's Manual* (1982: 44-46), underscoring both the strong synthesizing impetus of Mollison's permaculture concept and the influence of Fukuoka's techniques and philosophies.

Despite holding these similarities in technique and philosophy, my teacher at the Greenstring Institute, Bob Connard chose to distance his work from permaculture, which he viewed as a newfangled redressing of older wisdoms that he had inherited from his family and from earlier generations of ecologically-concerned farmers and gardeners from across the globe—Fukuoka being one prominent bridging figure in this milieu. This aligns (though with a decidedly less enthusiastic tone) with Trauger's assessment of permaculture as an emergent phenomenon that, somewhat paradoxically, already preceded itself in the practices and writings of agrarians, gardeners, and environmental stewards around the world long before its conception. This dynamic is recognized plainly in Mollison and Holmgren's *Permaculture One*, which was presented explicitly as a synthesis of pre-existing models of "cultivated ecologies (1978: 3-4). From these models, *Permaculture One* derives an outline of a comprehensive methodology for designing regenerative (permanently self-sustaining) systems.

The synthesis and re-application of diverse agricultural and ecological models is motivated, as noted above, by a sense of urgency around environmental crisis, which Mollison and Holmgren articulated in their earliest description of permaculture's purpose. In *Permaculture One*, they write that "the actual damage which has been done to productive land and the environment at large by high-energy [industrial] agriculture, in terms of soil

breakdown, pollution, and breeding of resistant pest strains, is not really known but there are indications that it is considerable, wide-spread, and long-term. The extent of the damage will not really come home to mankind until the ever-expanding energy-base of our system comes to an end; as it surely will in the not-too-distant future" (1978: 3-4). As the environmental impacts of extractive industrialism have become increasingly obvious and dangerous (Moore 2016; Post and Pijanowski 2018: 71-72), a large part of permaculture's appeal in the present moment is that it offers a lucid analysis of global environmental degradation and a whole-systems approach to restoring ecosystem stability, health, biodiversity, and, crucially, the capacity for land to provide food-security for local populations.

Permaculture Principles and Ethics

In coming to terms with the scope and magnitude of environmental destruction and global ecosystem collapse, permaculture practitioners, thinkers, and writers have shifted the meaning of permaculture from "permanent agriculture" to "permanent culture," emphasizing the holistic and intersectional character of global social-ecological crises and the existential need not just for new food systems but for new cultural paradigms (Mollison 1991: 1, Kaplan and Blume 2011: 18, Macnamara 2012: 3). Mollison, for instance, gives this revision in his 1991 *Introduction to Permaculture*; "the word itself is a contraction not only of permanent agriculture but also of permanent culture, as cultures cannot survive for long without a sustainable agricultural base and landuse ethic" (1991: 1). This statement maintains a commitment to agriculture and ecology as the central focal points of permaculture, with cultural integrity theorized as dependent on the integrity of food systems and ecological

practices. This confirms Leahy's analysis that permaculture is best understood as primarily focused on agriculture (2021: 6-9; 44-45).

The inverse observation, that a regenerative agricultural base and land use ethic cannot exist outside of a broader cultural framework rooted in similar principles, also figures into the development of permaculture thought. Earlier texts such as *Permaculture One* (1978) and Mollision's *Permaculture: A Designers Manual* (1982) also foreground the importance of a holistic, multidirectional social-ecological analysis in confronting global crises; on the opening page of *Permaculture One*, Mollison and Holmgren name their foundational motivation as "an attempt to improve agricultural practices; both those of Western agribusiness, and the peasant grain culture of the third world. The former system is energy expensive, mechanistic, and destructive of soil structure and quality. The latter makes drudges of men, and combined with itinerant herding, deserts of what were once forests" (1978: 1, note the resonance here with Fukuoka's philosophy). In presenting their argument regarding existing agricultural systems, they take into account not only ecological processes but also social issues, including "problems of unemployment and of early retirement, of urban neurosis, and of the feeling of powerlessness and lack of direction common to many of us in today's world" (ibid.: 2). Social and ecological conditions and processes are understood to be mutually influential and co-constituting—necessitating a design approach that considers not singly ecological or social systems, but rather integrated eco-social systems.

Relatedly, permaculture has from its inception been critical of self-sufficiency narratives that strive for complete independence from the mainstreams of society. As original spokespeople for the movement, Mollison and Holmgren assert in *Permaculture One* that "we do not subscribe to the isolated fortress mentality of a totally self-sufficient approach,

but believe in designing for the whole society…overall self sufficiency is a pointless goal, but reduction of dependence on the wider industrial system can be taken a long way, reducing the need for people to work in the industrial society and consume its products" (ibid.: 12). This vision of transition toward a post-capitalist society, in Terry Leahy's analysis, is prefigurative; it is not "in any way hindered by the deeper structures of contemporary capitalism" but instead seeks to establish alternatives that prefigure post-capitalism (Leahy 2021: 203-204). Permaculture, in this sense, cannot be understood simply as a countercultural disappearance fantasy of dropping off the map or escaping the system; it is more accurately assessed as a strategy-frame for creating an enduring counter-public from which a sustainable society can coalesce. In this sense, permaculture mobilizes around a utopian vision of social change wherein the inherently violent and unsustainable structures of industrial capitalist systems are rendered increasingly irrelevant by the grassroots expansion of sustainable and equitable systems grounded in intentional, ethical, design (Ferguson and Lovell 2015: 39; Holmgren 2011: xv). If, as Mollison emphasizes, "Design is the subject of permaculture" (1982: 70), it must be clarified that this is a particular mode of design situated within a social-ecological idealism characterized by "horizontal symmetry between natures and cultures in which people are not bracketed off from their environments in the production of food" (Trauger 2017: 44) or the production of culture (Dolman 2016: 54-56).

The ethical framework that undergirds this idealism is communicated in three simple directives; care of earth, care of people, and return of surplus, also commonly rendered as "earth care, people care, and fair share," with subtle variations reflecting the political and philosophical orientations of the individual or group using the phrase. These three ethics are interlocking, particularly in the sense that the third principle, return of surplus, is directed

toward enacting both of the first two principles—caring for people and caring for the lands and waters and air that they inhabit. Trauger notes that "the idea that surplus is to be returned to the soil in the form of compost or to the people in the form of food security is a radical departure from capitalized, industrial agriculture and is a key element of permaculture's emphasis on sustainability" (2017: 44). Thus, the concept of surplus, in this ethical formulation, resists conflation with capitalist notions of surplus as profit to be accumulated. Neither can permaculture conceptions of care be equated to capitalist and anthropocentric notions of care as a service focused on the perpetuation of human life (Puig de la Bellacasa 2018: 22), as will be discussed further below.

It is important (particularly in the context of permaculture's anti-colonial orientation) to recognize here that the "return of surplus" ethic was originally conceived and articulated by Bill Mollison as "setting limits to population and consumption," with the rationale that "by governing our own needs, we can set resources aside to further the [first two] principles [of earth care and people care]" (Mollison [1988] 2002: 2). While the concept of restrained self-governance is crucial to Mollison's idealist egalitarian vision of permaculturists as "neither employers nor employees, landlords nor tenants," but self-reliant individuals and sovereign cooperatives, the language of population control has been critiqued and largely abandoned by later generations of permaculturists due to its association with imperialism, cultural elitism, and eugenicist thought. The reactionary concept of setting limits to population growth is rooted in Thomas Malthus' influential (and incendiary) theories of population growth, economics, ecology, and agriculture as articulated in his landmark 1798 "Essay on the Principle of Population" (Malthus 1973). Malthusian models of population growth have continued to hold influence over ecological theories into the 21st century in

academic research and public policy contexts; his writing and reasoning were fundamental to Garrett Hardin's landmark "Tragedy of the Commons" (1968) which has sparked decades of ongoing discussion around the ethics and tactics of public policy, conservation, resource management, and food production (Bell 1986, Dutta and Sundaram 1993, Gardiner 2001, Yundannima 2017). Hardin's tragedy of the commons argument relied fundamentally on the Malthusian assertion that populations grow exponentially and a socio-political economic system will never be able to meet or catch up to the material needs of the growing population—as global populations grow "this means that the per capita share of the world's goods must steadily decrease" (Hardin 1968: 1243).

Offering both prognosis and treatment for this theorized scenario of inevitably compounding scarcity, Hardin theorized that the only way to effectively confront global over-population (aside from the total system collapse and mass death anticipated from inaction) would be coercive and restrictive management of human breeding, or what he euphemistically terms "mutual coercion" (ibid.: 1246-1247). Hardin's theory has been critiqued both for its misuse or misapplication of the concept of the commons (Gardiner 2001: 387-388) and, relatedly, for its inability to account for the structural violence, resource extraction, and wealth hoarding that drive the apparent crises of scarcity and overpopulation, or for the broader geopolitical implications of the technocratic surveillance-state structures related to population control (Zubrin 2012: 33; also see Strathern et al. 2019: 169). The revision of the third permaculture ethic, from "limits to population growth" to "return of surplus" or "fair share," parallels these critiques of Malthusian economics and Hardin's theorized tragedy of the commons, and pivots from a narrative frame of economic scarcity to one of ecological surplus. These reformulations, however, are still internally precarious and

continue to invite (or demand) scrutiny. For instance, to act on the ethic of "return of surplus," one must ask several questions; return of what, to who, by who? How is surplus discerned from subsistence? Who labors to produce surplus? These questions are asked and answered differently by different permaculturists in different circumstances; the playful-serious permaculture axiom "it depends" (Dolman and Dunnigan, personal communication 2021) is pertinent here in communicating the inadequacy of formulaic applications and generalizations. This ethic, along with the other two, is approached both in pedagogical and real-practice contexts not as some kind of explicit directive but as a vessel for contemplation relative to circumstance.

The Question of Care in Permaculture

The simplicity of permaculture's three-fold ethical framework, and the great extent to which it leaves itself open to contemplation and interpretation, is both its strength and its weakness. Each word is in itself a contested terrain of meaning. The concept of care, for instance, becomes immediately complicated by its inherent directionality—to care for someone or something means, more often than not, to marginalize and sacrifice others. Acts of care and acts of harm are often entangled, simultaneous, and indistinguishable, particularly in contexts of ecosystem tending. Permaculture's utopian aspirations and the naturecultural intention to work "with nature, as nature" (returning to Neves' statement above) in no way undo the entanglements of care and harm; rather, they compel permaculturists to dwell in the uncertainty of these entanglements.

María Puig de la Bellacasa engages permaculture ethics in her own articulation of alterbiopolitics, "connecting the practices of permaculture ethics as everyday ecological

doings with a feminist notion of care" in order to displace "biopolitical moralities, allowing us to envision *alterbiopolitics* as an ethics of everyday collective empowerment that puts caring at the heart of the search of everyday struggles for hopeful flourishing of *all* beings, of *bios* understood as a more-than-human community" (ibid.: 22). Still, she maintains, it is always necessary to ask "for what worlds is care being done for?" (Puig de la Bellacasa 2018: 65). She draws on her participation in the Sonoma County-based Earth Activist Training (EAT) permaculture course, led by Erik Ohlsen and Starhawk, two leading figures in the permaculture community locally in Sonoma County who are also deeply involved in the international collaborations. She remarks that "In EAT trainings, the teachings were not about morality; nor did we spend much time discussing ethical implications. The focus was on learning how to make and live with everyday systems and techniques that embody and embed care for the earth" (ibid.: 127). Everyday engagement with "the tasks and consequences of living in naturecultures" (ibid.: 127) involves what Puig de la Bellacasa calls "noninnocent care" (ibid.: 164). "In some contexts," she notes, "care is inseparable from killing…sometimes the question of how to care might mean that we have to engage with issues concerning if, why, and how we kill and for what" (ibid.).

Weeding, for example, is a routine aspect of both food-plant cultivation (gardening and farming) and restoration work that involves killing certain lifeforms with the intention of allowing others to thrive; even in adhering to a do-nothing methodology, some selective cultivation becomes necessary, particularly with highly domesticated species in their early phases of growth (Mollison and Holmgren 1978: 10, 32). When my landmates and I pull annual grasses out of the ground around the high bush blueberry, calendula, and mint guild in my garden, we are making a choice to care for some organisms and harm, maim, and kill

others. We justify our actions on multiple levels; by conceptualizing the super-organism of the soil as overflowing with an excess of annual grasses and benefitting from their measured removal; by anticipating the greater trophic cascade of the blueberry bushes and calendula and mint flowers as sources of forage for many small creatures; and by anticipating the excitement of our friends and family as we hand them fresh blueberries from homegrown soil. We also speculate, worriedly, about the ecological burden of concentrated water use required to obtain a healthy yield of fruit from a blueberry bush in the drought-stricken climate of Northern California, and the question of whether the killing of individual grass-beings effectively excludes them from the ecosystem community that we imagine ourselves benefitting and participating in.

This more-than-human community is an intricate assemblage, and its contours and boundaries are marked, in part, through sonic expression in the garden—they are sounded out in the hum of native bees and song birds foraging amongst the blossoms, in the tug and crunch of plant fiber as gophers eat at the strong root systems of the bushes, trees, and flowers, and by the countless creatures whose bodies I cannot hear, but whose lifeforce I perceive in the gestalt vibrancy of the garden bed. The vibrancy of the assemblage disperses and fades into the nearby grass, which is quiet and still by contrast. Our acts of care are small but significant participatory gestures that facilitate a multitude of cross-species interactions, and the direction of our care has resonant consequences for the land; where we carry water and maintain irrigation lines, where we carry compost. The concept of resonance and listening as a mode of care will be discussed in more detail in coming chapters.

What worlds are we caring for? What worlds are we excluding from this care? After two heavy rainstorms in October and November of 2021, we broadcast calendula, red clover,

poppies, wildflowers, and fava beans in the new berm I made from a mix of compost, rabbit manure, and clay loam over felled oak limbs, and I sit and watch and listen to the miraculous steady emergence of the young plants. I pluck young grasses as they shoot their leaves over the slower growing flowers and legumes, whose fleshy cotyledons are still capped with soft crumbles of topsoil, barely peeking their bodies above ground. From a permaculture design perspective, these choices of caring and killing are grounded in the principle of diversification; that biodiverse polycultures are generally more healthy and resilient than monocultures. It must also be emphasized that human food production is not the primary goal of this particular permaculture design; a whole ecosystem trophic cascade is the design goal, operating on the principle of diversification; plant polycultures facilitate soil biodiversity and invite a diverse array of pollinators, both insect and avian. Biodiverse ecosystems are generally more productive, resilient, and stable than monocultures, which are prone to disease, collapse, and resource depletion (McCann 2000: 232, Markandya and Chiabai 2011: 4, Grossman 2019: 5-6)—but biodiversity necessarily involves predation, cycles of eating and being eaten, what Donna Haraway calls "mortal relatedness" (2007: 12, also see Puig de la Bellacasa 2018: 164). In my practice of gardening and permaculture design, I arrive at the choice of taking the lives of grasses as a way of tending to biodiversity and participating in a regenerative polyculture. The biopolitics of care in this context entails bodily engagement with and attention to the phenomena of death and life, of tending and neglecting.

The distinction between "earth care" and "people care" also implicates permaculture ethics in a constellation of Nature-Culture binaries—although permaculture discourses generally refuse, or at least confuse, any separation of nature and culture, of earth and people, this same dualism is reproduced, superficially, in its ethical foundation. The terms are

employed strategically as familiar concepts but positioned deliberately so as to illuminate ambiguities regarding their boundaries and co-constitutions. Puig de la Bellacasa writes that in the permaculture frame, “the natural and the cultural, human and not, are not bifurcated…but attempt to be entangled otherwise. This movement [permaculture] is not understandable along the reductive lines that oppose romantic environmentalism to a pragmatic noninnocent acknowledgement that there is no such thing as ‘nature’” (2018: 128, with critical reference here to Morton 2009). Permaculture practice entails a more reflexive and iterative engagement with human-environment embeddedness; as she continues, “there is a fair amount of awareness among permaculturists about technoscientific context, about this human practice being a trial-and-error effort of imperfect beings attempting to fray more flourishing ways into ecological futures, acknowledging that we are as much earthy creatures as implicated inheritors of the patently poor environmental record of human history” (ibid.). It is important to note here, as Puig de la Bellacasa does in her further discussion, that “this is an alternative tradition that emerged among the technoscientific offspring of the industrialized Global North, the West (something that the charge of whiteness and privileged background of permaculturists often highlights, prompting to challenge and extend its constituencies)” (ibid.: 128-129). Ontological orientations to natureculture entanglement in the permaculture context arise from a particular kind of Western cosmopolitan that stands in dynamic (shifting and unfolding) relationship to traditional practices and ecological knowledges of Indigenous and non-Western cultural formations. Indigenous cosmologies, which also inform and inspire academic discourses on ecology and ethics (Shilling 2018: 8-10), natureculture (Haraway 2017: M46-M50), multinaturalism (Viveiros de Castro 2015: 3-6, Kohn 2013: 40; Ochoa Gautier 2016: 140-141), and animism (Van Dooren and Rose 2016:

81), fundamentally inform the nuanced ways in which permaculturists (Indigenous and otherwise) navigate the tensions, contradictions, and potentials of Nature and Culture as entangled conceptual and phenomenological realms.

Permaculture Demographics: Whiteness, and Indigeneity

Permaculture is an internally diverse constellation of communities with distinct historical, cultural, cosmological, and political orientations and commitments. The unifying framework of these interlocking ethics allows for a diversity of interpretations, even to the extent of re-defining and repurposing permaculture as a concept. As the movement's co-founder Bill Mollison emphasized in a lecture given in 1994; "it's a little difficult to define what the permaculture community is, it's not a community which has a hierarchy, it has no paid administration, it has no offices…It is totally disintegrated. You own the word permaculture…as much as anybody does. And nobody can tell you what to do. So don't let them. There's no kings or royal family in this system" (Mollison 1994). Following from this ethos of anarchic collectivism, permaculture author Looby Macnamara observes that "there are as many permaculture definitions as there are permaculturists" (2012: 1). While clearly hyperbolic, Macnamara's statement effectively communicates the movement's commitment to the ideals of local and individual autonomy, and to principle of prioritizing diversity (here extended from biological and social diversity to the level of epistemology).

The deliberately decentralized character of the global permaculture movement, however sincere in its penchant for radical egalitarianism, has not been impervious to the influence of broader structures of power. Along these lines, agroecologists and permaculture researchers Rafter Ferguson and Sarah Lovell assert that "in dismissing [or downplaying] the

possibility of constraints on participation other than individual interest, Mollison encourages a ‘demography blind’ perspective that ignores the forces of privilege and exclusion in race, gender, and class relationships” (Ferguson and Lovell 2015: 39). Their demographic study, based on a sample population of 731 survey respondents, identifies a white supermajority of 96% (ibid.). It is worth noting here that study participants were mainly located in the United States (59%), Australia (15%), Canada (8%), and the United Kingdom (5%), with remaining 13% of respondents distributed across 42 other countries. While this study is limited in scope and methodology (relying on an English language survey distributed solely over the internet), the results resonate with a popular perceptions of permaculture as a mostly white movement.

In settler-colonial contexts such as Australia, where permaculture originated, and the United States, where my study is situated, permaculture has drawn critique from Indigenous scholars, activists, and community leaders who observe complicity in settler-colonial patterns of land-theft, disenfranchisement, and the appropriation of Indigenous cultural resources and knowledges into setter-dominated spaces. As Indigenous anthropologist Devon G. Peña notes, “there are many well-intentioned scientists and sustainability advocates who have made successful careers since the 1970s urging farmers to turn the world right side up again by adopting permaculture principles. These are truly seldom recognized as having Indigenous origins and analogs: perennial and annual polycultures, crop rotations with long duration fallows, intercropping with biodynamic and allelopathic companion plants, the classification and care of soils, the preparation and application of biodynamic soil treatment concoctions—all these and many more agroecological practices are results of Indigenous knowledge created in the centers of origin and well before the arrival of the fashionable, modern, and profitable advocates of biodynamics and permaculture” (Peña 2017: 348). Peña’s analysis of

the commoditization of Indigenous knowledges, particularly in conjunction with Ferguson and Lovell's statistical identification of permaculture's white supermajority, speaks to the power imbalances that characterize the production of knowledge across environmentalist, conservationist, and agroecology discourses.

Mollison and Holmgren do explicitly recognize and emphasize that the permaculture concept draws fundamentally from various Indigenous agroecological practices from around the globe in their original text. For instance, they refer to pre-colonial Tasmania as "a highly-evolved permacultural region sufficient to sustain tribal life indefinitely" (1978: 10-11), identifying Aboriginal Tasmanians as a model and inspiration for their own approach to ecosystem design. However, they distinguish their conceptualization of permaculture as a synthetic framework, arguing in *Permaculture One* that:

> In spite of all [these precedents], little reference can be found to the type of system that is developed in this study. Thinking about the productive landscape in terms of an ecology which considers relationships, interactions, and elements is relatively recent…Where 'cultivated ecologies' do exist, they are usually simple, involving the few elements (plants and animals) providing the traditional needs of the culture and are not necessarily transferable to other environments. The possibilities of complexity have not been explored. (1978: 4)

While Mollison and Holmgren are not wrong in their observation that Indigenous ecological knowledges are often intimately placed-based and not easily reduced to formulaic re-applications, their wording here can also be read as a diminutive, dismissive assessment of Indigenous ecological knowledges as simple, primitive and provincial. Buryat community leader and Indigenous rights activist Galina Angarova, along with 15 other Indigenous leaders from around the globe, gives this rebuttal to permaculture's claim to a uniquely comprehensive complex analytical approach, arguing;

> Regenerative Agriculture and Permaculture claim to be holistic in approach. When regenerating a landscape, 'everything' is considered: soil health, water cycles, local

> 'wildlife', income and profit. 'Everything', however, tends to EXCLUDE history: Why were Indigenous homelands steal-able and why were our peoples and lands rape-able? Why were our cultures erased? Why does our knowledge need to be validated by 'Science'? Why are we still excluded from your 'healing' of our land? (Angarova et al. 2020, emphasis in original)

The coauthored piece, titled "Whitewashed Hope," aligns with the analyses identified in the previous paragraph of permaculture as both appropriative of Indigenous knowledges on the one hand and exclusionary toward Indigenous and non-white individuals and communities on the other.

It must be emphasized that permaculture, as a global cultural formation, does not always take place in settler-colonial contexts, and indeed is at times employed specifically as a framework for anti-colonial efforts, for instance in Gaza (Esteves and Abusalama 2020), across the Middle East and North Africa (Karim 2018), in South and Central America (Millner 2016), India (Lakshmi KP 2016), and Indonesia (Leahy 2021: 270). In these contexts, permaculture becomes a banner for collectivist self-determination and for food sovereignty as well as geopolitical sovereignty and stability. Within settler states such as Australia and the United States, permaculture is also utilized as a strategic approach toward food sovereignty, land reclamation, community resilience, and coalition for Indigenous groups and other communities of color (Figueroa and Alkon 2017: 224-225; Wires and LaRose 2019: 34; Alkon, Cadji and Moore 2020: 231-232; Curry 2015: 41, Sbicca 2018: 180-188; Brinbaum and Fox 2014: 57-58).

White settler permaculture projects have also responded to critiques from Indigenous and POC communities, centering decolonial rhetoric and active coalition-building strategies (see Leahy 2021: 262 for extended discussion). In its course materials, the Occidental Arts and Ecology Center emphasizes the fact that "in the U.S., a very small percentage of mostly

white people own the vast majority of land. This has come about through land theft by terrorization and force, but also through political and market-based forms of colonization and displacement, such as redlining, gentrification, and speculative real estate" (OAEC 2021: 58). A primary focus of the OAEC's pedagogical framework is to challenge students to find "ways you can disrupt and divest from colonial systems and do the work of repair" (ibid.: 59). The OAEC models this repair work through collaboration and coalition-building projects with local Indigenous and POC communities, such as the Federated Indians of Graton Rancheria and the Indigenous-led Cultural Conservancy in Sonoma County, as well as with the Urban Tilth project in Richmond, Contra Costa County and Pandora Thomas' Earthseed Permaculture Farm, the first Afro-Indigenous and Black-owned permaculture center in Sonoma County. Of these four groups, two were represented on the OAEC's teaching staff; Doria Robinson, executive director of Urban Tilth, and Melissa Nelson, founding executive of the Cultural Conservancy (as well as president of the board of directors at the OAEC) taught as guest lecturers in the 2021 spring course.

The OAEC's focus on repair work and environmental justice is representative of a shift in permaculture discourse broadly from a critique of capitalism and industrial agriculture to a more radical critique of socio-political structures rooted in an analysis of colonialism. This re-orientation toward de-colonial thought and action is spurred largely by Indigenous interventions such as Angarova et al.'s "Whitewashed Hope" piece, as increasing numbers of Indigenous people and people of color, both within and adjacent to permaculture demand recognition and equitable inclusion in the movement. A collective statement titled "Requests from the People of Color Caucus at the North American Permaculture Convergence," published in the *Decolonizing Permaculture* issue of *Permaculture Design*

Magazine (2015) advocated specifically acknowledgement of "the historical rights of indigenous peoples to the land on which we gather. We ask event organizers to make a sincere request to use the land, as well as issue an invitation to the appropriate indigenous peoples to open events and/or bless the space before we gather" (2015: 10). This language stops short of advocating for the legal return of land back to Indigenous communities, and instead gestures toward alternative strategies for presenting Indigenous leadership in colonized spaces. This less radical strategy is also taken up by the Occidental Arts and Ecology Center; while the organization and the land is technically owned within the colonialist-legal framework, it develops systems of shared-leadership and collaboration with Indigenous individuals and communities.

There is little identifiable consensus in permaculture discourse around the issue of decolonization, however. Permaculture educator and writer Jesse Watson draws on Eve Tuck and K. Wayne Yang's "Decolonization is Not a Metaphor" (2012) in his assertion that "in a literal and legal sense, decolonization 'brings about the repatriation of indigenous land and life'…ideally, this process should be done without strings attached. Questions of what happens to present settler peoples is secondary to the act of returning Native land to Native peoples" (Watson 2015: 34). In the same issue of *Permaculture Design Magazine,* Cree and Chihuahua permaculture educator and activist Heather Jo Flores writes "alas, it doesn't seem as if people who own land will start signing deeds over to sovereign nations anytime soon," arguing that "there's not much point in continuing a discussion about equality until people are willing to do way more than just talk about it…Fair Shares, anyone?" (Flores 2015: 23). Flores' reference to the third permaculture ethic points to the stubborn hypocrisy of the movement in its U.S. context.

Terry Leahy argues, to this point, that fair share strategies need to be focused on the more fundamental structures of political and economic control, targeting not middle-class landowners but the capitalist class and the political-economic institutions that protect them. "The capitalist market economy," he notes, "produces an underclass and refuses the lessons of Indigenous knowledge because of its economic structure" (Leahy 2021: 188). As long as this structure is hegemonic, "demanding that middle-class permaculture people divest themselves of their small allotments and residential properties to show solidarity with Indigenous struggle at the present time is quixotic," as it will do little to disrupt the accumulation of financial and political control amongst the capitalist class. Leahy suggests that "using discretionary middle-class wealth to fund community projects that work with marginalized communities—to develop new strategies for poverty relief, community strength and food security…can point the way to a more total system change" (ibid.: 188). This marks a point of uncertainty and friction within and across permaculture communities regarding best strategies for just transitions and just futures. Leahy's gesture toward a system change that does not (immediately or primarily) include the rematriation of stolen lands (Wires and LaRose 2019: 31; Jacobs 2021: 280-282) stands somewhat at odds with decolonial demands from Indigenous activists. As Tuck and Yang emphasize; "decolonization is not a swappable term for other things we want to do to improve our societies…decolonization doesn't have a synonym" (Tuck and Yang 2015: 3).

Permaculture can, however, become part of anti-colonial work for Indigenous and Indigenous-allied activists and community organizers. Guillermo Vasquez, director of the Oakland-based intertribal organization Indigenous Permaculture asserts that "permaculture is a way of cultural resistance" (quoted in Brinbaum and Fox 2014: 61) with revolutionary

potential. Vasquez "describes his vision of permaculture as a universal philosophy that builds bridges" between Indigenous and non-Indigenous cultures through a foregrounding and privileging of "Indigenous science" (ibid.: 60-61). Similarly, after asserting that "Indigenous worldviews are the bedrocks that our agricultural practices and lifeways arise from" (ibid.), Angarova et al. conclude their critique with a direct invitation to (white settler and other non-Indigenous) permaculture practitioners:

> We invite you to ground your daily practices in these ancestral ways, as we jointly work towards collective healing…. Healing of land MUST include healing of people and vice versa. Recognizing and processing the emotional traumas held in our bodies as descendants of assaulted, enslaved, and displaced peoples is necessary to the healing of the land. Returning our rights to care for, harvest from, and relate to the land that birthed us is a part of this recognition. (Angarova et al. 2020)

Their critique, then, is not a simple rejection of permaculture as an appropriation of Indigenous knowledges, but a stern assertion of the need to build partnerships of deeper integrity across the uneven geopolitical terrain of settler-Indigenous and imperial-Indigenous relations. A permaculture of greater integrity, from this perspective, would necessitate a commitment "to not just 'take' practices from Indigenous cultures without their context, but also to encompass the deeper Indigenous worldviews…inspiring a consciousness shift that hopefully will support us to go from a dominant culture of supremacy and domination to one founded on reciprocity, respect, and interrelations with all beings—including, of course, among all humans" (ibid.). Such commitments, while not in themselves decolonizing, prefigure post-capitalist futures built on the respectful integration of Indigenous worldviews.

One of the co-authors of "Whitewashed Hope" is Melissa K. Nelson, an Anishnaabe, Cree, and Metís scholar of Indigenous ecological knowledges who also serves as the president of the board of directors of the Occidental Arts and Ecology Center (as mentioned above). Nelson taught as a guest-instructor for the permaculture design course that I took in

the spring of 2021, where she focused her lecture and discussion primarily on the relationship between Traditional Ecological Knowledges and permaculture design methods, ethics, and principles. She emphasized, reiterating the message of "Whitewashed Hope," that if permaculture is fundamentally rooted in observation practices, then permaculture must be observant of the ways in which colonization has affected ecological and social patterns and processes. Moreover, permaculture observation needs to attend to the reality that, in Nelson's words, "we live on storied landscapes," landscapes imbued with generations of Indigenous cosmological and ecological knowledge and practice. Traditional ecological knowledge, according to Nelson, is held not just in the minds and hearts of human practitioners, but endures as stories in landforms themselves, in the relationships between different creatures and different aspects of the land and the flow of seasons in a place—in Nelson's words, "there is always something to listen to in terms of the rocks, the winds, the trees, the flowers, the animals, what is it trying to tell you?" (Nelson, personal communication 2021).

Here she weaves together the concept of landforms as agential and expressive (communicating through the movement of their various constituent elements and lifeforms) with the concept of landforms as reverberating with the stories of Indigenous human inhabitants who create what she calls "storyscapes"—landscapes that are understood as holding "traditional stories about the land and the relationship between people and the land" (ibid.). Guest instructor A-dae Briones, who is the director of the Native Agriculture and Food Systems program at the First Nations Development Institute, gave an example in her lecture of the ways in which landforms and waterways are understood to hold stories of ecological relationship that are as deeply entangled in histories of colonization and settlement as they are in histories of Indigenous ecological knowledge:

> When we talk about soil, we really need to be talking about the salmon, when we think about some of the California waterways, some of the major fertile soil in California came from generations and generations of the salmon nation going up the rivers and then dying and their bodies floating down and literally becoming the ground we walk on. And when I told this story to one of my friends in the Pacific Northwest he said, you know A-dae when you look at this picture [shown on the right], it's not only telling you that the salmon nation created fertile soils, it's telling you that the people created fertile soils. And he said, you know, some of our people are buried in some of these places, and it takes about fifty years in acidic soil for bones to become soil, and so when we think about soil nation, building fertile soil, we're thinking about Indigenous peoples' bones, and even settler bones now, people who have come after settlement. People who've come after settlement. People who are buried in these lands become the fertile soil we depend on today.

These stories and storyscapes are directly relevant to the work of permaculture—as A-dae continues, "you can't talk about soil regeneration and carbon sequestration without talking about logging, without talking about the alteration of waterways, because that has done much damage to soil fertility, but also much damage to tribal people." The ecological knowledge that these stories hold shapes both Indigenous- and settler-permacultural understandings of soil—the present animacy and historical potency of soil. Returning to Nelson's assertion that "there is always something to listen to" in storied landscapes, the land is understood to resonate with the lives and deaths of countless bodies, becoming and un-becoming, composing, decomposing, and re-composing. What Briones presents as Indigenous ecological knowledge is incorporated into the pedagogical structure and epistemological framework of the OAEC's permaculture course, and students are prompted to listen to the land as bones-becoming-soil; as Indigenous bones, settler bones, salmon bones, and the bones and bodies of all creatures collectively weaving the storyscape.

The Indigenous perspectives that Nelson and Briones offer align with and inform permaculture's natureculture ontology outlined earlier in this chapter, making the crucial intervention that learning to "think like an ecosystem" involves learning the history of that

specific ecosystem and one’s own relationship to it. In his 2020 monograph *Hungry Listening*, Stó:lo music and sound studies scholar Dylan Robinson observes that “to decolonize perception in general, and listening in particular, requires different strategies for settler and Indigenous listeners” (2020: 72). He argues that “while it is important for Indigenous listeners to understand and practice forms of resurgent perception based in our individual nations and communities’ cultural logics, for settler listeners decolonial strategies may at times be necessarily agonistic” (ibid.) toward the hegemonic cultural logics of settler society. Learning to think like an ecosystem, within the permaculture frame, also entails different strategies for settler and Indigenous permaculturists. Indigenous worldviews become crucial resources for articulating and enacting counter-hegemonic ontologies that engage with landforms, soils, and waterways as agential, lively, and expressive entities. Within Indigenous contexts, Robinson notes, conceptions and perceptions of the agency or “the subjectivity of place (or ‘animacy’ as it is often referred to in anthropological discourse) seem uncontroversial…our ancestors are the land” (ibid.: 97). For settler permaculturists, whether or not they inherit animist ontologies from their ancestral lineages, thinking like an ecosystem entails, as a first step, a recognition of settler involvement in the histories of displacement, genocide, and extraction that characterize that ecosystem. As Briones’ story about bones-becoming-soil illustrates, Indigenous and non-Indigenous peoples are diversely (differently) implicated, politically and materially, in the storyscapes of colonized landforms.

Playing Indigenous: Invitations and Appropriations

The implications, intentions, and outcomes of non-Indigenous engagements with Indigenous perspectives are diverse, divergent, and locally specific. In the U.S. context, these

engagements collide with a broader history of settlers adopting or consuming Native American philosophies, identities, and material cultures (Watson 2015: 36). Melissa Nelson, for example, noted in her lecture that "there's a lot of discussion about non-natives engaging with a sense of place and becoming native to place again. Of course, its treacherous and dangerous territory because we know there are white folks who do crazy things and pretend to be Indian and steal ceremonies and steal knowledge" (Nelson, personal communication 2021). Historian Philip Deloria places this phenomenon, which he terms "playing Indian" (following Green 1988) at the very heart of American culture continuing from its moment of revolutionary inception (Deloria 1998: 1-4). Deloria's historical cultural analysis is directly relevant to the invitations made by Indigenous practitioners for settler permaculturists to engage with the storyscapes of traditional ecological knowledge and to "encompass the deeper Indigenous worldviews" (Angarova et al. 2020). Particularly in discussing permaculture's natureculture ontology and ethical commitments, the friction between practicing permaculture and playing Indian must be critically examined.

In *Playing Indian*, Deloria argues that key white-settler sociopolitical movements in the United States, from the revolutionary inception of the Boston Tea Party (Deloria 1998: 161) to the 1960s hippie counterculture (ibid.: 95) and the postmodern emergence of New Age cultural formations (ibid.: 170), act on a "deeply rooted desire to be Indian and thereby aboriginally true to the spirit of the land" (ibid.: 179). This desire has been expressed through various forms of "Indian play," such as the costuming, face painting, and war chanting employed by tea party revolutionaries (ibid.: 1), woodcrafts and primitive skills programs that continue to the present day (ibid.: 96-102), the earnest critiques of U.S. capitalism by countercultural radicals in the postwar period, the patchwork adoption of Native American

spiritualities by New Age truth seekers (ibid.: 157-161), and, importantly, the mobilization of Indianness as an abstracted symbol of righteous relationship to the land and natural environment (ibid.: 166-167, also see Voyles 2016: 234).

Each of these modes of Indian play, Deloria observes, has historically relied more on the symbolic weight of Indianness than on actual lived relationship with Indigenous Native American peoples (ibid.: 169-170). The exclusion of Indian people from white definitions and imaginations of Indianness that Deloria details is rooted in the dual settler-colonial impetus of eradication and becoming; as he argues, "if Indianness was critical to American identities, it necessarily went hand in hand with the dispossession and conquest of actual Indian people" (ibid. 182). Angarova et al. call attention to the replication of this dynamic in their observation that Native American peoples (and Indigenous peoples globally) are often excluded from environmental restoration projects that claim to be healing the land and returning it a pristine (imagined and ahistorical) state (Cronon 1996: 7-10, 18; Gilio-Whitaker 2019: 103). Environmentalist discourses in the United States are largely characterized, both historically and presently, by the marginalization of Indigenous (and other non-white) voices, interests, and claims to ancestral lands (Cole and Foster 2001: 30; Ryder 2017: 88). Relatedly, the homesteading and back-to-the-land impulse that motivates many permaculturists in the United States draws from a deep well of frontier and wilderness mythology, the same mythology that Deloria links to the broader phenomena of playing Indian. Furthermore, the acquisition of land by settler permaculturists relies on naturalized property rights structures that give a bureaucratic camouflage to colonial forces and legalize land theft. Settler colonial discourses around "becoming native to place again," as noted by

Nelson, are often predicated on the structural violence of colonial governance that strip actual Indigenous communities of political power, voice, and visibility.

The active legacy of playing Indian, while intimately relevant to permaculture in the United States context, is somewhat complicated by the movement's global character and non-American origins. A more fitting analogue to Deloria's concept, adapted to the permaculture context, might be 'playing Indigenous'—where the abstraction of Indigeneity as a paradoxically universal yet place-based marker of authenticity fills a similar function in (mostly white) cosmopolitan imaginaries of an environmentalist counterculture. For example, in presenting the observational method of sit spot listening, the Occidental Arts and Ecology Center foregrounded the Aboriginal Australian concept of *dadirri*, as described by Aboriginal artist and educator Miriam-Rose Ungunmerr-Baumann. The OAEC course materials included a passage written by Ungunmerr-Baumann on dadirri, which was also posted on her MiriamRose Foundation website, and available for free download as a pdf document (Rose 1988). In her writing she introduces dadirri as "inner, deep listening and quiet, still awareness" (Ungunmerr-Baumann 1988: 1). She explains that "when I experience, I am made whole again. I can sit on the riverbank or walk through the trees….There is no need of words. A big part of dadirri is listening" (ibid.). Her concept of dadirri imbues listening with a spiritual and ethical aspect, evident in her emphasis that "in our Aboriginal way, we learnt to listen from our earliest days. We could not live good and useful lives unless we listened. This was the normal way for us to learn—not by asking questions. We learnt by watching and listening, waiting and then acting. Our people have passed on this way for over 40,000 years…" (ibid.: 2).

The concept of listening as an ethical and utilitarian prerequisite to action is somewhat analogous to the permaculture principle of thoughtful and protracted observation as the primary responsibility of the designer, gardener, or farmer. Appealing to 40,000 years of Aboriginal culture, Ungunmerr-Baumann correlates ethical listening with Aboriginal-ness in the Australian context. Dadirri, as a listening practice, is also implicated in traditional ecological knowledges; Ungunmerr-Baumann continues to explain that "our Aboriginal culture has taught us to be still and to wait. We do not hurry things up. We let them follow their natural course—like the seasons. We watch the moon in each of its phases. We wait for the rain to fill our rivers and water the thirsty earth…We watch the bush foods and wait for them to ripen before we gather them" (ibid.).

The poetics of this passage, in which Ungunmerr-Baumann names a relationality between listening and waiting while imbuing both with an ethical righteousness, serves several functions in the context of its inclusion in the permaculture course materials. First, the authenticity and authority of Indigeneity is invoked by the OAEC staff, associating the Occidental Arts and Ecology Center (on a surface, textual level) with a more conscientious mode of permaculture that valorizes Indigenous voices and leadership, and social-environmental justice more broadly (see Millner 2016: 42, Brinbaum and Fox 2014: 59). Ungunmerr-Baumann's specific identity as an Aboriginal Australian community leader and cultural icon seems significant, given that permaculture originated as a concept in Australia and was first modeled through direct observation of the ways in which Aboriginal stewardship practices had shaped the lands and waters of Australia (Brinbaum and Fox 2014: 61-62). Second, the foregrounding of Ungunmerr-Baumann's words on dadirri serves to place permaculture, discursively, outside of normative Western epistemological, ideological,

and ethical frameworks. She describes dadirri as simultaneously exterior and imperative to Western culture, asserting that “it is our [Aboriginals’] most unique gift. It is perhaps the greatest gift we can give to our fellow Australians” (ibid.). But it is also a gift that Westerners and settlers are obligated, ethically required to take up, as she continues; “we have learned to speak the white man’s language. We have listened to what he had to say. This learning and listening should go both ways. We would like people in Australia to take time to listen to us. We are hoping people will come closer” (ibid.: 64). This rhetoric mirrors the invitation that closes Angarova et al.’s otherwise more confrontational “Whitewashed Hope” piece, and it aligns with Deloria’s assessment, in the US context, that Indigenous people have always been “insinuating their way into Euro-American discourse, often attempting to nudge notions of Indianness in directions they found useful” (Deloria 1998: 8, 172). While Ungunmerr-Bauman’s words are directed at a generalized conception of white-settler-Australian society, her teaching around dadirri finds a particularly receptive audience in permaculture as a global movement already invested in the synthesis of Indigenous ecological knowledges and worldviews.

The OAEC’s use of dadirri as a teaching tool must be analyzed within the broader context of the organization’s pedagogical approach. Specifically, returning to Melissa Nelson’s cautionary against “white folks doing crazy things and pretending to be Indian,” it should be noted that non-Aboriginal Australian students (whether Indigenous or settler) are not meant to practice dadirri or to pretend to embody the depth of Aboriginal philosophical and spiritual tradition that dadirri contains. Dadirri is not, in this sense, available for simple appropriation; rather, its presence in the OAEC’s pedagogy serves to call attention to issues of listening positionality. (To my knowledge, none of the participants in this course, either

students or instructors, were of Aboriginal Australian descent, and while Ungunmerr-Bauman's words were included in the course's written materials, dadirri was not taught directly by any of the instructors.) Through cautionary statements such as Nelson's, students (myself included) were encouraged to reflect on what it means to engage with the concept and practice of dadirri as cultural outsiders; what it means, after "having grasped a sense of this rich Indigenous gift, [to] consider using, in some way" (OAEC 2020: 60) the advice that Ungunmerr-Baumann offers in "the spirit of dadirri that we have to offer" (ibid.: 65). Students are challenged, in the context of the course, to build a relationship with this practice and philosophy outside of the paradigm of acquisition or consumption and, more fundamentally, to build into our own ecological listening practices an awareness of Indigenous precedents such as dadirri.

Dylan Robinson's discussion of critical listening positionality is relevant to this circumstance; Robinson asserts that alternative configurations of listening cannot be adopted or applied at will: "Unlike iPhone photo filters," he explains, "one cannot simply select and add noncolonial, feminist, queer, or black listening filters in order to listen otherwise. This reductive approach essentializes critical listening positionality as something that might simply be applied by choice, and fails to recognize that to apply a form of Indigenous listening would also constitute appropriation" (Robinson 2020: 51). Nelson, along with the rest of the OAEC teaching staff, expresses a similar sentiment in warning against what she refers to as cultural fraud, the theft of Indigenous ceremonies, knowledges, and identities. The OAEC teaching staff challenges their students to situate their own listening practices in relation to dadirri as an Indigenous—and specifically Aboriginal Australian—precedent to contemporary discourses on deep listening and permaculture observation while resisting, as

Robinson would say, “the hunger to consume alterity and Indigenous content” (Robinson 2020: 72).

Revisiting Permaculture’s Ontology of Integrativeness

This chapter began with an overview of permaculture’s definitive characteristics, its ethical framework, and its ontology of integrativeness between nature and culture (Trauger 2017: 44), progressing through a brief history of the movement and into a critical consideration of the relationship between permaculture and Indigenous ecological knowledges. Indigenous interventions into permaculture discourse have been crucially important, particularly to the mode of permaculture taught and practiced at the Occidental Arts and Ecology Center, as demonstrated above. The morphing of permaculture ethics and principles over time (such as the shift from “setting limits to population growth” to “return of surplus”) reflects a deepening influence of Indigenous critiques and challenges to permaculture, as well as critiques from other communities of color and marginalized communities within and outside of the global north. The eloquence of permaculture’s ethical framework has ensured its durability and adaptability to these critiques, and the basic tenets of earth care, people care, and return of surplus have been refashioned to accommodate more explicitly anti-colonial interpretations and commitments.

Parallel to this anti-colonial turn, permaculture’s natureculture ontological orientation has been fundamentally influenced by Indigenous worldviews and cosmologies. In the context of the Occidental Arts and Ecology Center specifically, the foregrounding of Indigenous listening practices (such as Ungunmerr-Baumann’s description of dadirri and Nelson’s discussion of listening to storied landscapes) is inextricable from a foregrounding of

Indigenous understandings of earth-animacy. Indigenous engagements with permaculture stress a need to listen not to a world of inert material objects, but a world of animate beings and relationships, to the point that permaculture appropriations of Indigenous ecological knowledges are argued to be hollow and reductive if they "maintain the 'dead' worldview of Western culture and science" (Angarova et al. 2020). As Angarova et al. continue, "rocks, mountains, soil, water wind, and light [in this Western scientific worldview] all start as 'dead'. (E.g., 'Let's bring life back to the soil!'—implying soil, without microbes, is dead.). This worldview believes that life only happens when these elements are brought together in some specific and special way" (ibid.). The authors emphasize that "Indigenous cultures view the Earth as a communion of beings and not objects: all matter and energy is alive and conscious. Mountains, stones, water, and air are all relatives and ancestors. Earth is a living being whose body we are all a part of. Life does not only occur when these elements are brought together; Life always is. No "thing" is ever dead. Life forms and transforms" (ibid.). While these essentializing constructs of both Western culture and Indigenous cultures neglect to account for the ways in which "for all its perennial dualisms, the 'West' has, for the most part, animated its cosmoi" (Rubenstein 2018: 109), and obscured the endurance of counterhegemonic lineages of animism, paganism, and panpsychism within Western-identified cultural spheres (Dombrowski 1988, Mathews 2003), the Western-Indigenous binary is reproduced in permaculture discourses (as well as academic and political discourses for the most part, see Brondizio et al. 2021) and becomes an important starting point for conversations around Indigenous ecological knowledges as well as strategies for confronting Western systems of colonization (see Scoz and Zamora 2015: 3; Watson 2015: 34-35; Shilling 2018: 12, Martinez 2018: 152; Leahy 2021: 176-177).

Permaculture has from its inception constituted an entanglement of Western and Indigenous ecological knowledges, as well as Western and Indigenous cosmologies, spiritualities and ontological frameworks. This entanglement is epitomized in the cover illustration of Mollison's canonical text *Permaculture: A Designer's Manual*, which combines the Indo-European symbol of the cosmic egg (see Nilsson 1935: 199) with the Aboriginal Australian symbol of the rainbow serpent and the globally significant Tree of Life. Mollison explains the symbolic synthesis as follows:

> The great oval of the design represents the egg of life; that quantity of life which cannot be created or destroyed, but from within which all things that live are expressed. Within the egg is coiled the rainbow snake, the Earth-shaper of Australian and American Aboriginal peoples…within the body of the Rainbow Serpent is contained the tree of life, which itself expresses the general pattern of life forms…The whole cycle and form is dedicated, as is this book, to the complexity of life on earth. (Mollison [1988] 2002: xi)

The cosmic egg-rainbow serpent-tree of life amalgam speaks directly to the synthetic nature of permaculture as a design methodology, and social movement, and it also encapsulates the creative tension between Indigenous and Western identities and worldviews that has characterized permaculture, particularly in the settler-colonial contexts of Australia and the United States. Throughout the *Designer's Manual*, Mollison weaves back and forth between Western materialism (ibid.: 16) and Indigenous animisms (ibid.: 98), seeking moments of interstitial overlap. Indeed, he names his understanding of Western-Indigenous difference as a primary motivation for the conception and development of permaculture as a design methodology, arguing that:

> In western society no popular body of directives has arisen to replace the injunctions of tribal taboo and myth. When we left tribal life we left with it all guides to sensible behaviour in the natural world, of which we are part and in which we live and die. More to the point, by never having the time or commonsense to evolve new or current guiding directives, we have forgotten how to evolve self-regulating systems. Hence,

> the call for a society in which we are all designers, based on an ethical and applied education, with a clear concept of life ethics. (ibid.: 10-11)

While Mollison's language around Indigenous ethical and eco-cosmological frameworks read as distinctly outmoded, it is interesting to note that Angarova et al. 2020 puts forth a similar argument from the perspective of Indigenous scholar-activists. Crucially, however, Angarova et al. argue that permaculture cannot succeed in its stated goals without more meaningful recognition and integration of Indigenous perspectives and leadership. They assert that while permaculture and permaculturists "borrow practices from Indigenous cultures, critically, they leave out our worldviews and continue the pattern of erasing our history and contributions to the modern world" (Angarova et al. 2020). The case study of the Occidental Arts and Ecology Center offers an example of how permaculture organizations and communities have received and responded to these critiques; through direct partnerships with Indigenous communities, teachers, and scholars, and through a foregrounding of Indigenous worldviews in course curricula and programming. A-dae Briones spoke to the intention of these partnerships in her lecture by relating a story from Samish (a federally recognized tribe in Washington state) clam farmer Marco Hatch:

> Marco said, you know, when his people first started making canoes, they would look for the biggest tree and they would go to the tree and they would ask the tree, tree can we please make you a canoe, please give your life so we can make a canoe, and the tree would talk to them; like, they would watch it for a couple weeks and if there were any sorts of weaknesses they wouldn't use the tree. So the idea was that this one tree would become the tree that would carry people across the San Juan Islands in the Pacific Northwest. And that tree had to be strong and it had to be whole because any little crack or any little weakness would mean that most likely the canoe would drown if the canoe gave out during some of those rough seas. And he said today they no longer have trees that are big enough to make one canoe. That they have to talk to several trees and they have to meld them together in order to make a canoe, so ultimately their canoes are much weaker but they're having to learn how to meld trees together so that these canoes can take them across these very rough seas. And he said that that's how he thinks of Indigenous practices and some of the science of environment and agriculture, is that we're having to figure out how to make these two

> things meld so that ultimately they carry people across the rough seas should they become rough. And I leave you with that story because I think part of that melding process begins with conversations like this one, and Indigenous people interacting in courses that look at agriculture and environmental movements and environmental science. So melding those two trees together so that we find ourselves all in the same canoe and we're all trying to reach the other side across these rough seas together. (Briones, personal communication 2021)

The emphasis on Indigenous presence, collaboration, and leadership that Briones communicates, and also embodies as an instructor in a settler-majority permaculture design course, marks somewhat of a difference from the "Indian play" that Deloria describes as characteristic of twentieth-century environmentalist (and various revolutionary or countercultural) movements in the United States, which have generally excluded or marginalized Native American people while adopting and re-imagining symbolic forms of Native American-ness. However, Briones also emphasized that the metaphor of permaculture as a melding of trees should not be mistaken for a utopian vision of egalitarian multiculturalism; she notes that while settler-descended people can make ethically and morally motivated decisions to engage with Indigenous peoples and Indigenous ecological knowledges, Indigenous peoples for the most part do not have the privilege of choice. This constraint operates on multiple levels. First, whereas settler-descended people are not forced by broader social structures to engage Indigenous ecological knowledges, Indigenous peoples are forced to accommodate settler colonial structures, even to the point that the very future of Indigenous communities often depends heavily on their ability to negotiate settler colonial society (Deloria 1998: 188). Second, Briones explained that "when you're an Indigenous person of your place…you don't have the privilege to not adhere to your responsibilities to that land, so it's not like you can say, 'oh I'm a sustainable agriculturist, but I think I'm

gonna practice regenerative practices…you have to maintain your relationship with that land no matter what type of system you're applying" (Briones, personal communication 2021).

Briones communicates here that permaculture, like other subsets of environmental and ecological activism, holds different use values for Indigenous and non-Indigenous people. For settler-descended people, permaculture offers a framework for learning how to be good neighbors or respectful guests, whereas for Indigenous people, permaculture is useful to the extent that it opens pathways to the maintenance of longstanding relationships and responsibilities to their traditional territories. Permaculture is also potentially useful, as demonstrated in the examples above, as a space in which Indigenous people can intervene in settler discourse about ecological stewardship and advocate for deeper commitments to decolonial practice (Brinbaum and Fox 2014: 59-61).

The metaphor of melding trees as melding worldviews also speaks directly to the Occidental Arts and Ecology Center's vision of permaculture, and to the broader collective aspiration of the permaculture movement in the twenty first century as "a universal philosophy that builds bridges between contemporary [non-native] and native cultures" (Brinbaum and Fox 2014: 60-61). The sense of precarity and urgency that colors these metaphors also speaks to the ways in which these decolonial aspirations are often uncertain, contested, or unsuccessful. As Kendall Dunnigan observed in response to Briones' recounting of the canoe metaphor, "in this class, there are Indigenous people from the United States, some live in their traditional territory, some don't, and then there are many of us who have been so long separated from our Indigenous roots that we may or may not know what they are or where they're from. And then we've found ourselves as part of, really, a genocidal lineage in this country" (Dunnigan, personal communication 2021). Dunnigan

underscores this colonial condition as the necessary starting point for permaculture work in the US context, asserting that “part of permaculture, inherent to it, is that question; how do we remember to be people of place where we have now found ourselves, to be respectful to the rights of Indigenous people who are here, and then how do we remember ourselves as people of place together with those who are here?” (ibid.).

Listening is employed in this discourse as a key concept in describing the task at hand for settler permaculturists. As Dunnigan also emphasized earlier in the course; “the depth of internal colonization, for all of us, it runs deep…and we are remembering together how to listen to the land, and listen to each other, and part of that remembering process can be painful and scary” (Dunnigan, personal communication 2021). The rhetorical use of listening as a mode of decolonial work aligns with Melissa Nelson’s emphasis on listening to places as storyscapes and with the OAEC’s presentation of Ungunmerr-Bauman’s articulation of dadirri as an Aboriginal Australian practice of deep listening; it also constitutes an integration of Angarova et al.’s critique in that it, ideally, moves beyond the tokenizing appropriation of Indigenous symbols, cosmologies, and theories about a sentient, storied land and into an actual practice of relationship-building with that land situated in an awareness of colonial structures. In addition to listening to what Indigenous peoples have to say and write about land and ecology, Dunnigan suggests that permaculture, for her and for the OAEC, is about listening to and learning from the land one finds one’s self on, and from the historical trajectory of one’s relationship to that land.

Chapter Conclusion

The above discussion describes the ethical and ontological commitments of permaculture as well as the entanglement of settler colonial and Indigenous worldviews and practices that characterizes these commitments. As demonstrated, Indigenous interventions have been crucial to the development of permaculture; these interventions are marked by a sharp rejection of white-settler tendencies toward consumptive and alienating modes of appropriation and, at the same time, by a challenging invitation for white-settler permaculturists to find generative, participatory ways of relating to Indigenous worldviews that do not re-enact expectations of settler privilege (Gilio-Whitaker 2018) or Western-scientific intellectual hegemony.

Listening becomes a realm of discourse and practice in which these precarious invitations and challenges are engaged; permaculture's utopian idealism, its counter-normative ethical commitments, and its natureculture ontology, are epitomized and realized in the work of remembering how to listen to the land (returning Kendall Dunnigan's statement above). Permaculture notions of listening are troubled by the settler-colonial inheritances of "playing Indian (Deloria 1998) and "hungry listening" (Robinson 2020), and permaculture's increasingly self-reflexive discourse continues to grapple with the entanglement of its white-settler majority with colonial structures of privilege, control, and extraction. In the face of colonial governance and capitalist systems of land-ownership/theft, listening does not in itself effect or constitute a fruitful strategy toward social-environmental justice. Still, permaculture discourse hones in on listening as a building block toward eco-social change. As Melissa Nelson emphasized in her course lecture, "we live on storied landscapes, and it is our responsibility to listen, and to listen differently" (Nelson, personal

communication 2021). The following chapter will turn to a consideration of what Nelson means by listening differently—moving particularly toward an understanding of permaculture listening as a mode of more-than human-eco-sociality.

Closing Note

In closing, I will briefly note that this description of permaculture reflects my own research focus and does not account for the great diversity of approaches and perspectives both within and outside of the movement. As mentioned previously, permaculture is a relatively under-researched cultural formation, and each of the topics I have brought up in this chapter warrant additional ethnographic, demographic, sociological and ecological study. Specifically, while this chapter has focused largely on issues of Indigeneity within permaculture, a more comprehensive study of racial politics in permaculture would address the experiences of Black and other POC permaculturists (Ferguson and Lovell 2015 make a similar call for further research into permaculture's racial politics). I have also only touched briefly on the politics of gender in the permaculture movement (see Leahy 2021: 324-327 for a focused discussion on this topic). An exhaustive engagement with permaculture's politics, subcultures, techniques, or practices, however, is beyond the scope of the current study, which engages permaculture primarily as a mode of eco-sociality characterized by specific multispecies and whole-landform listening practices; the remainder of this dissertation will address these listening practices.

Chapter 2

<u>Sit Spot Listening and Ecological Subjectivity</u>

> Let the land speak to you, let the birds speak to you, let the slopes, the stones, all of the animate force of that place.
>
> —Brock Dolman, OAEC Permaculture Design Course, Spring 2021

The first task, and first principle, of permaculture design is protracted and thoughtful observation, abbreviated as PATO by Brock Dolman and, in its original formulation, as TAPO by Bill Mollison (Mollison [1982] 2002: ix, 28). "Protracted" here refers to temporal duration and density—the extension and repetition of immersion within ecosystems as a foundational aspect of observation. Adopting Mollison's vocabulary, María Puig de la Bellacasa explains that "the point of immersed observation [for permaculturists] is to take the time to 'experience' the specific 'schedules' happening within the arrangement of life cycles (involving species, climate, localized interactions, etc.) that constitute temporal niches in a particular ecology" (2017: 201). Observation of ecosystem processes is understood as a prerequisite for interaction. For example, in planning or designing a garden, it is necessary first to observe and experience the place over a long period of time, preferably across seasonal changes (Starhawk 2002: 164), taking note of what species of plants, animals, and fungi inhabit or traverse the space at what points in the year; the way that water moves across the land and the temporal rhythms of wetness and dryness in that place; the ways that light and sound and scent fill the place, and how these each relate to the creatures of that place, the soil and the water there. Working from this experiential knowledge the gardener, or farmer or ecosystem steward, can then make decisions that promote biodiversity and eco-social

thriving by recognizing and meeting the needs of specific creatures (including humans) who inhabit, move through, or rely on that place.

While the imperative of observation, as Leahy notes, is also demonstrably "inherent in the scientific method" (2021: 15), permaculture observation is characterized (in contrast to the Western scientific paradigm) by an underlying relational natureculture ontology, as discussed in the previous chapter. Thus, while Western scientific frameworks generally strive toward a separation of the observer from the observed (the researcher from the object of study or manipulation), the permaculture framework orients toward a relational copresence of the observer within the observed; this is particularly the case with ecosystem or landform observation, where immersed observation becomes "an ethos that contributes to the cocreation of a particular ecology and the mutual multilateral obligations and interdependent doings it entails" (Puig de la Bellacasa 2017: 201). By identifying permaculture observational practices as an ethos, Puig de la Bellacasa underscores their "ethical and affective dimensions" (ibid.)—through immersive observation, permaculture practitioners involve themselves in "webs of doings, obligations, and asymmetrical reciprocities" and mortal dependencies (ibid.: 199).

As this chapter's discussion will demonstrate, the orientation toward copresence and naturecultural relationalities positions permaculture listening as a form, or aspect, of multi-species and holoent (Haraway 2017: M45) eco-sociality. This recognition gives rise to questions of more-than-human ecological subjectivity (Posthumus 2017), the possibilities and stakes of intersubjective encounters (Robinson 2020: 97), the resonance of these encounters, and the "sonic consequences of concepts of co-habitation and cross-species sociality" (Feld 2017: 94) in the context of permaculture practice. I will frame these areas of

inquiry within an analysis of a specific exercise central to the Occidental Arts and Ecology Center's pedagogy called "sit spot listening." Sit spot listening, which I will describe in detail below, functions as a pedagogical training tool wherein the principle of protracted and thoughtful observation is foregrounded and inhabited with heightened intensity. This exercise also serves to cultivate habits of attention and relation that extend beyond the container of the exercise into everyday acts of eco-social engagement for permaculturists.

My analytical approach is informed by sound studies discourses that situate sound in a "feedback loop between metaphor and materiality" (Novak and Sakakeeny 2015: 1; Feld 2017: 84-85); permaculture listeners likewise reside in metaphor-materiality feedback loops, as their experiences of listening are shaped by conceptual understandings and theories of listening communicated in permaculture pedagogy. Just as "metaphors for sound construct perceptual conditions of hearing and shape the territories and boundaries in social life" (ibid.), so do metaphors for listening. Listening, as a category of discourse (Turino 2008: 103), as learned cultural practice (Sterne 2003: 19), and a phenomenon of perception that unfolds "within the holistic context of lived experience" (Rice 2015: 108), figures crucially in permaculture efforts to expand the boundaries of social life and to cultivate whole-landform sociality. Specific metaphors or concepts pertinent to permaculture landform listening that I will address in this chapter are; the concept of "composing-with," rather than imposing on, the land; the concept of conversation as an expressive capacity of place; and, the concept of befriending place. Each of these concepts is foregrounded in the OAEC's instruction on sit spot listening, as detailed below, and each also shapes experiences and conceptions of listening for permaculturists in everyday immediate encounters with places as more-than-human subjectivities (Feld 2017: 93).

Sit Spot Listening in Permaculture Pedagogy

The principle of protracted and thoughtful observation is epitomized in a practice called sit spot listening, in which the listener is seated or otherwise stationary for a period of time, observing their immediate environment. This practice itself is not unique to permaculture; it has precedents in scientific methodologies (particularly wildlife biology and ecology); various Indigenous traditions (such as the Aboriginal Australian practice of dadirri discussed in the previous chapter) and ecological knowledges (Kimmerer 2013: 46); animal tracking and bird watching techniques; and, various realms of artistic practice, such as Pauline Oliveros' approaches to deep listening (Oliveiros 2005: xv, 53). Like most aspects of permaculture, the sit spot is a synthesis of these diverse influences, and permaculture approaches to sit spot listening vary across different communities and contexts. For the sake of coherency, I will focus my discussion here on the sit spot exercise as described and taught at the Occidental Arts and Ecology Center.

In this specific context, Brock Dolman emphasized his professional background in wildlife biology as foundational to his interpretation and instruction of sit spot listening, underscoring the influence of Western frameworks of ecology and biology. Kerry Brady, who wrote out all of the sit spot assignments, draws on her work in somatic psychology and deep ecology, emphasizing the integrated nature of bodily, psychological, and ecological processes and experiences. Brady draws connections between the ecosystem and what she calls the "ego-system," the embodied sense of self that experiences interaction with and/or alienation from ecosystems. Emphasizing that "we are shaped by the setting—the ecology—in which we are immersed," she presents the sit spot as a practice of building both ecological

awareness and internal sensory awareness, a practice of noticing the porosity of the boundaries of selves and bodies to the ecologies they inhabit. Both Brady and Dolman also mention naturalist and nature connection mentor Jon Young as a major influential figure in sit spot pedagogy, particularly with respect understanding and experiencing bird language as a resonant expression of complex multi-species relationships (OAEC 2021: 198-200; also see Starhawk 2002: 164-165).

One of the most important characteristics of sit spot listening, across all of these lineages and contexts, is that it is a regular, repeated practice. In the case of the OAEC's course, students (myself included) were instructed to carry out at least one sit spot session per week. I made the sit spot a daily practice, as it brought me into embodied engagement with the topic of my research; the role and character of listening in permaculture frameworks. The following is an excerpt of the course's initial sit spot instruction, written by co-instructor Kerry Brady, which would serve as a reference point guiding the students' regular observation sessions:

> Notice what you smell, what the wind and weather feel like on your skin, what the texture of the moment feels like, what images come. Open your field of vision to include what you see in your periphery. Listen to sounds with your ears and your whole body. Notice what is happening with the birds. And the temperature, wind and light. What is the conversation happening before you? Notice both pattern and detail. Activity and rest. (Brady in OAEC 2021: 22-23)

A key aspect of this initial sit spot prompt is that it presents an explicitly multisensorial conception of listening. As the whole body is ascribed listening capacity, and as listening is wrested from a narrow conception of audition, a wider range of phenomena become

listenable: light becomes listenable to the whole-body listener, and temperature; the gestalt textures of moments are engaged within this conception of listening. This contrasts with the tendency, as described by sound anthropologist Tom Rice, for listening to be regarded as "a sensory process that involves the isolation and intensification of auditory attention and experience" (Rice 2015: 103); listening is inhabited or intended as "a mode of consciousness that reaches beyond the merely auditory" (ibid.: 101). As a whole-body listening practice, the permaculture sit spot exercise destabilizes the assumption of a privileged relationship between hearing and listening; listening is rather repositioned from the hearing ears to the feeling body, distributed across all aspects of sensory perception.

Composing-with: Listening as a Means to Eco-Social Collaboration

The work of permaculture design consists in four basic phases; assessment, visioning, designing, and implementation. This four-phase process is recursive in the sense that assessment follows implementation, initiating further iterations of the sequence. While different modes of listening play important roles throughout each of these phases, sit spot listening is particularly essential to assessment, which itself pervades and co-occurs within each of the other phases. As presented in the OAEC course materials, "assessment guides and grounds design so it is reflective of and responsive to place. The aim of assessment is to discern a pedagogy of place that allows us to compose with the land and its inhabitants" (OAEC 2021: 15). In explaining this concept further, Kerry Brady and Brock Dolman emphasize a distinction between "composing with" and "imposing on" the land, where the opposition between composition and imposition ascribes a specifically collaborative character to the act of composing. This is in opposition to non-collaborative engagements of

ecosystems that are “not rooted in the Earth, but in human ego” (OAEC 2021: 15). The idea of composing-with (I insert the hyphen here to avoid grammatical confusion in my prose) moves from an understanding first that all living beings have intrinsic value and that their lives and deaths are matters of care and concern (Puig de la Bellacasa 2017: 201), aligning in this sense with the environmentalist philosophical tradition of deep ecology (Witoszek and Mueller 2017: 210) and with Angarova et al.’s generalized articulation of Indigenous worldviews discussed in the previous chapter (Angarova et al. 2020). The commitment to collaborative composition runs counter to capitalocentric constructs of land as commodity or as resource available for extraction and manipulation. It also counters Western scientific constructs of land as mute, unresponsive materiality; composing-with discerns, or anticipates, an agential subjectivity of place, and it is in this sense that the human permaculturist’s collaboration is understood as “responsive to place” (drawing from excerpt above). Permaculture listening strategies are thus infused with a sense of responsiveness to place; this is a “multi-species response-ability” (tracking with Haraway 2016: 10), an ability to discern and enact collaborative strategies across species difference.

Efforts to compose and collaborate with the land and its inhabitants, however, inevitably also involve friction and contest, exclusionary and adversarial approaches. Composing with the land rests first on an ability to identify (or construct) existing contours of community and camaraderie; listening in this way becomes a practice of familiarization with the frictions and exclusions that mark a place at its boundaries and also characterize its more interior relationships. For example, the fence uphill from my garden is high enough to keep deer from entering and foraging on the tender greens and flowering plants that grow amongst the fruit trees in the garden. The fence also marks a property line, separating my

landlords' parcel from the neighbor's; the garden's boundary is determined by this imaginal property line and by the physical fence that embodies and enforces legal imaginations. In analogy to the ways in which our human bodies are constructed or brought into being by social and political discourse (Butler 1999: 12-13), bodies of land are brought into being by social, political, and legal structures, and inscribed by the power of the settler-colonial state. The garden that I tend with my landmates emerges, and re-emerges, as a product of these structures. Along the fenceline patterns of movement are rendered transgressive; histories of colonial dispossession are perpetuated, the theft of land is masked in a maze of legal proceedings and market transactions; bureaucracy staked into stone and soil.

But the fence is also permeable to many aspects of the land; foxes slip through the wire squares and haunt our rabbit hutches and chicken coop at night; squirrels rely on the upper fence railing as a safe passage between oak trees throughout the day; scrub jays, titmouses, and sparrows flitter through and over the fence as they forage; the creatures of the soil, the roots of plants and webs of mycelia spread unheeded by the fence line. The land itself evades the logic of land ownership, even as ecologies suffer real devastation under colonial regimes. The fence, as a site of exclusion and surveillance, an embodiment of the "hygienic State" (Chen 2012: 210), is also always a site of transgression or contamination (Tsing 2015: 27-28). In sit spot listening, I am oriented toward these earthy contaminations, perceiving contamination as opportunity or even prerequisite for collaboration and composing-with. As I hear, again and again, the wash of birdsong descend upon the garden, I become increasingly familiar with the ways in which the birds and I each give our bodies to the garden, and the ways in which we each take from the garden into our bodies. My and my landmates' efforts to nurture the soil facilitate (in a small but significant way) their foraging

efforts; conversely, their activities in the garden, their eatings and excretions, keep insect populations in healthy balance while also adding to soil fertility. Their contaminations in the garden become, literally, the ground of collaboration. In my sit spot listening, then, I learn to hear density and variation of birdsong as expression of soil health and ecosystem health, and as an invitation to further collaborations.

I also hear and experience the fence line that the neighborhood birds transgress so easily as a form of contamination in itself. As Anna Tsing explains, both contamination and collaboration are non-innocent concepts; "the diversity that allows us to enter into collaborations emerges from histories of extermination, imperialism, and all the rest. Contamination makes diversity" (Tsing 2014: 29). The chatter of birds in the garden also sounds out the violence of enclosure (Dayanani 2021), as do the dizzying oscillations of my neighbors' quadracycle as they race circles in their spacious backyard. The garden and race track are each aspects of the "audible archive of long-lived relational attunements and antagonisms that have come to be naturalized as place and voice" (Feld 2017: 93) in west Petaluma. They each sound out, in different ways, the division of land into bounded properties, which are at once porous and deadly-solid, at once contaminating and sterilizing; they give rise to new kinds of interwoven diversities (sonic, machinic, biological, cultural) while upholding the exterminationist inheritance of the colonial capitalist state that wrought genocide, dispossession, and discrimination on the Coast Miwok people who are Indigenous to the land we garden, and who continue to struggle for recognition and reparations (Gilio-Whitaker 2019: 106-108). Composing-with also means composing within, even if against, these plural, contradictory realities of non-innocent contamination. Non-innocent contamination in west Petaluma feels like birdsong bleeding into diesel motors; like the

barely audible (for me), mostly palpable sub-frequency rumble of trucks on the freeway rising from the soil into my body; like deer staring at me from uphill across the fence, stamping their hoofs in territorial display as my dog wanders close to the property line—boundaries are reinhabited and repurposed for diverse world-making projects. While the deer come to depend on the fence for their own safety, sleeping alongside it under the shade of oaks and wild plums, my landmates and I depend on the fence for the safety of the plants and soil we tend from the deer themselves. We compose with the fence, with all of its trouble, to create abundant forage for fugitive, trespassing birds.

Conversation and More-than-Human Expressivity

In her chapter contribution to Timothy J. Cooley's edited volume *Cultural Sustainabilities*, folklorist Mary Hufford poses the question; "can it be that patterns of ecological rationality exhibited in soil communities are replicated in human sociality?" (Hufford 2019: 21). She engages with biologist David George Haskell's writing on the complex information-exchanges and negotiations that characterize root-fungi interactions in the soil, noting that, in Haskell's analysis, the "rhizosphere teems with performances of calling and responding, propositions made and accepted, permissions sought and granted or refused, functioning for all the world like genres of social communication" (ibid.: 22). Soil life emanates what Haskell calls "ancient, vital conversation" (quoted in Hufford 2019: 22), a conversation that, Hufford argues, is "structurally recapitulated in human conversations" (ibid.: 23). The word *conversation* can be re-apprehended here in more direct accordance to its Latin roots; *com-*, meaning with, and *versare* the frequentive form of *vertere*, meaning *to turn*. Thus, to converse means to turn with. Roots and fungi turn together in the soil, turn

together into soil; soil being the ground of lively conversation. Soil conversations emanate outwards and upwards into the above-ground portions of plants, into the insect and bird and mammalian bodies that tread and dig through the soil—ecosystems, and eco-social systems, from this perspective are characterized by a continuity of conversational genres; mycorhizzal conversations, pollinator conversations, avian conversations, and human conversations. The replication of multi-species sociality in human sociality that Hufford describes through her engagement with Haskell constitutes one aspect of this continuity.

Hufford's repositioning of conversation as an expressive and relational capacity of soil communities as well as human communities provides a helpful framework for understanding the kind of conversation that permaculture sit spot listening orients toward. Conversation is the resonant, tactile, multisensorial object of attention. In posing the question, "what is the conversation happening before you?" Brady gestures toward more-than-human modes of expression and communication; the land, and the creatures of the land (including but not limited to humans), are understood to have conversational and social capacities. Sit spot listening is positioned in this way as an act of more-than-human sociality, or what I will call *eco-sociality*. The droning hum of pollinators foraging amongst blooming flowers, resonant requests for pollen and nectar; the guttural buzzing of chainsaws limbing trees and clearing brush; these are also registers of eco-social conversation that interweave with one another, particularly in the semi-rural environment of west Petaluma.

Perceiving conversation to be ubiquitous and continuous in ecosystems does not necessarily lend itself to comprehension, however. While individual exchanges, such as a bumblebee buzz pollinating or sonicating (De Luca et al. 2013: 805-806) the blueberry blossoms in my garden, might be identified under Haskell's rubric, and also within the

permaculture framework, as instances of conversation, the positioning and signification of these individual exchanges within the broader unfolding conversation(s) of the place as a whole is not easily discerned or described. What is the relationship between the bumblebee-blueberry sonication in my garden and the tractor-powered removal of blackberry bramble from the neighboring property? How does the dusty whisper of bare soil and blackberry ghosts affect the life choices and opportunities of local bumblebees? Does the tractor work clear space for more burrowing habitat, prompting an expansion of the local bumblebee population, or does the removal of the abundant forage that Himalayan Blackberries provide stress the bumblebees, along with other pollinators and bird species? Taking up another aspect of the situation, what relationship do I notice between the bumblebee's conversational exchange with the blueberry blossom and the moisture of the soil? What kinds of soil is the blueberry in conversation with? From whom does the blueberry gather the strength and nurturance to generate desirable nectar and pollen?

Questions like these are not necessarily answered during sit spot listening, and the aim of sit spot listening is not so much to extract knowledge about these relationships but rather to dwell amidst them, and to dwell in the uncertainty of the question, "what is the conversation happening before me?" The act of listening for conversation, following María Puig de la Bellacasa, is more about "intensifying attentiveness within already existing relations of interdependency and mutual involvement, rather than setting ethical expectations on a teleological event that would shift species activity" (2017: 207) or provide some ultimate answer to questions that arise in the midst of "a potentially immeasurable mesh of interdependent agencies" (ibid.: 202). While identifying trophic cascades, acoustic patterns, and other ecosystem processes is directly relevant to the work of permaculture, and an

important aspect of observation (Ford 2015: 30), attending to the eco-social conversations of the landform in the sit spot, for Brady, primarily involves a relational and affective component. So, listening to songbirds, for instance, is not so much about making detailed species lists and categorizing songs, but about opening "up to a larger sense of place—to the worlds within worlds in which we exist" (Brady 2021: 198). In her instruction, Brady suggests that "when we attune to songbirds in our neighborhood, we open up to a new sense of community and our circle of friends and family members increases" (ibid.). The concept of friendship will be discussed in more detail in the following section; for now, I reference Brady's instruction here to demonstrate the way in which listening to—and becoming involved in—eco-social conversation with the land and its inhabitants is affectively oriented toward cultivating to a new sense of community.

Befriending Place: Listening, Intentionality and Positionality

As suggested in the previous paragraph, one of the main intentions of the sit spot exercise, and of permaculture in general, is to "befriend" the place one is listening to (OAEC 2021: 21) or to otherwise develop a mutually beneficial eco-social relationship with that place and the creatures that inhabit and constitute it. Brady explains in a sit spot prompt that "the objective here is not to simply name things, but to begin (or continue) to build relationships with them (how much do you know about a person if you only know their name?)" (OAEC 2021: 145). Here, she gestures toward a conceptualization of place not as a collection of material objects in space, but as a relational being, an agential subjectivity with personhood.

Permaculture discourses around personhood of place emerge in participatory dialogue with legal, scholarly, and grassroots activisms for rights of nature (Kersten 2017; Athens 2018) which themselves are informed in local contexts by local Indigenous worldviews and struggles for geopolitical-ecological sovereignty (Brondizio et al. 2021: 496-497; Kalantzakos 2017; Berros 2017; O'Donnell and Talbot-Jones 2018). Legal-political arguments for rights of nature, which are often motivated by pragmatic concerns over the loss of habitat and life-threatening destabilization of planetary systems, are fundamentally indebted to and allied with animist conceptions of a living, sentient earth. It is this ontological commitment that also informs permaculture sit spot listening practices, and which shape listening experiences for permaculturists. Specifically, the listening act is approached with the anticipation of building relationship, or bonding with the place-as-person.

Along these lines, permaculture teacher and earth rights activist Starhawk writes that "when we begin this practice, we can begin to understand something of what it means to be bonded to a place" (Starhawk 2002: 165). She suggests that developing this kind of bond can be a deeply political act, as "the whole system we call 'globalization' is predicated on the destruction of this bond. The global corporate economic system has displaced millions of people. A capitalist economic system needs a workforce of mobile and expendable people, who can be brought to work when the need for production is high, laid off or transferred when it's low" (ibid.: 165). Similarly, economic and legal-political power structures depend on the normalization of anthropocentric or capitalocentric notions of personhood and the de-personing of land; "the real arguments against the Rights of Nature do not come from philosophy but from those actors of social welfare and those with invested economic

interests, who want to own, use, pollute, or destroy Nature without noteworthy obstacles" (Kersten 2017:10), and capitalism fundamentally requires the commodification (perceptual, legal, and material) of land. In this way the intention to befriend a place through person-to-person or subject-to-subject encounter constitutes a direct application of permaculture's prefigurative approach to post-capitalist and counter-colonial futures. In sit spot listening, the intention and action of listening to landforms outside of the logics of capitalism—and more in alignment with Aldo Leopold's land ethic (Nelson 1998) and with diverse Indigenous orientations to ecological relationality (Nelson 2018)—as eco-social relations and potential friends rather than a commodities, prefigures legal challenges for rights of nature and enacts an eco-social reality in which landforms already are beings worthy of attention and relationship.

Given this prefigurative dimension of sit spot listening, it is also important to note that the rhetoric of befriending place can presume an openness of place to human friendship, as well as a human entitlement to listen in on the conversations and eco-social lives of more-than-human beings. The presumed accessibility of place has particular implications in settler-colonial contexts, such as Sonoma County, California and the broader United States. For Euro-American descendants of settlers or immigrants (the majority of permaculturists in the U.S. context), the underlying conditions of efforts to befriend colonized lands are in many ways predicated on settler privilege. Namely, as Dina Gilio-Whitaker notes in her explanation of "the invisible knapsack of settler privilege," settler and immigrant people can live (and listen) "anywhere in the US without being disturbed that people of my race or ethnic group were not systematically killed or displaced so that I could live there" (Gilio-Whitaker 2018). In this context, Donna Haraway's remark that "the unwilling heirs of

colonizers are poorly qualified to set conditions for the recognition of kinship" (2016: 89) holds enduring relevance.

While Gilio-Whitaker's argument is somewhat complicated (though certainly not thrown into question) by the experiences of refugees whose families were and are displaced by genocides and imperial expansions, or who were brought to the United States against their will as slaves, she identifies a fundamental difference in Indigenous and non-Indigenous perception and experience in relation to colonized land. The ongoing trauma and violence of colonial governance continues to privilege settler and immigrant positionalities, and the normalization of colonial conditions renders this privilege invisible, its habits of thought and perception unmarked (Robinson 2020: 10). To the extent that the OAEC's pedagogy focuses on the confrontation of colonial realities, befriending colonized land takes on a dimension of reconciliation or reckoning for settler- and immigrant-descended peoples; the act of listening ideally becomes a reflexive encounter with one's own relationship to the traumas and resurgences of colonized land, as well as with the perceptual filters that are naturalized in settler-colonial society.

In his discussion of critical listening positionality, Dylan Robinson draws on Mary Louise Pratt's notion of the contact zone (Pratt 2008: 7) in order to "consider how listening takes place as a haptic and proprioceptive encounter with affectively experienced asymmetries of power" (Robinson 2020: 11). Sit spot listening can (must) be approached as a contact zone in which human listeners' experiences are (as always) shaped by lived relationships to property rights, colonial regimes of cultural and ecological domination, and hierarchies of race, gender, ability, and species. I will discuss my own listening positionality, as a hearing-able Euro-American settler- and immigrant-descended male-bodied person, in

more detail in the following chapter; for the moment my intention is to contextualize the idea of befriending place as an aspect of permaculture listening discourse that situates the listener in uneven terrains social-ecological-political power, and prompts the listener to reflect on what friendship means for their specific embodied relationship to the place to which they are listening.

Listening Differently: Agonistic Strategies for Grotesque Ecologies

Melissa Nelson's charge for permaculturists to "listen differently" (as discussed in the previous chapter) comes into focus through the concepts described above; listening in order to compose with the land, listening to the conversations of the land, and listening to the land as a potential friend. These concepts communicate some of the basic premises and terms for permaculture discourse on listening, and they give rise to a particular "constellation of habits of thought and expression" (Turino 2008: 103) that in turn shape permaculturists' experiences of listening to ecosystems, or landforms. Through iterative embodiment of these discourses, listening becomes a strategy for collaborative eco-social engagement oriented toward co-composition, conversation, and befriending. As I will discuss below, these strategies come into friction with hegemonic forms of perception and interaction that reduce (or enclose) subjectivity to the "legal body" (following Kapchan 2015: 39) of the human individual. To the extent that "the legal body has become second nature, the one that Western subjects inhabit most unconsciously" (ibid.), listening becomes an agonistic practice for Western-enculturated permaculturists wherein multiple ontologies and perspectival regimes are at play.

I will reiterate here that listening is not the end goal of permaculture practice, but a practical aspect of a larger vision of ethical eco-social participation (as outlined in the previous chapter). The long-term implementation of permaculture designs—the preparation of soil for seeds or transplants, the contouring of land to encourage water retention, the everyday care and maintenance of polyculture guilds—entails many diverse skills and actions beyond listening or protracted and thoughtful observation, and indeed (returning to Leahy's argument) it is in the growing of food and the active maintenance of "cultivated ecosystems" (Mollison and Holmgren 1978: 10) that the bulk of permaculture labor lies. The ethos of immersive observation that is cultivated in the sit spot exercise is diffused throughout, and is foregrounded to varying extents depending on the specific needs and proclivities of different permaculture practitioners. Most (though not all) permaculture practitioners, in my experience, describe themselves as designers, gardeners, or farmers before they describe themselves as listeners. Yet, it is recognized as axiomatic that "in order to compose with a place, deep listening or observation is a foundational practice." (OAEC 2021: 21).

The rhetorical weight that listening holds in permaculture discourse reflects a foundational commitment to intersubjective encounter, which itself constitutes an expression of the movement's underlying natureculture ontology. Just as "to 'hear' a person is to recognize their subjectivity" (Novak and Sakakeeny 2015: 1), listening serves for permaculturists as a way of hearing and recognizing a place or landform as an eco-social person, and thus of recognizing their subjectivity. However, as Dylan Robinson notes in his discussion of spatial subjectivity in relation to Indigenous and settler ontologies, intersubjective encounter does not consist in, or result from, the simple imposition of "an

intersubjective reading upon experience where subject encounter is not felt" (Robinson 2020: 97). While there is great value in the theorization, interpretation, and explanation of experiences of intersubjective encounter (Titon 2020: 81), these experiences are not reducible to any analytical framework or philosophical construct that justifies political or ideological goals; they consist, fundamentally, in a felt sense of connection with another being or subject in the world. Robinson continues, "while intersubjective encounters [with place or the more-than-human] may not be frequent for some, they may not occur at all for others, and this may occur for many reasons including the self-censoring of settler colonialism that avoids certain kinds of listening experience, and especially ones that would affirm human-nonhuman relationships" (Robinson 2020: 97-98). While humans regularly engage in cross-species sociality and intersubjective encounter with pets and other animals (Haraway 2008: 16-17), Robinson's point holds particular weight for entities deemed non-living or otherwise too inhuman by hegemonic Western epistemologies (Robinson 2020: 15-16, 96-97).

Sit spot listening, in the permaculture context of the OAEC, is situated deliberately in agonistic relationship to these self-censoring patterns of perception, and orients toward the affirmation of human-nonhuman relationships. However, alternative configurations of listening cannot simply be applied at will (ibid.: 51); the recognition of spatial subjectivity is a learned aspect of cultural identity and practice, in the same way that the refusal of spatial subjectivity must be learned and normalized as an aspect of cultural identity and practice within hegemonic Western perceptive regimes. Whether variously animist or otherwise, "any 'authentic' experience is always-already ensnared in a wily web of discursive mediations" (Glasson 2016: 88), and "the meaning of an experience or an object does not emerge spontaneously but is interpreted through historically contingent discourses" (ibid.) which are

naturalized through practice. The capacity for eco-social perception, experience, and participation is intended and tended through iterative practices in permaculture, such as the sit spot listening exercise, directing the listener toward the possibility and reality of experiencing and encountering a subjectivity of place.

Because permaculturists generally navigate a plurality of ontologies, intersubjective encounters with more-than-human beings are often approached or experienced with a sense of uncertainty, multiplicity, or even failure; anthropocentric and individualist expectations of normative social engagement are disrupted, disappointed, or rendered irrelevant, and the structure of interaction and conversation becomes warped or defamiliarized. For example, one of my classmates recounted an experience during their sit spot in which they attempted unsuccessfully to get the attention of a hummingbird that was hovering and foraging nearby; they tried to make sounds and communicate verbally with the hummingbird, but the bird just continued their fluttering and foraging, seemingly unheeding, and eventually darted off. My classmate reflected, “my presence doesn’t seem to affect them.”

While the hummingbird most likely was aware of and affected by my classmate’s presence, they did not give a response that my classmate could discern; their subjectivity was not, in that moment at least, available to acts of interpellation (Althusser 2014: 263-264). Similarly, I could not, were I so inclined, hail the hummingbirds that visit my garden with an Althusserian “Hey, you there!”—their subjectivity seems to subvert or shunt this effort. At other times, hummingbirds will fly directly in front of my face or hover above my head; I feel the unmistakable, palpable sensation of intersubjective encounter, of being perceived and assessed, thought about and thought toward. In these moments as well, my own habituated anticipation of being interpellated is triggered, and my body responds out of habit as if it

were being hailed with a "hey, you there!," but the structure of the interaction diverges from Althusser's scenario, and as I remain in the encounter I am compelled, both out of a certain necessity and out of an uncertain curiosity, toward other modes of apprehending myself, the hummingbird, and the relational trajectory of our copresence.

The hummingbirds resist interpellation both as individuals and from individuals (such as myself and my classmate), but this reflects a limitation of the hailing force of ideology more so than it does an absence of subjectivity in the hummingbird. In thinking through this encounter, I will suggest that the hummingbird possesses and interacts within what might better be described as an ecological subjectivity (Diehm 2002: 29-33)—a subjectivity that, as ecocritical scholar Stephanie Posthumus describes, "is relational [and] cannot be equated with the individual, as it does not have a single center" (Posthumus 2017: 26). This is not to erase or diminish the physical, relational, and affective integrity of the hummingbird's (or anyone else's) personal being, but to unsettle the reductive conflation of modern subjectivity with individuality more broadly (Taylor 1989: 71). Ecological subjectivity, in Posthumus's description, "is embodied, but not contained by the body" (Posthumus 2017: 26), it permeates and "extends beyond the living body" (ibid.: 46). Relatedly, political theorist Jodi Dean writes against the normative conflation of subjectivity with the individual by re-fashioning Althusser's influential theory that ideology interpellates individuals as subjects, offering the inverse theorization that "the subject is interpellated as an individual" (Dean 2016: 364). "An advantage to reversing the Althusserian account," Dean suggests, "is that the subject is not pre-constrained to the individual form," and "with this reversal, the individual form itself becomes a problem, the coercive and unstable product of the enclosure of the common in never-ceasing efforts to repress, deny, and foreclose collective political

subjectivity" (ibid.: 367). Recognizing that "the individual is itself an imaginary figure" (a socio-political fiction), she positions this figure specifically as a product of "bourgeois ideology that treats conditions that are collective and social, embedded in histories of violence and systems of exploitation, as if they were relationships specific to an individual, as if states arose through individual consent, as if politics were a matter of personal choice, and as if desires and capacities, affects and will naturally originate from and reside in an individual form" (ibid.: 368).

While Dean is focused on theorizing political subjectivity, her writing aligns with Posthumus' conception of ecological subjectivity as preceding and exceeding the individual form, and her conceptualization of "the individual as a form of enclosure" (ibid.: 369) signals a link between the enclosure of landforms and the enclosure of the bodies who would inhabit, traverse, and constitute those landforms. Here she also converges with permaculture's anti-capitalist philosophy, which orients explicitly (if strugglingly) toward the subversion of enclosures. OAEC co-instructor Gopal Dayaneni makes this link clear in his assertion that whereas "all enclosures ultimately must be maintained through violence," strategies of resisting are "entirely about relationships, entirely about community, it's entirely about being in communities of practice, communities of care" (Dayaneni, personal communication 2021). In articulating the need for community-based strategies against the violence of enclosure, Dayaneni gives a critical reading of Descartes' theory of mind: "You can say 'I think therefore I am,' it's the super individualistic, the foundation of the sort of rational mind business, but guess what, you only have a name because you are not alone…before anything, we are nodes of relationship, and that's the thing that matters, that's the only thing that matters" (ibid.). Like other forms of deviant subjectivity (Jack 2019: 7-9), permacultural

subjectivities emerge and merge in a collective ethos; but the collective imaginary is recast within the assertion that "what you do to the land, you do to the people, and what you do to the people, you do to the land" (Dayaneni, personal communication 2021). Social solidarities are enmeshed within ecological solidarities, just as subjectivities are understood to emerge across nodes of relationship between bodies in social-ecological systems.

The theorization of subjectivity in relation to embodiment, furthermore, can be set in dialogue with Deborah Kapchan's concept of the sound body which, like ecological subjectivity, disrupts neoliberal commitments to enclosure and individuality. Kapchan defines the sound body against the "legal body," which "is equated with property—and specifically with property-in-the-person," a body whose "boundaries are the edges of the skin" (Kapchan 2015: 39). In contrast to the legal body, "*The sound body, however, resists the property principle*" (ibid., italics in original), just as ecological subjectivity resists interpellation as individual. In this way Kapchan's figure of the sound body offers a relevant conceptual tether to the kind of eco-social subjectivity that Dayaneni articulates from the permaculture framework; a body that resists the violence of enclosure, and that emerges as a relational node in eco-social assemblages. The sound body is "a resonant body that is porous, that transforms according to the vibrations of its environment, and correspondingly transforms that environment" (ibid.: 38). Thinking about ecological subjectivity in terms of the sound body concept helps move toward a conception of the sensorial character of ecological subjectivities; what they sound like and how they are perceived.

I am drawn by this inquiry to another moment in my fieldwork in which I encountered hummingbirds in the garden. In the late morning of September 13th, during my sit spot listening practice, I heard the thrumming and chipping of two hummingbirds dancing

around one another while they gathered nectar from coyote mint beneath a young pluot tree—the dizzy purring of tiny iridescent wings and thin scratchy voices pulsing in and amongst the mint and calendula flowers, who bloomed steadfast in the dry heat of the California fall, yielding their precious watery nectar to the foraging birds. A small but intense commotion. I observe the magnetism of plant bodies toward avian bodies as the birds merge with the flowers, their wingbeats making rainbow extensions to the purple petals, their resonant throats drinking in and sounding out the vitality of nectar. The acoustic signals that pulse from the hummingbird bodies belong, in this moment, equally to the bodies of the coyote mint, whose nectar forms a sweet, watery tether from the soil to the air, from the creatures of the soil to the creatures of the air. This is the sound of remembering where water is on the land, of where sweetness emerges, of an invitation and a request for pollination, of water slipping in and out of transforming bodies in conversation. This is the sound of making-with; of critters not preceding their relatings (Haraway 2017: M25); of long-lived, and short-lived, relational attunements; attunements of desire and sensibility becoming collective resonance (Feld 2017: 93).

I perceive the quick wingbeats and chipping voices as the sound of mint on the land, the becoming-audible of lively relationships that constitute the garden as landform. Tracking with Dean, the desires and capacities that play out in the garden do not seem to originate from or reside in an individual form, whether an individual hummingbird or an individual coyote mint, but they coalesce as a relational density that animates the space between and within hummingbirds and coyote mint flowers with affective tension. Their bodies extend toward one another, resound together and form one another in pliant ambiguity (Kapchan 2015: 38). Eventually, as hummingbird bodies fall to the ground and decompose, coyote mint

may take digested bits of their dulled feathers and softened bones up through their roots. Birds and plants (like all creatures) grow into and out of one another from the soil to the air; their ecological subjectivity extends beyond living bodies, permeating the porous, shifting body of the garden.

Kapchan's theorization of the sound body against the legal body has an intellectual predecessor in Mikhail Bakhtin's conceptualization of the grotesque against the bourgeois body. The bourgeois body, analogous to the legal body, is constructed on "the 'classic canon' of the body" (Bell 1994: 74), itself grounded in ideological and material commitments to an individualistic sense of self; "the significant feature about the classic body is that it is an individual body" (ibid.), strictly limited and impenetrable (Bakhtin 1984: 320). As Bakhtin describes: "The body of the new canon is merely one body…All that happens within it concerns it alone, that is, only the individual, closed sphere. Therefore, all the events taking place within it acquire one single meaning: death is only death, it never coincides with birth" (Bakhtin 1984: 321; also quoted in Bell 1994: 74). The grotesque body, in contrast, is characterized by its porosity and its openings; "all these convexities and orifices have a common characteristic; it is within them that the confines between bodies and the world are overcome" (Bakhtin 1984: 317). Ecologist Michael Bell builds on Bakhtin toward a theory of bourgeois and grotesque ecologies (1994: 77). In a grotesque ecology, bodies inhabit, consume, grow into and out of one another, "death is a part of birth, fertility, and plenty, the living cycle of grotesque unity" (Bell 1994: 74). Following Bakhtin, Bell locates grotesque ecology in the consciousness of medieval European folk culture, in which the sense of self "was oriented toward the collective of people and nature, not the individual" (Bell 1994: 71). The ideological tools of the bourgeois body and bourgeois ecology, in Bell's analysis of

Bakhtin, necessarily accompany the hierarchical individualism of statist class formations; they oppose, or pathologize, what he calls the grotesque body and grotesque reality, in which the body is not experienced as a "terminal creation" but "a point of transition in a life eternally renewed, the inexhaustible vessel of death and conception" (Bakhtin 1984: 318; Bell 1994: 72).

The garden, as a sound body and an assemblage of sound bodies, is in this sense grotesque. In their openness to the world, they exceed the legal boundaries that are imposed upon them; their soil grows or erodes across and beneath property lines, their creatures dig and crawl and fly and root fugitive routes. They resist the property principle; they "sound and resound but cannot be captured" (Kapchan 2015: 39). In copresence with the garden, I am also a sound body, porous and part of the garden, my flesh and intention dwell in them and animate them, and in turn I am animated by the garden. Rather than listening to capture, or sounding to enclose, I am compelled to attend to the ways in which "sound—as affect, as vibration—heralds a new body" (ibid: 42). I attend to the ways in which my own body is rendered grotesque, as is the body of the garden and their holoent constituencies (Haraway 2017: M25, this term is explained in more detail below)—we transform and are transformed. My capacity to witness and enter into conversation with the sound body of the garden hinges, to some extent, on my ability to inhabit myself as a porous, sound body, and to understand myself as inhabited by the garden even as I inhabit the garden, as a node of relationships. Brock Dolman, in permaculture parlance, refers to this kind of copresence as "receding into," or becoming "infused within" a place; a relational process that he identifies as crucial to sit spot listening (Dolman, personal communication 2021). Having receded into a place, Dolman suggests, "you begin accumulating observation…that begins to build a narrative, begins to

support you with a pattern, and you begin to be in that beginners mind, some might call that gestalt, you might call it intuition, you might call it pattern understanding" (ibid.). This intuitive, experiential understanding of the ethos of place emerges not just through being in a place but through being open to the affective aspects of mutual, dialogic transformation that constitute the place. Undergirding the intention to "let the land speak to you, let the birds speak to you, let the slopes, the stones, all of the animate force of that place" (ibid.) come into conversation, is an openness to transformation through encounter.

While Brock's instruction to "let the land speak to you" computes only, perhaps, as a fairytale metaphor within the paradigm of legal bodies and bourgeois ecologies, it takes on a different density of meaning in the framework of sound bodies and grotesque ecologies. Grotesque forms of dialogic communication weave across the "convexities and orifices" (revisiting Bakhtin 1984: 317) of grotesque bodies in subversive friction with the logics of enclosure. Illuminating this point, folklorist Mary Hufford notes that "Bakhtin's distinction between dialogic and monologic forms of communication (1981) mirrors his distinction between grotesque and classical bodies" (Hufford 2019: 22), as well as Bell's distinction between grotesque and bourgeois-classical ecologies. "Dialogism is a problem for class society," Hufford continues, "because, like the grotesque body, dialogue engages reciprocities that undermine class [and, I will add, species] distinction" (ibid.). She also extends Bakhtin's sense of dialogic communication toward "a dialogue that anticipates and connects the conversations of humans to the more-than-human dialogues surrounding us" (ibid.: 25). Dialogic conversation, as an enactment of subjectivity, is conceived here not as an action of individuals, but as an inherently collective and co-constituting ecological process that subverts individualist logics of enclosure. This logic of enclosure, for Hufford, is enacted

through “the monological discourse of the corporate state [that] opposes the inclusivity of the dialogical discourse of communing, violently shutting down reciprocities hard-wired into ecologies and social interaction, reciprocities that come to be seen as ‘pathological’” (Hufford 2019: 28). It is the hegemony of monological discourse, returning to Dylan Robinson’s discussion of intersubjective encounter, that undergirds the “self-censoring of settler colonialism” (Robinson 2020: 97-98) and resists perceptions and experiences that would affirm human-nonhuman relationships. This is a monologic self-censoring wherein “communications are scoured of perspective and agency; its subjects lurk under cover of passive voice. Its monocular gaze sees nothing looking back” (Hufford 2019: 28).

Anna Tsing presents a similar argument in developing her concept of contamination (mentioned above with regard to eco-social conversation), which aligns in many ways with the concept of grotesque ecology. She traces the mythology of individualism to hegemonic trends in twentieth century scholarship (particularly biology and economics) that favored “the self-contained individual actor, out to maximize personal interests” as a fundamental unit of analysis. If this “assumption of self-containment made an explosion of new knowledge possible,” it was only because “thinking through self-containment and thus the self-interest of individuals (at whatever scale) made it possible to ignore contamination, that is, transformation through encounter” (Tsing 2015: 28) and, setting Tsing in dialogue with Hufford and Bakhtin, to justify monologic modes of the knowledge production. For Tsing, contamination is about understanding that “we change through our collaborations both within and across species” and that “the evolution of our ‘selves’ is already polluted by histories of encounter” (ibid.: 28-29). The “modern human conceit,” Tsing argues “ blocks attention to patchy landscapes, multiple temporalities, and shifting assemblages of humans and

nonhumans: the very stuff of collaborative survival" (ibid.: 19-20). Collaborative survival is contaminated, grotesque, and, as Tsing emphasizes, always precarious (Ibid.: 20-21). What I draw from Tsing with regard to ecological subjectivity is the suggestion that subjectivity, like precarity, is about "being vulnerable to others" (Ibid.: 20), porous (Kapchan 2015: 42), or, tracking with Hufford, being "open to the world" (Hufford 2019: 22) like the grotesque body, contaminated, displaying "all the stages of life: birth, death, decay, going to seed, composting, harboring all manner of creatures" (ibid.).

Tsing's call to develop "arts of noticing" the contaminations that make collaborative survival possible also align with the OAEC's discourse around sit spot listening and the emphases on composing-with and conversation described above. Sit spot listening, I suggest, moves toward (or from, or better both) the noticing of contaminations, and the noticing of grotesque ecological subjectivities. My and my classmate's attempts to hail our respective hummingbird neighbors with a proverbial "hey, you there!" offers a valuable teaching moment in this respect. The failed hailings were predicated on the interpellation of the subject as an individual hummingbird, rather than ecological subjectivities; enculturated into bourgeois conceptions of the body as individual, and in monologic refusal of grotesque ecological subjectivity, these hailings attempt to interpellate (enclose, or capture) a subject in the body of the hummingbird. When "the monocular gaze sees nothing looking back," or hears no subjective response from the imagined individual, the hummingbird is thus "scoured of perspective and agency" (revisiting Hufford 2018: 28). Habits of perception "acquired over time through ideological state apparatuses at the heart of subjectivation" (Robinson 2020: 10) that assume the self-contained individual actor as a basic "unit of analysis" (Tsing

2015: 28) render imperceptible any collective ecological subjectivity that the hummingbirds might embody.

Perceptual Dialogue and Holoent Noise

The sit spot exercise is situated by Kerry Brady, Brock Dolman, and the OAEC, as an invitation to de-familiarize monologic experiencing and engage in more grotesque modes of conversation. In the invitation to "let the land speak to you" (Dolman, personal communication 2021), the metaphorical use of the verb 'speak' does not reference linguistic speech acts between individual persons, but rather to the ways in which the animate force of a place is expressed through the relationships between the bodies that constitute that place, that constantly make and unmake one another as they make place. This speech is more akin to what Bakhtin calls "living speech acts," (in Hufford 2019: 26) which, as Hufford writes "engage the mute dialogue of perception" (ibid.: 25-26); weaving between Bakhtin and Merleau Ponty, Hufford articulates living speech as a "a site of world making at the interstices of human and more-than-human being" (ibid.). World making here signifies a "perceptual dialogue" (ibid.) a generative process of sensing and being sensed.

Brock speaks of landforms in terms of "units of perception" (following House 1999: 152) that are embedded and nested within one another. For example, the hummingbird (staying with our small case study) is a unit of perception nested within a hillside (the same hillside I inhabit), which forms part of a watershed (named the Burdell Mountain watershed by the settler-colonial state) which is a larger, differentiated but coconstituting unit of perception. One of the goals of permaculture practice, Dolman suggests, is to develop the capacity to "think like a watershed" (Dolman, personal communication 2020)—a more

specific iteration of Eunice Neves' similar statement, discussed in the previous chapter, on learning to think like an ecosystem. The watershed's perception emerges from the distributed experiences of the many creatures who animate the waters of the rivers and creeks and the soils of the riparian zones and flood plains; the fish spawning, migrating, dying, becoming living soil and wood; the trees seeding, rooting, growing, falling; the water, rushing into and out of roots and hearts and bodies. All of these bodies and their relational ties form the porous, poly-corporeal body of the watershed, and their corporeal perceptions and expressions coalesce as the expression and perception of the watershed. This is the "dialogic world" that Hufford describes in relation to Bakhtin's dialogism and Bell's grotesque ecology.

The continuity of perceptual dialogue, drawing still from Hufford and Merleau Ponty, "continually deposits and replenishes" a "'soil' or 'flesh' of sensibility…a lining that gives rise to perceiver and perceived, subject and object, namer and named" (Hufford 2019: 25). Perception, for Merleau-Ponty's sensory phenomenology, is "not the operation of an active subject on a passive object. Rather, perception is a collaborative, mutually constitutive activity" (ibid.). The flesh of sensibility "marks the point at which the sensing of 'intertwines with the sensible, and this intertwining is carnal" (ibid.). Perception is rearticulated here as a web of collaborations, contests, and copresences, a thing that arises between, rather than within, perceptive and perceived bodies.

The living speech acts of birds and stones and slopes and "all the animate force of place" (Dolman, personal communication 2021) emerge from this collective flesh of sensibility, forming what Donna Haraway calls "sympoietic patterning" (2017: M26), a phrase she uses in reference to the ways in which "critters do not precede their relatings; they

make each other through semiotic material involution, out of the beings of such entanglements" (ibid.). Haraway builds on M. Beth Dempster's concept of sympoiesis as a term for "collectively producing systems that do not have self-defined spatial or temporal boundaries" where "information and control are distributed among components" (ibid.: M27), noting that ultimately "sympoiesis is a simple word; it means 'making with.' Nothing makes itself; nothing is really autopoietic or self-organizing" (ibid.: M25). Here Haraway converges with the critiques of bounded individualism presented above, and advocates for a language and practice that can account for and attend to "symbiotic assemblages, at whatever scale of space or time, which are more like knots of diverse intra-active relatings in dynamic complex systems than like the entities of biology made up of pre-existing bounded units" (Ibid.: M26). She offers the term holoent as a grounding figure for sympoiesis; the holoent being a polycorporeal assemblage that encompasses "the biotic and abiotic in dynamic sympoietic patterning" (ibid.). Haraway's holoent is a character of Bell's grotesque ecology, an unbounded shape-shifting "existential territory" (Guattari in Posthumus 2017: 32) that is imbued with distributed ecological subjectivity.

Permaculture listening discourses, I suggest, gesture and intend toward a world of holoents—porous assemblages of different lifeforms within which units of perception are understood to coalesce. The listening act, within this frame, is positioned discursively and experientially as an act of attending to holoent conversations, of composing with holoent assemblages, and making friends, or making kin (riffing on Haraway 2016: 2, 11) with holoent subjectivities. This holoent orientation, which decouples subjectivity from individuality, prompts strategies for listening and sounding that diverge from individualist conceptions of social and ecological interaction. It unsettles habitual modes of listening to,

from, and for an individual body (as described above). But if the holoent is a helpful figure for thinking away from the individual and toward ecological subjectivity, it are also puzzling for this same reason. Because they are persistently non-discrete in all aspects, always inviting contamination, they confound positivistic attempts to extract knowledge about them; "without self-contained units, it is impossible to compute costs and benefits, or functionality, to any 'one' involved" (Tsing 2015: 34). The coyote mint blossoms in the garden display the vitality of soil microbes and plastic irrigation tubing, their bodies are both compost and cyborg. They resound with municipal water systems and hummingbirds, as the garden itself resonates sympathetically with the rumble of cargo trucks and coyote howls. Holoents intrude into and become parts of one another; in listening to the holoent-garden I am at every moment drawn to the resonance of their "convexities and orifices," their openness to and as the world. Noise proliferates.

Noise becomes a helpful concept for thinking with, and listening within holoents. Noise is a resonant manifestation of contamination, "the unintentional and unwanted" (Novak 2015: 126). For modern fixations on acoustic (as well as social and ecological) fidelity and cleanliness, the persistence of noise constitutes an ever-present reminder that "truly nothing is sterile" (Haraway 2019: 29). Noise intrudes into the enclosure of the classical body and re-affirms porosity and vulnerability; a resonance of the grotesque. Theorizing noise in terms of social circulation, David Novak observes that "noise stands for subjectivities of difference that break from normative social contexts", and, I will add, normative eco-social contexts. He also notes that noise "interpellates marginal subjects into circulation, giving name to their unintelligible discourses even as it holds apart unfamiliar ways of being" (ibid.: 130). Discourses of noise are shown to reinforce racial ideologies, as

in the labelling of “the music and speech of slaves as noise” (ibid.) as well as class ideologies, as in the targeting of working class and migrant communities; in Victorian England, Novak writes, “noise echoed the unrest of the brawling, milling crowd, with its rude dialects and unconstrained bodily sounds of work, sex, digestion, and disease” (Novak 2015: 130, drawing from Smith 1999; Picker 2003; Schwartz 2011). Noise references at once the grotesque and the collective, as well as the anxiety of the unmarked positionality (the body of the classical canon) that wields the term as a technique of (futile) dissociation.

Legacies of Lo-fi and Hi-fi Listening

These bourgeois-colonialist ideologies of dissociation also operate on the more-than-human scale, particularly with regard to landforms and wilderness discourses; here, noise comes to represent the intrusion of unwanted human bodies into colonial fantasies of a pristine wilderness. High-fidelity representations of wilderness spaces as noise-less ecologies are most often products of technological mediation—whale and bird song recordings, nature-sound meditation tracks, and digital archives (Krause 2015: 26; Blumstein et al. 2011: 759-760)—and techno-industrial imaginations. R. Murray Schafer’s soundscape concept, grounded in a discourse of lo-fi (industrial) and hi-fi (pastoral or wild), falters precisely in its inability to account for the irony of its own entanglement in “the very modern technologies of sound reproduction that Schafer decries as sources of ‘lo-fi’ pollution” (Eisenberg 2015: 198). The soundscape, in this sense, presents sound in the framework of the “classical canon of the body,” which dissociates from the pollution, or noise, ascribed to urban modernity. Listening for hi-fi soundscapes precludes the possibility of hearing holoents in all their noisy contaminations; their machinic brilliance and subtle muddy whisperings.

Hi-fi perceptual regimes also construct and police sonic and eco-social boundaries, interpellating undesirable and desired subjectivities of difference. This is seen, for instance, in the compartmentalizations of biophony and geophony against anthrophony, as outlined by Bernie Krause (2011: 11-12) and operationalized in the overlapping disciplines of acoustic ecology, soundscape ecology and ecoacoustics (Pijanowski et al. 2011: 204; Farina 2018: 28-29). Biophony, geophony, and anthrophony or technophony are studied for their interrelationships in the context of complex socioecological systems, wherein the synergies of the "three sources, when combined, create unique acoustic signatures or soundscapes" (Farina 2018: 28-29). Analytical models in these disciplines tend to emphasize "two unidirectional components between humans and soundscapes" (Pijanowski et al. 2011: 205); first, "in the direction of humans to soundscapes…anthropogenic sounds often permeate natural landscapes. Unwanted sound, or noise, is a common issue in cities globally, and the problem has spread to more rural and remote areas"; and, second, "in the opposing direction, soundscapes can influence human well-being" (ibid.). Here, acoustic expressions of ecosystem health are reduced to a "natural resource" (ibid.), stripped of subjectivity, monitored, and managed by academic and political institutions such as the US National Park Service (NPS), which "recognizes the importance of healthy soundscapes for positive park visitor experiences" (ibid.). In this disciplinary framework, noise represents the pathologized presence of the human (the anthropological order) in the natural world (the cosmological order), reifying the separation of Nature and Culture (Ochoa-Gautier 2016: 108). Even as these orders are understood to be inter-related, their inter-relations are cast as unidirectional, or monologic. While this narrow focus allows for the proliferation of valuable knowledge on the "effects of anthropogenic noise on animals" (Blumstein et al. 2011: 761, also see Rossi-

Santos 2015), the methodological focus on isolation and quantitative analyses of unidirectional effects across constructed boundaries of Nature and Culture can predispose a failure to "notice" (following Tsing 2015: 28) the fundamental conditions of contamination that precede categories of anthrophony, geophony, or biophony.

Permaculture discourse on listening also engages, to an extent, with unidirectional conceptions of human-to-soundscape interrelatedness. The sit spot exercise, for instance, is presented as "a powerful antidote to the pervasive disconnect that is present for so many people in modern industrial times" (Brady in OAEC 2021: 21). This mirrors one of the threshold concepts of soundscape ecology; that "the natural world is the most information-rich environment that humans can experience [and] some of the most important information conveyed is through sound" (Pijanowski et al. 2011: 205). This assertion, following in the tradition of Schafer and the World Soundscape Project, relies on the contrasting juxtaposition of modern urban soundscapes "as containing little acoustic information" and "reinforcing a growing disconnect between humans and nature" (Pijanowski et al 2011: 205). Permaculture demonstrates a similar concern regarding the "degenerative disturbances" (Dolman 2016: 54) of urban and industrial expansion and the experiential alienation of human beings from their eco-social arrangements, although this concern is articulated from a somewhat different epistemological position, grounded as it is in the conviction that "we are nature working" (Yanez 2013). From this standpoint, anthrophony cannot be disarticulated from biophony and geophony without enacting some level of violence-through-enclosure. Beyond the recognition that the noise of anthrophony is integral to the imagined "voices of the wild" (Krause 2012), permaculture's natureculture ontology positions noise as an expression of the fundamental co-constitution of nature and culture (Trauger 2017: 44). For this reason, sit spot

listening, for permaculturists, doesn't need to happen in a wild space free of the intrusive pollutions of industry. Indeed, sit spot listening is considered equally crucial and rewarding in urban centers as in remote rural spaces.

Noise also figures into intersubjective encounters with landforms in terms of the listener's own sounding body; sit spot pedagogy generally instructs the listener to be as still and silent as possible for the duration of the exercise. Dolman describes this as creating "an energy field where the disturbance ring that you're putting out gets narrower and your awareness ring gets larger" (Dolman, personal communication 2021). Here, the listener's body is recognized as a potential source of noise, or of disturbing copresence. There are also clear parallels to Dolman's awareness-to-disturbance ratio and the signal-to-noise ratio common in soundscape discourses; a wider disturbance ring correlates to lo-fi listening experiences, with little meaningful information coming through in comparison to the narrower disturbance ring which yields (in tandem with a wider awareness ring) a more information-rich listening experience.

However, the conception of noise in opposition to signal, as theorized in soundscape ecology, is premised on a unidirectional model of human-to-environment inter-relation (as described above) that does not characterize Dolman's conceptualization of disturbance in opposition to awareness. Dolman's concept of disturbance is rooted, rather, in an experiential understanding of intersubjective encounter; a fundamental recognition of multidirectional communicative copresence, and a recognition that humans are not only listening, but being listened to by the land and its inhabitants (Robinson 2020: 98). This understanding informs a protocol of engagement grounded in a particular concept of respect. As Michael Ford writes in his introduction to permaculture observational practices:

> Approach the area slowly and with reverence, because as you approach and enter, you will change the energy and activity taking place there. Allow yourself time to sit or lie down in each area, and wait patientontly until the land slowly returns back to its routine and comes back to life with you and your energy now blended in to the whole. Remain silent and passive until your presence is accepted by all, and then continue to be quiet and respectful. (Ford 2015: 30)

Kerry Brady expresses a similar sentiment in her sit spot instruction, noting that "by staying for a longer period, you increase your ability to merge more fully with the landscape, and to experience the beings of that place in 'baseline,' without threats" (Brady in OAEC 2021: 22). Interestingly, the concept of merging or blending with the whole (holistic, holoent) landscape or landform hinges here on an etiquette of quietude; an idealization of a noise-less listener. This is another of the tensions that permaculturists navigate in sit spot listening; the idea that, while "we are nature working," we are working across difference, and the acoustic expressivity of the landform depends, in part, on the relative silence of the human listener.

When I approach my garden, foraging birds will flutter out of reach into the canopies of the larger trees, gophers will go silent, pausing their work underground in assessment of my approach. If I sit still and silent, however, after about twenty minutes, the garden holoent will return to what Kerry calls "baseline," a dynamic but relatively calm state of everyday-ness; creatures going about their daily endeavors without alarm. Baseline flows are often disrupted by perceived threats. For example, if scrub jays spot a coyote lying beneath an oak tree, they will sound an alarm that ripples throughout the holoent (animal behavior scientists, and permaculturists for that matter, refer to jays as sentinel species for this reason). Conspicuous silence can also constitute the perception of threat; as my arriving footsteps alert the birds, they retreat and pause their chatter, waiting to assess my presence and intention. To become familiar with the eco-social conversations of a place, it is necessary to become acquainted with the various baseline states of that place throughout different times of

day and across the seasons. Otherwise, the silences that mark the presence of potential predators (including humans) may be mistaken for a relative mute-ness of place or a lack of biodiversity. Similarly, the alarm calls of birds and mammals may be assumed as random, pervasive sounds without the experiential awareness that builds from witnessing the patterns of movement that accompany these alarm calls, and the ways in which the landform, as a holoent assemblage, transforms and re-integrates through these resonant expressions. Developing familiarity and discernment with regard to the affective fluctuations of eco-social conversations entails, within the permaculture frame, strategies of slowing down, becoming still, and becoming quiet. These strategies are adopted in recognition of the porous nature of the listener's own "sound body" as it merges with the sound bodies of holoent forms.

I am writing holoents here as "sound bodies" (Kapchan 2015: 38), and also as noise bodies—thinking alongside David Novak's assessment of noise as "'pollution' that degrades the sonic balance of nature" (Novak 2015: 129). What noise degrades, I suggest, is more precisely the nature of bourgeois ecology (returning to Bell 1994 and Hufford 2019). The ecological subjectivity of holoents, in their inevitable noisy pollutions, confounds the categories of Nature and Culture, human and nonhuman; my garden is plastic, prosthetic, fugitive, feral, human and humus (living soil), and resounds as such. They also confound the category of the individual, in that their resonances are thoroughly intrusive and intruded upon; resonant bodies collide and mingle in and as holoents; signal-to-noise ratios become confused in multidirectional webs of expression. Holoent conversations evade enclosure as a series of isolated, coherent sounds. In this way the concept of noise, as theorized by Novak and other sound studies scholars, becomes critically relevant to the theorizations of ecological subjectivity that I have woven together above, and to permaculture discourses on

listening. Ecological subjectivities resist interpellation as individual, and they are rendered unintelligible within hegemonic perceptive regimes; their grotesque expressivity can only be discerned reductively as competing layers of noise. Hearing holoent subjectivity, then, also entails listening against the category of noise, resisting the tendency to experience noise as "the discursive borderline that separates one kind of person, or sound, or place absolutely from another and ultimately reduces all the 'noncultural' elements that cannot be folded into normative systems of meaning" (Novak 2015: 133). Listening differently, tracking again with Melissa Nelson's concept, entails dwelling in the borderline, or the edge-zone (an important permaculture concept with various applications) where different kinds of persons, sounds, and places fold into and become-with one another.

Listening and Eco-Social Life

The eco-social conversations and collaborations that permaculture listening attends to become sites of nonnormative meaning-making; they trouble normative systems of social and ecological engagement. At the same time, these troubling conversations often take place in non-spectacular, subtle ways. While not normative, or even ordinary in the sense of following orders, they are quite everyday intra-actions (Barad 2007: 33; Browning 2020: 500); turning the compost pile, feeling the heat and wreak of tiny lives, writhing and whispering and shuddering subtly against my skin; fixing leaks in the irrigation lines that bring precious water to our plant companions in the long dry season, hearing the hollow plastic pop resonate throughout the empty tube as I pull out a broken emitter and mend the prosthetic artery of the garden; studying the steady alarm calls of scrub jays in the oak trees as they track the patient movements of coyotes on the hillside; the small crunch of dry oak

leaves from somewhere behind me as I dig; the tiny inaudible suck of nectar from blossom to beak.

I am reminded, amidst the lively resonant space of the garden, that "every movement is in fact vibration, and every vibration has sound, however audible to the human ear. What we cannot hear, we can sense. Intuition is this: awareness of the body perceiving, the senses moving" (Kapchan 2015: 34). I am aware of my body perceiving, but I am also aware of other bodies perceiving, of distributed perceptual dialogue that leaves "a lining of visibility between the viewer and the visible, of audibility between the hearer and the audible, of tangibility between the toucher and the touched" (Hufford 2019: 25). These relational linings lend a thickness to the atmosphere of the garden for me—a thickness that emerges from my experiences and feelings within the garden. Deborah Kapchan calls this "sound knowledge—a nondiscursive form of affective transmission resulting from acts of listening" (2015: 34). Sound knowledge is the "fruit" of perception, or, setting Kapchan in conversation Merleau Ponty (who she also engages in her theorization), sound knowledge is the fruit of perceptual dialogue, the collective flesh of sensibility.

The accumulation of sound knowledge through perceptual dialogue, I suggest, forms the ground of eco-social life for holoent beings. In other words, permaculture efforts toward befriending place or engaging in eco-social conversation and collaboration, as described at length above, hinge on the capacity to accumulate "affective transmissions resulting from acts of listening" (Kapchan 2015: 34). Indeed human-human friendships and collaborations similarly hinge on such affective transmissions; non-spectacular, everyday acts of worldmaking all the way down. So, in the same way that human conversational genres re-enact or recapitulate soil conversations (returning to Hufford 2019: 23), human sociality can

be argued to re-enact or recapitulate eco-socialities. The intention here is not to dismiss the critical role of difference and flatten relationality to a universal principle of vibratory copresence, but rather to attend to the subtle ways in which the boundaries of the social are made porous to noisy sympoietic contaminations, and to tend to the ways in which the affective transmissions that characterize more-than-human relationships figure into eco-social life in specific ways.

I have given several examples in the discussion above of specific ways in which permaculture listening orients toward eco-social life (such as through the precarious intention to befriend), and also to the ways in which the listener is positioned asymmetrically within ecological subjectivities (such as through the etiquette of quietude), but questions remain (as always), particularly regarding the contours and limits of participatory listening and sounding. To what extent is the silence (and sound) that characterizes sit spot listening participatory or non-participatory? How do the contours of participation shift outside of the structure of the sit spot exercise, in everyday engagements with holoent landforms? In the following chapter I will turn to more in-depth discussion of my field study, as a way of addressing these questions.

In weaving this extended theoretical dialogue across sound studies, political philosophy, and feminist ecologies, my intention is not to render listening as an abstract thought experiment, but to demonstrate what is at stake in the experiential act of listening for permaculturists. What is at stake is the personhood of more-than-human beings; the rupturing of eco-cidal political imaginations; the possibility of friendship across difference and amidst the violence of enclosure; the experiential vibrancy of eco-social life. While (most) permaculturists do not use the concepts of sympoiesis, or holoent, or contamination (in

Tsing's sense of the word), grotesque ecology, ecological subjectivity, or sound knowledge, I find this constellation of scholarly discourses helpful in communicating these stakes in a way that allows for (or effectively demands) a slower reading of permaculture listening strategies and the sit spot exercise in general. While superficial readings of sit spot listening as solipsistic "nature connection" or utilitarian "site assessment" can quickly conjure all of the trappings of wilderness mythology, settler privilege, and the mystical privileging of sound, it is worthwhile, I hold, to think more slowly with the sit spot as a method of "shifting the places, models, and structures of how we listen" (Robinson 2020: 97). In this vein, I have presented the sit spot and the "constellation of habits of thought and expression" (Turino 2008: 103) that it engenders as a mode of grappling with the lesson that "all enclosures must be maintained through violence" (Dayaneni, personal communication 2021), and as a way of accumulating sound knowledge both within and against the realities of enclosure as they resonate in geopolitical, material, and eco-social registers.

Chapter 3

Listening for Grotesque Musicality

Teaching music to children is as unnecessary as pruning orchard trees
—Masanobu Fukuoka, The One Straw Revolution

Environmental crises and ecological disaster are "not only the fault of failed engineering, bad science, ecological misunderstanding, poor accounting, and bitter politics" (Allen 2011: 414). They are also, as Aaron Allen argues, symptomatic of "a failure of holistic problem solving, interpersonal relations, ethics, imagination, and creativity" (ibid.). Allen's assertion that "in short, the environmental crisis is a crisis of culture" (ibid.) is not meant to dismiss or marginalize the physical reality of unraveling planetary systems, or to reinscribe an anthropocentric narrative of Culture over Nature. Rather, he calls to attention the ways in which those aspects of existence that are relegated to the category of nature are in fact emergent manifestations of human activity, sociality, and creative imagination—just as human beings and human cultures are emergent manifestations of ecological activity, cycles of growth and decay, and the creative capacities of ecosystems. He gestures toward the need for a naturecultural framework of inquiry into the problems of ecological disaster, and particularly, as a music scholar, toward the potential for developing more ecocentric approaches to the study of music. Here he builds on Arne Næss' concept of ecocentrism as "biospherical egalitarianism" (Næss 1973; Allen in Cooley et al. 2020: 305) grounded in "a perspective that privileges the integrity, health, or functioning of ecological systems" (Jenkins and Bauman 2010: 119). Allen notes that the concept of ecocentrism poses a direct challenge to ethnomusicology's commitment to human-centered study, and, furthermore, that ethnomusicologists and musicologists will have little to offer in confronting environmental

crises "until we can move away from the anthropocentric study of *people making music* to the more ecocentric *environments enabling people to make music* or the equally awkward *ecologies of nature and people making music*" (Allen in Cooley et al. 2020: 306). However awkward the poverty of nomenclature that Allen runs into may be, the challenge that he identifies constitutes one of the more urgent and necessary for music scholars to address.

Growing anxiety around ecological crises and planetary collapse corresponds, in the humanistic disciplines, with a growing interest in posthumanism, which, as Michael Silvers notes, "has demanded that we confront the reality that our fates are tied to those of other species, which in many cases, moreover, exhibit behaviors and capabilities previously understood as uniquely human" (Silvers 2020: 200, also see Taylor 2017: 270). Recognizing that posthumanism is "a vast and varied literature" (ibid.: 199) with divergent iterations, my focus is particularly on the ecological implications and origins of posthuman inquiry. This approach, gleaning from Donna Haraway, might be better understood as compostist—I join Haraway in the assertion that, "we are compost, not posthuman; we inhabit the humusities, not the humanities. Philosophically and materially, I am a compostist, not a posthumanist" (Haraway 2017: M45). Here Haraway asserts the importance of attending to human-soil entanglements, epitomized in the phenomena of composting and grounded in the inherently natureculture materiality of humus. But what does a compostist approach to the study of music sound like? How does music emerge from or figure into the soft, trickling, squishing sounds of bodies-becoming-soil?

Haraway's compostist orientation toward the enmeshment of human and more-than-human bodies, forms, and lifeways offers a generative framework for developing Allen's concept of ecocentric music studies. Synthesizing Allen and Haraway, I suggest that moving

away from "the anthropocentric study of *people making music*" (returning to Cooley et al. 2020: 306) might also mean turning toward the musicality of the holoent, of beings—human and not—becoming with each other, composing and decomposing each other, "in every scale and register of time and stuff in sympoetic tangling, in earthly worlding and unworlding" (Haraway 2017: M45). Locating music in and as the grotesque processes of earthly worlding, in the feel and resonance of sympoietic tangles, has the potential both to defamiliarize or subvert normative definitions of music and, conversely, to reify these normative definitions by extending or imposing them onto more-than-human forms, experiences, and expressions (see Gautier 2016: 132). Both of these potentials, furthermore, can take place simultaneously to different extents and different effects. This is the case in permaculture discourse and practice, where permaculturists work agonistically with and against hegemonic concepts of Nature and Culture, as described in the first and second chapters. As normative definitions of music and musicality are composted into permaculture's natureculture ontology, they do not cease to exist, but they are deformed, reformed, and repurposed.

As described in the second chapter, the ecological subjectivities that permaculture listening practices orient toward are grotesque, holoent forms; their grotesque conversation and expression constitute the dynamic, multi-sensorial object of the listener's attention. In this chapter I will turn to permaculture discourses on music specifically, describing and interrogating the desire to perceive music in the expressions and natural patterns of landforms, holoents, or grotesque ecological subjectivities. In this way I build from a description of grotesque listening toward a description of grotesque musicality in critical dialogue with permaculture discourse and practice. In dialogue with (eco)musicological and ecofeminist critiques of anthropocentrism and individualism, I offer the concept of grotesque

musicality as a contribution toward ecocentric and compostist efforts at musical-ontological inventiveness, and also as a helpful tool for understanding and taking seriously permaculture concepts of music as an emergent expressive aspect of landforms. Building on my central inquiry into the role of listening in permaculture practices, I position grotesque musicality as a way of listening for, perceiving, and engaging with grotesque ecological subjectivities. Musicking, in this conceptual and experiential frame, becomes a matter of attending to the sympoeitic entanglements—the coalescing and dissolution of patterns of growth and decay—that constitute landforms, and encountering these entanglements as music.

In developing my argument in this chapter, I will first turn to a focused, synthesizing analysis of several permaculture texts; Masanobu Fukuoka's *One Straw Revolution* (1978), Bill Mollison's *Permaculture Designer's Manual* ([1988] 2002), Starhawk's *Earth Path* (2004), and Toby Hemenway's *Gaia's Garden* (2009). These publications span over four decades and demonstrate a persistent, if persistently vague, ontological orientation to music as an emergent aspect of ecological patterns and cycles of growth and decay. I assess these texts not only for their theoretical and pedagogical content, but for their influence on and continuity with everyday permaculture discourse and practice. To this end, my textual analysis is interspersed with ethnographic and ethographic reflection. In the second half of the chapter, I return more directly to critical disciplinary engagement with the music concept: I set the aforementioned permaculture texts in dialogue with disciplinary debates on "the music of nature" (Titon 2020: 256) and the "nature of music" (Ochoa Gautier 2016: 107), attending specifically to the contrast between Jeff Todd Titon's figuration of "sound ecology" (Titon 2020) and Ana María Ochoa Gautier's critique of cross-disciplinary tendencies to operationalize sound and "music as political positivity" (Gautier 2016).

Ultimately, I observe that permaculture listening practices effectively model Titon's sound ecology in their orientation toward eco-social copresence and ethical entanglement while demonstrating an idealizing ecophilosophical commitment to music as political positivity. The concept of grotesque musicality serves here as a tethering term that holds the disciplinary concerns of music and sound studies in generative tension with permaculture concepts of music and listening.

Do-Nothing: Masanobu Fukuoka's Philosophy of the Natural

In explaining his concept of natural or 'do-nothing' farming, Masanobu Fukuoka argues that "when you get right down to it, there are few agricultural practices that are really necessary. The reason that man's improved techniques seem to be necessary is that the natural balance has been so badly upset beforehand by those same techniques that the land has become dependent on them" (1978: 10). But the dependence that Fukuoka speaks to can be severe, and attempting to halt or shift agricultural practices can have disastrous, even deadly, consequences, as he communicates in reflecting on his first attempts at do-nothing farming:

> When I went up to the citrus orchard to practice what I then thought was do-nothing farming, I did no pruning and left the orchard to itself. The branches became tangled, the trees were attacked by insects and almost two acres of mandarin orange trees withered and died. From that time on the question, 'What is the natural pattern?' was always in my mind. In the process at arriving at the answer, I wiped out another 400 trees. Finally, I felt I could say with certainty: 'This is the natural pattern.' (Fukuoka 1978: 10)

This passage presents an important paradox; do-nothing farming is not about doing nothing. Mandarin trees need human collaboration to grow in their natural pattern—the orchard tree and the human are companion species (Haraway 2008), each providing sustenance and support for the other. Human intervention is thus, in this circumstance at least, a necessary

aspect of Fukuoka's concept of nature and natural-ness. But most conventional agricultural interventions, Fukuoka argues, do not facilitate regeneration; instead, they inflict a systemic damage of deepening dependency wherein external and synthetic inputs become increasingly necessary for short-term survival or productivity at the expense of long-term futurity. Fukuoka's theory of difference "between natural and unnatural" (1978: 11) begins with the discernment of a parallel difference between damage or disturbance on the one hand as unnatural, and health and regenerative capacity on the other hand as natural. For Fukuoka, the natural and unnatural refer to structural and essential aspects of worldly things that are, respectively, generative or degenerative. For instance, he explains that:

> If a single bud is snipped off a fruit tree with a pair of scissors it may bring about a disorder that cannot be undone. When growing according to their natural form, branches spread alternately from the trunk and the leaves receive sunlight uniformly. If this sequence is disrupted the branches come into conflict, lay upon one another and become tangled, and the leaves wither in the places where the sun cannot penetrate. Insect damage develops. If the tree is not pruned the following year more withered branches will appear. (Fukuoka 1978: 11)

The onset of an 'unnatural' or degenerative (these words being etymologically parallel, if semantically disparate in their normative modern English usage) pattern in the tree's emergent structure necessitates further intervention; this intervention can, theoretically, tend toward the natural or unnatural for Fukuoka, but once natural patterns are broken, the resultant disorder 'cannot be undone.' Here he constructs a clear hierarchy of the value of the natural over the unnatural, and, by extension, of nature over the ostensibly unnatural character of modernity (paralleling LaDuke 1983: ii-iv). Crucially, Fukuoka's skepticism of modern technoscientific agricultural practices is not grounded so much in an appeal to an untouched Nature separate from (and vulnerable to) Culture, but rather on a fundamental enmeshment of human lives and decisions in webs of growth and decay. This enmeshment,

for Fukuoka, is the "nonmoving point of origin, which lies outside the realm of relativity" (1978: 12).

The conception of nature as outside the realm of relativity is grounded in Fukuoka's understanding of Buddhism which, although he does not identify with the religion (ibid.: 63-64), he draws on extensively in his explication of naturalness and natural farming. For instance, he notes that;

> Among natural farming methods two kinds could be distinguished: broad, transcendent natural farming, and the narrow natural farming of the relative world…. If I were pressed to talk about it in Buddhist terms, the two could be called respectively as Mahayana and Hinayana natural farming. Broad, Mahayana natural farming arises of itself when a unity exists between man and nature. It conforms to nature as it is, and to the mind as it is. It proceeds from the conviction that if the individual temporarily abandons human will and so allows himself to be guided by nature, nature responds by providing everything…. Narrow natural farming, on the other hand, is *pursuing* the way of nature; it self consciously *attempts*, by 'organic' or other methods, to follow nature. Farming is used for achieving a given objective…. The narrow view of natural farming says that it is good for the farmer to apply organic material to the soil and good to raise animals, and that this is the best and most efficient way to put nature to use. (Fukuoka 1978: 64)

Fukuoka writes that the narrow view of natural farming is functional and appropriate "in terms of personal practice…but with this way alone, the spirit of true natural farming cannot be kept alive" (ibid.). This spirit or ethos of 'true natural farming' is expressed in Fukuoka's do-nothing philosophy, which he explains further by analogy with swordsmanship:

> Narrow natural farming is analogous to the school of swordsmanship known as the one-stroke school, which seeks victory through the skillful, yet self-conscious application of technique. Modern industrial farming follows the two-stroke school, which believes that victory can be won by delivering the greatest barrage of sword strokes. Pure natural farming, by contrast, is the no-stroke school. It goes nowhere and seeks no victory. Putting 'doing nothing' into practice is the one thing the farmer should strive to accomplish…when it is understood that one loses joy and happiness in the attempt to possess them, the essence of natural farming will be realized. (ibid.: 65)

The practice of natural farming, to the extent that it entails a practice of "doing nothing," is thus integrated into the broader practice of inhabiting nature as the "non-moving point of origin." Fukuoka's articulation of "non-active nature," which he builds in dialogue with the Taoist philosophy of Lao Tzu (ibid.: 65) and in relation to Buddhist concepts of nature as "infinite motion [and] non-moving motion" (ibid.: 72), is fundamental not just to his farming method but to his worldview and theory of change. For example, in the final section of *One Straw Revolution*, Fukuoka communicates his conviction that "there is no other road to peace than for all people to depart from the castle gate of relative perception, go down into the meadow, and return to the heart of non-active nature. That is, sharpening the sickle instead of the sword" (ibid.: 96). Fukuoka's call for a "one straw revolution," then, is a call to "get rid of inside and outside. Farmers everywhere are at root the same farmers. Let us say that peace lies close to the earth" (ibid.).

While this poetic prose can be read dismissively as a naïve 'back to nature' appeal to universal consciousness, it can (more productively, I argue) also be understood as an open-eyed assessment of the challenges that the infrastructures and ideologies of industrial capitalism pose to the continuity and stability of agricultural ecosystems. "In travelling up to Tokyo," he writes;

> I have seen the transformation of the Japanese countryside. Looking at the winter fields, the appearance of which has completely changed in ten years, I feel an anger I cannot express. The former landscape of neat fields of green barley, Chinese milk vetch, and blooming rape plants is nowhere to be seen. Instead, half-burned straw is piled roughly in heaps and left soaking in the rain. That this straw is being neglected is proof of the disorder of modern farming. The barrenness of these fields reveals the barrenness of the farmer's spirit. (ibid. 98)

Fukuoka's revolutionary call, thus, expresses at once a spiritual conviction and an agricultural vision rooted in principals of biodiversity and social-ecological holism,

anticipating and influencing the permaculture axiom that "what we do to the land, we do to the people, and what we do to the people, we do to the land" (Dayaneni, personal communication 2021).

Fukuoka's Influence on Permaculture

As stated in the first chapter, Fukuoka's *One Straw Revolution* is identified as a foundationally influential text for the permaculture movement (Trauger 2017: 44), and his philosophy continues to guide permaculture activism. The text is widely referenced and used across permaculture design curricula (including at the Occidental Arts and Ecology Center), in everyday permaculture discourse, and in contemporary permaculture texts (Brinbaum and Fox 2014). In his seminal permaculture text *Gaia's Garden* (2009), for example, Toby Hemenway builds explicitly on Fukuoka's philosophy in his explanation of the permaculture concept of guilds, recounting a dialogue between Fukuoka and Oregon-based permaculture activist Tom Ward:

> One day…Fukuoka was asked, 'if we grow our fruit trees the way you recommend, with no pruning, how do we harvest the apples and what do we do with them?' Fukuoka's answer was, 'You shake the apples out of the tree and make cider, or feed them to pigs.' His point was, you go in a whole other direction.'…. The order of a conventional row-crop garden is the order of the machine. This regimentation invites us to view plants as mechanical food factories. We fuel them with fertilizer, service them with rakes and hoes, and measure their production in bushels, bins, and tons. We view plants as part of our dominion. In a guild [by contrast], we are but one living being among many others; and, like all the other animals enfolded by this community, we nurture and are nurtured by an almost-wild place. We prune and cull, as do the deer and mice. The fruit we leave does not rot on the ground to breed disease; it is gladly devoured by our many companions. We turn over a bit of soil, and the worms turn over yet more. We participate rather than rule. With guilds, we can begin to shed the mantle of command and return to nature the many responsibilities we have unnecessarily assumed. (Hemenway 2009: 134-135)

In his discussion, Hemenway carries Fukuoka's philosophy into a more contemporary permaculture rhetorical style that focuses on participation and community in guilds. The participatory merger with polyculture guilds that Hemenway describes holds the spirit of Fukuoka's 'no stroke school,' particularly in the expressed intention to relinquish the 'mantle of command.' Hemenway's explanation of the distribution of responsibility and care amongst the countless creatures of the guild invokes the productive paradox of Fukuoka's do-nothing methodology, and also gestures to the paradox of responsibility in permaculture's ethical framework. Just as do-nothing farming does not entail doing nothing, returning responsibilities, for Hemenway, does not mean becoming irresponsible; it means becoming more intimately responsive and responsible to the patterns of growth and decay that constitute specific guilds, places, landforms or ecosystems. He gives an example in his discussion of forest succession:

> When not interrupted by fire or other disaster, the end result of succession nearly everywhere is forest. Even in the arid southwest, dryland forests of ironwood, mesquite, and saguaro cactus blanketed what is now desert, until the sheep-grazers' depredations and the lumbermen's axes destroyed them. Given twelve or more inches of annual rain and the respite of a handful of years between wildfires, tree and shrub seedlings will sprout on almost any ground, patiently outwait the other vegetation, and create a woodland. This is why…suburbanites must constantly weed and chop out woody seedlings from their well-watered lawns and garden beds. The typical yard, with its perfect regimen of irrigation and fertilizer, is trying hard to become a forest. Only the lawnmower and pruning shears prevent the woods from taking over. (ibid.)

Rather than work tirelessly against the maturation and stabilization of natural systems, and rather than abandoning the ecosystem entirely in the narrow belief that humans can only degrade ecosystem health, Hemenway asks, "why fight this trend toward woodland? Instead, we can work with nature to fashion a multistoried forest garden, a food- and habitat-producing landscape that acts like a natural woodland" (ibid.). This attitude is typical of

permaculturists, and communicates a do-nothing ethos of relinquishing certain responsibilities, like weeding and maintaining monoculture grass lawns, while taking on others, like tending to polyculture guilds by harvesting and distributing fruits and seeds.

In practice, the distinction between responsibilities that have been 'unnecessarily assumed' and responsibilities that emerge in reciprocating interaction with other ecosystem participants can be rather evasive. For instance, the garden that I tend with my landmates is situated in a semi-suburban oak woodland; an aerial photograph from 1965 shows significantly less tree cover, indicating that the woodland has recovered significantly from a period of deforestation in the early twentieth century (through which the area was made accessible for cattle grazing and chicken farming). The suburban-woodland canopy is fairly mature, and the property is ringed by a dozen mature oak trees that provide habitat for countless songbirds and squirrels, not to mention fungi in the soil under their canopies. Interspersed amongst and within these mature oaks, are a variety of wild plums, ceanothus, manzanita, olive, and one glorious flowering mimosa tree. The inner rings of the property are home to many fruit and nut trees, as well as a pair of small redwoods (the landowner and resident permaculture teacher Rachel guesses they are stunted from drought), altogether forming a rich tapestry of biodiversity. Over years of planting and tending, Rachel has, in line with Hemenway's approach, fashioned a multistoried forest garden that gives food and habitat to many creatures, human and more-than-human, in a concentrated space. However, we still find oak saplings and wild plums shooting up in conspicuous places—in the root mass of an elderberry, nestling up against a young fig or a blueberry bush, or in a bed of perennial herbs. We uproot these tree seedlings, recognizing that if the oaks and wild plums were left to grow they would eventually shade out the other trees, shrubs, and herbs that give

the garden so much of its polyculture vitality. In some ways the garden has arrived at Hemenway's ideal food forest archetype, but as gardeners we still find ourselves selecting, plucking, shaping the forest.

Rachel has expressed to me multiple times a deep sense of ambivalence around pulling up oak seedlings. On the one hand, pulling the young oaks before they root in and mature is necessary to maintain the overall health of the food forest; too many oaks would eventually change the soil life and sunlight patterns, making it difficult to grow other productive fruit and nut trees and vegetables. The oak canopy is already full and healthy around the garden, and our culling work ensures that oaks don't fully take over and crowd out other plants; in this way we enact the permaculture principle of maximizing biodiversity, and the resonant abundance of insect and animal life that hums and scuffles throughout the garden serves as a colorful, clamorous index of our tending work.

On the other hand, the removal of oaks enacts a resistance to the natural processes of succession that tend, in this area, toward oak savannah. Our cultivation of abundant habitat and forage for a diversity of creatures itself exists within a legacy of colonial displacement; displacement of Coast Miwok and Pomo peoples and also displacement of rivers and creeks and oak woodlands. The act of uprooting a persistent oak seedling, in this sense, perpetuates these patterns of displacement and bears a lingering affective residue of unrest. One day, as we pulled an oak from a garden bed full of young spring vegetable starts, she reflected, "this is their land, they belong here way more than I do. If they want to grow here, who am I to tell them no? Is that just my colonizer impulse?" Carefully, we put the oak in a tall plastic pot, in the hope that the taproot would establish and the oak could be transplanted to another spot away from the vegetable bed. We have not had much luck with transplanting oaks from this

land, but we agree that it feels important at least to try, out of respect for the oaks as a local keystone species.

I give this vignette from my fieldwork to demonstrate that Fukuoka's do-nothing farming and Hemenway's guild gardening cannot be applied without intimate encounters with what Melissa Nelson calls the 'storied landscape,' and that these philosophies cannot be applied without participating in non-innocent webs of care, harm, violence, and persistence. This is a poignant instance of what Anna Tsing calls contamination (2015: 27-28). We work with the natural pattern of the land in its tendency toward oak woodland, but we also assume the responsibility to tend to the food forest and to check the encroachment of oaks. We make decisions about how the woodland will mature, and these decisions involve taking life as much as they involve facilitating birth and the proliferation of biodiversity. The question of which beings proliferate, and which responsibilities we assume as necessary or unnecessary, cannot be answered definitively outside of the visceral, intimate encounter with the soil of the garden, the roots and shoots of young perennial herbs and vegetables, and the thin, sturdy beginnings of oak saplings. They also, as my teachers at the OAEC stressed, cannot be answered outside of honest conversation with the Indigenous communities who have been displaced by colonial systems of governance and extraction. Attempts to apply or adapt Fukuoka's do-nothing method, or Hemenway's guild design method, in the colonial context of North America are necessarily burdened by the degrading and traumatizing conditions of colonialism, which compel a thorough consideration of how histories of displacement and resurgence literally grow up from the soil, and how permaculturists (along with all other peoples in the settler-colonial society) choose, one seedling at a time, to encounter and interact with those histories.

Another parallel between the philosophy and practice of Fukuoka's natural farming and contemporary permaculture can be found in the conceptualization of nature. The permaculture refrain "we are nature working" (Livingston in Puig de la Bellacasa 2018: 128), for instance, echoes Fukuoka's concept of nature in its refusal of hegemonic Western ontological commitments to a priori separation. The commitment to being 'nature working' mirrors Fukuoka's commitment to "casting aside the thought that humans exist apart from heaven and earth" (ibid.: 83), and emphasizes the embodied, performative aspect of this philosophy which is grounded in the paradox of non-active action and a re-positioning of work away from capitalist concepts of labor and within everyday ecological collaborations (ibid.: 82). The concept of being-nature-working, furthermore, subverts nostalgic concepts of unspoiled nature or primordial natural states; nature is invoked, rather, in a more radical interpretation of its etymology as a fundamental earthly condition of birth or emergent life, and the work of being nature entails (and requires) non-innocent participation in the ebb-and-flow emergence of lives and deaths.

The example above of pulling oak seedlings speaks to the messiness and uncertainty of non-innocent participation, and to the ways in which the concept of being-nature-working does not diminish the immediacy of concerns about doing that work in ethical or generative ways. In our further conversation on this topic, Rachel posed the question; "when we get an idea to do something in the garden, how do we know if that idea is actually coming from the land, or if it's just coming through our colonial hardwiring? Because that colonial hardwiring runs so deep in us, sometimes it feels like it's all we know how to do!" For settler permaculturists, the concept and practice of being nature working cannot exist outside of a fundamental complicity in the depredations of colonization, and a reckoning with the

implications of being nature working while also participating in legacies of displacement and genocide. Indeed, the power of the phrase, “we are nature working,” lies in its call for responsibility and response-ability; nature is non-innocent and must be inhabited, embodied, experienced, and perceived with care.

Natural Farming and ‘True Music’

In articulating his theory of difference between the natural and the unnatural, Fukuoka also turns briefly to the topic of music, articulating a concept of what he calls “true music” as co-extensive with nature. Continuing from his pruning example, Fukuoka argues that “teaching music to children is as unnecessary as pruning orchard trees. A child’s ear catches the music. The murmuring of a stream, the sound of frogs croaking by the riverbank, the rustling of leaves in the forest, all these natural sounds are music—true music” (1978: 11). The teaching of music becomes necessary, like the pruning of a tree, only in the wake of unnatural disturbance, which Fukuoka explains in this way: “when a variety of disturbing noises enters and confuses the ear, the child’s pure, direct appreciation of music degenerates. If left to continue along that path, the child will be unable to hear the call of a bird or the sound of the wind as songs. That is why music education is thought to be beneficial to the child’s development” (ibid.: 35). He does not elaborate directly on what constitutes disturbing noise, though it can be safely inferred from the broader scope and context of his argument, that these would be sounds associated with modern industrial and urban environments. As discussed in the opening chapter of this dissertation, Fukuoka’s philosophy is situated in the historical context of the postwar resurgence of Japan’s Shokuyó movement, which articulated a theory of natural ecological eating rooted in a philosophy of “oneness of

the body and the soil" (Hong 2018: 107). In this context, Fukuoka's philosophy of "true music" takes on deeper meaning; the confusion of the modern ear that results from "a variety of disturbing noises" parallels and compounds with the confusion of the modern diet and the (in)capacity to perceive music in and as natural environment is identified by Fukuoka as another expression of the bodies interconnectedness with the environment, where the "oneness of the body and the soil" is experienced even at the level of musical perception.

Fukuoka's concept of modernity's confused ear has direct parallels to R. Murray Schafer's theorization of hi-fi and lo-fi soundscapes (1994 [1977]: 43), and to Schafer's cautionary against the deafening effects of industrial noise pollution. Paralleling Fukuoka's cautionary against the confusing or dulling effect of 'disturbing noises,' Schafer describes the pervasive spread of industrial soundscapes as reaching "an apex of vulgarity in our time," such that "many experts have predicted universal deafness as the ultimate consequence unless the problem be brought quickly under control" (ibid.: 3). This convergent concern for the sonic sensitivities and sensibilities of people living in modern industrial contexts also extends to an analysis of modern musicalities. Fukuoka, for instance, laments a progressive displacement of 'true music' with formal music education and instrumental music, arguing that the latter is only "thought to be beneficial" once the ability to perceive the former has degenerated (Fukuoka 1978: 11). Schafer, in his turn and giving a much more in-depth historical account of musical developments in parallel with industrialization, observes that; "music moves into concert halls when it can no longer effectively be heard out of doors. That is to say, the string quartet and urban pandemonium are historically contemporaneous" (Schafer 1994 [1977]: 103). While Fukuoka and Schafer are operationalizing music in

distinct ways here, they come into rough agreement on their analyses of modern musical forms as outcomes of industrial din.

Also, like Schafer's soundscape philosophy, Fukuoka's idealization of pastoral sounds operationalizes a romantic and, importantly, hearing-centric, nostalgia. Similar to the way in which Schafer's soundscape concept assumes, or privileges, a normative listening ear, Fukuoka's idea of the child's "pure ear" can be reasonably construed as operationalizing a certain "sonocentrism as [some] sort of determining force of essentialist sensory master plans" (Feld 2015: 15). I reference Feld's critique of Schafer's soundscape concept here to emphasize that Fukuoka's true music concept can, to a certain extent, be deconstructed along the same lines. Fukuoka relies on the idealizing construction "an ear pure and clear" (1978: 11) in describing his concept of 'true music,' seeming to imply that those of us—really all of us—with impure ears, ears shaped by countless traumas and disturbances (uncountable but each counting for something), cannot actually perceive true music. This is a concept of music as lost, and of music as loss, that informs permaculture discourses around the tragedies of colonialism, capitalism, and industrial extractivism.

It is worth briefly mentioning that, in this sense, Fukuoka's argument also reflects early twentieth century musical folklore conceptions of folk music as pure, natural, and vulnerable to degradation and loss under the expansion of modern industrial society. For instance, English folklorist Cecil Sharp focused his archival work on "remnants of the peasantry" who "are to be found only in those districts, which, by reason of their remoteness, have escaped the infection of modern ideas" (Sharp [1954] 1965: 5). Hungarian folk-song collector and musician Béla Bartók operated on the related conviction that trained musicians would be incapable of perceiving the beauty and artfulness of peasant melodies (Bartók

1976: 6). The unintelligibility of folk musicality to trained musicians and scholars was also identified as a barrier to effective study by Japanese folklorist Tokashi Ogawa, who lamented that archival projects had "incessantly been troubled with the difficulty in obtaining experts or students who have affection toward and understanding of Japanese folk songs, which are characterized by obsolete language, unique melody and rhythm, and peculiar atmosphere" (1961: 83). The fear that folk musics would—or had already—become unintelligible to modernized ears and minds in their corresponding societies is broadly characteristic of early to mid-twentieth century folk music discourses, which, as Timothy Cooley and Gregory Barz observe, effectively "invented an Other within their national borders by creating cultural and evolutionary development distinctions that separated the scholars from the individuals they studied" (Cooley and Barz 2008: 9). Fukuoka's argument on 'true music' similarly invents an idealized Other whose hearing is not degraded or confused by modernity and who can thus perceive the music of nature. Fukuoka operates, however, within fundamentally different conceptions of nature, sound, and music from those operative in twentieth century folklore studies and comparative musicology. Rather than worrying over whether trained musicians, or urban populations, would comprehend folk music sung or played by their rural compatriots, he expresses a more radical anxiety that modern-industrial listeners will not comprehend 'true music' as it resides in and emanates from landforms and ecological relationships.

There is, along these same lines, a fundamental difference between Fukuoka's and R. Murray Schafer's conceptions of sound and nature. Whereas Schafer privileges humans as composers responsible for the conscientious crafting of acoustic environments and the meticulous manipulation and regulation of decibel levels (Schafer 1994 [1977]: 195-198),

Fukuoka's do-nothing philosophy suggests a definite skepticism of the presumption that humans can hope to succeed in the "tuning of the world" (Schafer 1994 [1977]: 6). Following Hemenway's dialogue with Fukuoka and Tom Ward, perceiving 'true music' is about beginning to "shed the mantle of command and return to nature the many responsibilities we have unnecessarily assumed." (Hemenway 2009: 134-135). In his *Tuning of the World*, Schafer argues for a "reaffirmation of music as a search for the harmonious influence of sounds in the world around us," drawing inspiration from 17th century English humanist philosopher Robert Fludd's image of the earth as "the body of an instrument across which strings are stretched and are tuned by a divine hand" (Schafer 1994 [1977]: 6). Invoking the occultist flair of Fludd's work (Giles 2016: 136-137), Schafer proposes urgently that "we must try once again to find the secret of that tuning" (1994 [1977]: 6). He thus saddles the human soundscape composer with a quasi-divine and somewhat patchwork task in continuity with medieval traditions of speculative music (Giles 2016: 137), the Greek concept of the harmony of the spheres, and the Vedic concept of anāhata or unstruck sound (Schafer 1994 [1977]: 6).

The decidedly cosmological challenge that Fukuoka presents of "returning to the source" (Fukuoka 1978: 11) can in some ways be read in alignment with Schafer's orientation, but the two authors present divergent strategies of finding or returning to their respective idealizations of a harmonious nature, and these divergent strategies reveal even more fundamental divergence in their conceptualization of music. Music and composition, for Schafer, remains unquestionably in the domain of human creation, which draws inspiration from a nature-as-resource. Fukuoka, in contrast, argues that 'true music' has nothing to do with the music of instruments. Rather than nature-as-resource, Fukuoka claims

nature-as-source in his concept of true music while also claiming a discontinuity between human music and 'true music.' There is some apparent inconsistency or tension here with the permaculture concept, discussed above, that 'we are nature working'—if humans are inseparable from nature, how can any music that we make not be of nature and thus 'true'? Despite this inconsistency, the concept of 'true music' as discrete or discontinuous from human music informs permaculture discourse in fundamental ways.

Fukuoka's 'true music' concept plays a similarly paradoxical role in his broader treatise on do-nothing farming; seemingly peripheral and central at the same time. On the one hand his definition and discussion of music is underdeveloped, and he uses the concept of 'true music' mainly as a supportive rhetorical device in his distinction between the 'natural' and the 'unnatural.' He does not give any meaningful description of 'true music' beyond the negative assertion that it "does not have anything to do" with the music of violins or pianos, and he offers little in the way of explanation of what the perception of this music might feel like for his ideal, capable, listener who is, somehow, "raised with an ear pure and clear" and whose "heart is filled with song" (ibid.: 37). He likewise offers no explicit pedagogical approach for learning how to perceive or participate in true music per se. On a meta-level, however, his do-nothing farming approach is fundamentally about the perception and apprehension of true music. Even while his explanation of do-nothing farming focuses on careful instructions for cover-cropping, straw-mulching, and direct-sowing in alignment with natural cycles, Fukuoka maintains that "ultimately, it is not the growing technique, which is the most important factor, but the state of mind of the farmer" (1978: 22-25). This state of mind is explained, in part, as a capable orientation toward natural cycles and their expression in the world as 'true music.' However, Fukuoka does not specify a pedagogy of the

perception of these natural cycles, which are, perhaps, implied to be self-evident and intuitively encountered (as one would encounter the accompanying cyclic transformations of seasonal changes, for instance).

It is tempting, in this sense, to write Fukuoka's 'true music' off as a thin, speculative, and ultimately unwieldy over-extension of his agricultural philosophy, or as a particularly radical iteration of the anxiety concerning the problems of the modernity that compelled the broader Shokuyó movement and its post-war resurgence. Still, his music concept is significant in its relevance to permaculture listening discourses and practices, and any reading of permaculture listening practices (in my assessment) must necessarily engage with Fukuoka's ideas. I observe, for instance, that permaculture listening discourses take inspiration from Fukuoka's philosophy and orient toward what Fukuoka calls "true music," even if this term has not achieved as widespread a currency as Fukuoka's broader "do-nothing farming" concept. I furthermore propose that the more developed and nuanced discourses around listening in permaculture practice (as presented in the previous chapter) invite and allow for a critical development and application of Fukuoka's music concept. Specifically, I suggest that permaculture practices offer a generative intervention against, or rather alongside, Fukuoka's polemical claim that teaching music is "as unnecessary as pruning orchard trees" (1978: 11). Permaculture pedagogy moves from the recognition that in a world thoroughly contaminated by histories of encounter and fundamentally shaped by ecological illiteracy and degenerative disturbance (Dolman 2016: 53), careful pruning becomes a necessary aspect of collaborative survival. Similarly, permaculture also takes seriously the necessity of learning how to perceive what Fukuoka calls true music.

Musicality, Pattern Understanding, and Permaculture Practice

Permaculture rhetoric around remembering how to listen to the land (returning to Kendall Dunnigan's phrase discussed in the first chapter) and counteracting the imposition of "ecological illiteracy" (returning to Dolman 2016: 54) tracks closely with Fukuoka's argument that the capacity to hear 'true music' is either stunted or unlearned through socialization in modern industrial settings. The sit spot exercise, described in the second chapter, is presented specifically as an iterative method for building ecological literacy—as Kerry Brady emphasizes;

> People have been sitting and listening on the land for as long as humans have been roaming the planet. Through the practice of a Sit Spot, we are bringing intention and consciousness to this age-old process amidst a manic modern world. With this practice, we visit the same place again and again, immersing in the patterns and cycles of a particular place within our bioregion….Sit Spot is a simple yet powerful antidote to the pervasive disconnect that is present for so many people in modern industrial times. When we are primarily indoors, immersed in technology and life within four walls, significant parts of our brain atrophy. However, when we go outside on a regular basis and allow the rhythms and cycles of nature to permeate our being, we open up new brain patterning and enhance our capacity to be present with the life all around us. (Brady in OAEC 2021: 21-22)

Here Brady makes a counter-industrial appeal similar to Fukuoka's regarding the degenerative effects of the 'manic modern world' on people's capacity to perceive and 'be present' with the patterns and cycles of the living, birthing (natural) world, which is situated in opposition to the technological and industrial immersion. Brady's language does imply a discontinuity between the 'indoor' world of technology and the 'outdoor' world of 'the rhythms and cycles of nature,' and, by extension, between the kinds of information and kinds of intelligence that are cultivated and atrophied in each context. Tracking with Fukuoka's 'true music' concept, the Sit Spot is positioned as a remedial or rehabilitating exercise that orients toward 'rhythms and cycles of nature' in specific places—it is a musical exercise in

the Fukuokan sense of the word. While most permaculturists do not speak of their work as musical per se, it is more common for them to reference the ecosystems they tend as musical, or as holding and emanating music. Gardens are often described as filled with the music of birds, insects, and plants (Hemenway 2009: 19), and gardeners participate in anticipation of the song and dance of pollinators (returning to Dunnigan, personal communication 2021) with the animate force of place (returning to Dolman, personal communication 2021).

In conversation with Brock Dolman about permaculture listening practices and the concept that emerges from these practices of music as an ecological expression, he suggested, quite adamantly, that I read or re-read Bill Mollison's chapter on pattern understanding in his *Designer's Manual* (1988). In this chapter, as Dolman emphasized, Mollison models a comprehensive set of fundamental patterns that characterize and support growth, decay, movement, and transformation in the world. These patterns are described through recourse to musical analogy; as Mollison writes, "patterns are forms most people understand and remember. They are as memorable and repeatable as song, and of the same nature. Patterns are all about us: waves, sand dunes, volcanic landscapes, trees, blocks of buildings, even animal behaviour" (1988: 70). Developing intimate, experiential knowledge of how these patterns emerge and unfold in specific places constitutes the core substance of permaculture practice for Mollison: "The final act of the designer, once components have been assembled, is to make a sensible pattern assembly of the whole. Appropriate patterning in the design process can assist the achievement of a sustainable yield from flows, growth forms, and timing or information flux…. It is the pattern that permits our elements to flow and function in beneficial relationships. The pattern *is* design, and design is the subject of permaculture" (ibid.). Just as Fukuoka's do-nothing farming begins with the inquiry 'what is

the natural pattern?', Mollison's permaculture begins with the task of identifying and building intimate experiential awareness of patterns of growth, decay, movement and stillness as they emerge in the world.

Dolman's point in referring me to Mollison's *Designer's Manual* was not just to reassert the centrality of the text in the permaculture canon, but more specifically to highlight the connection that Mollison makes between ecosystem patterns and music and, by extension, between pattern understanding and musicality. Having established the fundamental focus on pattern understanding, Mollison describes permaculture as "a linking discipline that equally applies geology, music, art, astronomy, particle physics, economics, physiology, and technology" (ibid.: 71). This hugely ambitious characterization is made somewhat self-reflexively, and Mollison expresses a hope that "others, better equipped, will expand and further explain the basic concepts" of pattern application relevant to "the information flow and transfer processes that underlie all our disciplines" (ibid.). While he focuses on presenting a "general pattern model of events" that demonstrates the related formal qualities and integrated characters of waves, streamlines, cloudforms, spirals, lobes, branches, scatters, and nets (Mollison 1988: 71-72), Mollison also gestures toward the importance of experiential encounter with the substance of the world that expresses these patterns, emphasizing that "we should not confuse the comprehension of FORM with the knowledge of SUBSTANCE—'the map is not the territory'" (ibid.: 71, emphasis in original). As discussed in the previous chapters, the emphasis on cultivating 'knowledge of substance' orients permaculture practice toward the immersive experience of patterns as they emerge, fuse, and diffuse in the world.

But Mollison does not expound directly on a musical character of ecological pattern understanding. Instead, his continued discussion of music consists mainly in survey references to various Indigenous song traditions as models for ecological knowledge (ibid.: 96-98). As an example, he gives particular attention to the tradition across various seafaring cultures of using songs as maps and timekeeping devices during long journeys. "Song stanzas," he writes, "are highly accurate *timers*, accurate over quite long periods of time, and of course reproducible at any time" (1988: 97). He also advocates for the functionality of cross-species song knowledge, again taking inspiration from Indigenous (in this case Inuit) practices, of which he gives thin description: "Just as the eskimo navigated, in fog, by listening to the quail dialects specific to certain headlands, we can achieve similar insights if our ear for bird dialect is trained, so that song and postural signals from other species make a rich encyclopedia of a world that is unnoticed by those who lack pattern knowledge" (ibid.: 97-98). This reliance on Indigenous knowledges, and on past-tense stereotypes of Indigenous or "tribal" communities as being close to nature, is typical of early permaculture discourse, as discussed at length in the opening chapter. It also reflects Mollison's academic training as a survey ethnologist in Australia before his turn toward developing the permaculture concept with David Holmgren. In this particular discussion, Mollison uses Indigenous precedents to advocate for what he understands to be a re-integration of music, dance, and other arts with natural patterns and ecological meaning. He argues that:

> Much of modern art is individualistic and decorative; some 'motif' art is plagiarized from ancient origins, but no longer has an educational or sacred function. Entertainment and decoration *is* a valid and important function of the arts, but it is a minor or incidental function. Social comment is a common art form in theatre and song, and spirited dances and songs are cheering and uplifting. But I know of no meaningful songs or pattern in my own 'monoculture,' based as it is on the jingles of advertisements and purely decorative and trivial patterns of art, and on education

> divorced from relevant long-term observations of the natural world. (Mollison 1988: 100)

Mollison's lamenting analysis of the relationships between art and capitalism are coupled with a strong conviction that "art belongs to, and relates to, people. It is not a way to waste energy on resources for the few. Sacred calendars melted down to buillon or objets d'art are a degradation of generations of human efforts and knowledge, and the sacred art of tribal peoples hidden in museum storerooms are a form of cultural genocide" (ibid.). Here Mollison gives an insightful, if romanticizing and prescriptive, critique of the ways in which modern concepts of art are often formed around the justification (aesthetic, moral, and political) of colonial and capitalist accumulation. This critique can be read in direct dialogue with Fukuoka's argument that the "popular tunes played on the violin or fiddle" do not have "anything to do with the ability to hear true music" (Fukuoka 1978: 12) —both Fukuoka and Mollison decry what they perceive as the divorcing of human music practices from lived understanding of natural patterns.

Rhythms of Nature and Musical Being

As Mollison burdens the concept of music with the ideological task of integrating and expressing ecological relationality, he also, like Fukuoka, gestures implicitly toward the musicality of ecological relationships and the cycles and patterns that constitute them. It is to this point that Dolman emphasized the importance of Mollison's writing to me: While Mollison himself does not state this explicitly, Dolman identified the work of building pattern understanding and fluency in ecosystem dynamics as akin to musical activity in that it orients toward patterns of expression and relationship that emanate from landforms. These patterns, he posited, are the physical manifestation of ecological relationships that emerge in

various kinds of harmony and disharmony with one another. Growth ratios of plants, seasonal cycles of blooming and withering, the movement and expression of animal life in response to these cycles, all of these interweaving patterns are characterized fundamentally by spatiotemporal relationships that hold visceral meaning for their participants, humans included. Cultivating an experiential understanding of the blooms of different flowers through the spring and summer, for instance, does not consist simply in documenting the timing of rainfall and the movement of rain over the land and marking the dates of first and last flowers for each species in an ecosystem or place; the blooms of flowers are felt and experienced through copresence with the flowers and with the many creatures who interact with and fundamentally constitute the flowers—the pollinators, the burrowing insects and mammals, the creatures of the soil. These creatures all participate in the bloom and wither of the flowers, and their participatory engagements thicken into dense knots of sympoiesis—these knots are resonant, aromatic, visceral and lingering. When Mollison refers to cultivating "knowledge of substance," it is to the substance of these lively, and deathly, knots of blooming and withering, growth and decay, that he refers.

Knowledge of substance is cultivated, for permaculturists, through practices of sustained, observant copresence, as described in the previous chapter. The knowledge that arises through the sit spot exercise and other modes of participatory observation with ecological subjectivities is an experiential "knowledge of," as opposed to a positivist "knowledge that" (Titon 2008: 32). I draw this rhetorical parallel between permaculture's orientation toward 'knowledge of substance' and Jeff Todd Titon's phenomenological prioritization of experiential knowledge as a preliminary step toward a larger, more experimental argument: that the practices of pattern understanding that Mollison describes

can engender a particular kind of "musical being-in-the-world" (Titon 2008: 32) that locates music in the grotesque expression of landforms.

Musical being, for Titon, is a "special ontology," a "mode of being that presents itself as different from normal, everyday modes of experiencing, from my self-conscious modes of experiencing and from my objectivizing modes of experiencing" (ibid.). In his phenomenological description of musical being-in-the-world, Titon writes: "I feel the music enter me and move me. And now the music grows louder, larger, until everything else is impossible, shut out. My self disappears. No analysis, no longer any self-awareness…I no longer feel myself as a separate self, rather, I feel myself to be 'music-in-the-world'" (ibid.). There are several points of convergence to discuss here with regard to permaculture sit spot listening. First, whereas Titon feels the music enter his body and move him, Kerry Brady emphasizes the need to allow "the rhythms and cycles of nature to permeate our being" (Brady 2021, quoted above). This permeation, furthermore, becomes a merger of selves both for Titon and for Brady; where Titon becomes music-in-the-world through allowing music to enter him and move him, permaculturists strive to become nature-working through allowing the rhythms and cycles of nature to permeate their beings. In both cases, this merger of selves is predicated on achieving a flow state where analytical, objectivizing and reflective mental processes are suspended. Brock Dolman described this as being able to "turn off the designer mind" and "just let the land speak to you" (Dolman, personal communication 2021). Titon writes of this state as "a curiosity of all [the] bodily senses" (Titon 2008: 31) and as an affective experience; "music overcomes me with longing. I feel its affective power within me" (ibid.). While the experiential goal of merger with and within ecological subjectivities, like Titon's experiential goal of collective merger with other human musicians, is not always

attainable, the memory and concept of such peak experiences motivates permaculture listening practices.

I suggest here that experiences and perceptions of musical being, or of musical being-in-the-world, are not only convergent with permaculture listening experiences, but also a helpful way of understanding and articulating permaculture references to the music of landforms. This is important because references to the music of landforms, or to ecological musicality, are simultaneously central to permaculture discourses on listening and somewhat underdeveloped in these same discourses (as noted above in analysis of Fukuoka and Mollison's writing). Titon's figuration of musical being allows for an evaluation of these references to ecological musicality outside of the formal rubrics of musical structure (pitch, melody, rhythm, meter), recognizing that music is not just (humanly) organized sound but a way of encountering the world, and a way of becoming-with the world. The capacity or tendency to perceive the song and dance of pollinators as, indeed, song and dance, does not hinge on a formal appeal to the sophistication or regularity of rhythmic cyclicity in the sounds and movements of pollinating insects and birds, or on the degree of melodic similarity between the pollinators' expressions and human musical precedents. Rather, the tendency to seek and encounter ecological musicality hinges on the capacity to inhabit a particular mode of being-in-the-world that is musical, and that allows "the rhythms and cycles of nature" to enter into and move the listener's body as music. Fukuoka's privileging of "true music" takes on more actionable meaning in this context, where the perception of true music is situated in the body of a listener whose "consciousness is filled with music" and is thus "in the world musically" (Titon 2008: 32). The sit spot listening exercise, similarly, can be engaged as an exercise in a particular kind of musical being, an iterative practice of

allowing consciousness to be in the world musically and to engage and receive the world musically.

Musical being-in-the-world constitutes a fundamental aspiration that can often (not always) take on a spiritual or cosmic character for permaculturists. Starhawk writes in her book *Earth Path: Grounding Your Spirit in the Rhythms of Nature*, for instance, that "when we can observe and truly understand some of the basic patterns in nature, we can learn not just to speak back to her, but to sing with the music of the spheres" (Starhawk 2004: 187). Here she frames the aspiration toward musical being-in-the-world within her own lineage of pagan goddess worship, into which she weaves the Pythagorean concept of music of the spheres. While *Earth Path* is centered on the topic of earth-based spirituality, Starhawk grounds her writing explicitly in her work as a permaculture activist and teacher, placing specific emphasis on the importance of pattern understanding and observational practices and drawing directly from Mollison's earlier work (Starhawk 2004: 13, 67). Her language around close observation also aligns closely with Kerry Brady's instruction on Sit Spot listening presented in the context of the OAEC's pedagogy, and with Fukuoka's brief remarks on the degradation of perception. As she writes:

> Observation seems like the simplest, most natural thing in the world. We're all born observers. From the earliest moments of life, babies stare at, listen to, and taste the world….By observing others we learn how to…experience and navigate the world we're born into. But between infancy and adulthood, something gets in the way of our childlike, unclouded vision. Few of us can walk into a forest and simply *be* in the forest. Instead, by adulthood, we are inside a story we're telling ourselves, partly about the forest, but mostly about ourselves. (Starhawk 2004: 51)

Starhawk names a litany of psycho-somatic damages that cause interference or confusion in human observers, echoing and developing Fukuoka's reference to the damaging of a child's "pure" ears and Brady's assessment of the challenges of the manic modern world.

“To truly observe,” she suggests, “we must be able to close the book on the story, turn off the dialogue (or at least turn it down), and hear what’s around us” (Starhawk 2004: 52). True observation is idealized for Starhawk, as it is for Fukuoka, Brady, and Mollison, as a state of concentrated copresence, what she calls elsewhere in the book “wide awareness” (ibid.: 54). It is in this state of concentrated copresence that, in Starhawk’s words, one might be able to sing with the music of the spheres. Importantly, as she emphasizes, this also requires a fluency in pattern understanding—it is only once we can observe and truly understand some of the basic patterns in nature that the possibility for musical being-in-the-world arises for the aspiring listener.

The exercises that she proposes for cultivating pattern understanding are directly inspired by Mollison’s writing and teaching on the subject (Starhawk 2004: 67) and they also align closely with the OAEC’s sit spot pedagogy described in detail in the second chapter. For instance, Starhawk reiterates the importance of sitting still for long periods of time, of “observing communities” and relationships rather than individuals, and on holding curiosity toward the emergence and function of patterns; “what is growing together with what in this area? Which trees with which bushes, which groundcovers? Are there patterns you can discern?...What functions might these patterns serve?” (ibid.: 68). Building familiarity with patterns and “practicing the skills of observation, taking the time to ground and listen,” Starhawk emphasizes, “we begin to be able to hear something. When we clear away some of our inner obstacles so that we can open up to the outer world, when we allow ourselves to be present, we can be fed and informed and delighted by the richness of life around us” (ibid.: 69). This concept of music accrues substance in the lived experiential context of these everyday practices of listening and noticing—music becomes perceptible as the listener

begins ‘to be able to hear something’ in the growth and decay patterns of plants, and in the dense relational webs of life that constitute specific landforms.

Rather than reproduce the entirety of Starhawk’s approach to sit spot listening and pattern understanding, I reference her work as an important iteration of these pedagogical themes, and one that also frames ecological observation in terms of musicality. While her reference to the ‘music of the spheres’ is, like Fukuoka’s music concept, thinly developed, she does communicate clearly her understanding that this music becomes perceptible through close observation not of celestial bodies but earthly ones; her writing foregrounds the intimate relationships between creatures of the soil, the collective growing and dying of plants and animals and fungi.

Returning to the second chapter’s discussion on sit spot listening’s orientation to ecological subjectivities, I propose that music is likewise situated in Starhawk’s writing, as in Fukuoka’s, in the grotesque ecological subjectivity of the holoent. Each of these authors, and Mollison as well in a less direct way, articulates a concept of musicality as the capacity ‘to be able to hear something’ in the growth and decay of landforms. That these articulations are thinly developed does not diminish their significance with regard to permaculture practice. As demonstrated above, understandings of the musicality of ecosystems also shape everyday experiences of ecosystem intra-action for permaculturists, wherein efforts to listen to the grotesque conversations of the land become entangled with an aspiration to hear music. This conflation of landform conversationality with musicality will be discussed at length in the following chapter, in close dialogue with Thomas Turino’s theorization of participatory music (Turino 2008), but for now I will simply note that this concept of musicality disappoints, or subverts, many of the fundamental, definitive assumptions about music as an

object of study for musicologists and ethnomusicologists. These definitive assumptions are what Ana María Ochoa Gautier refers to as "the theoretico-analytical dimensions of music qua hard scientific musical data: scales, pitches, rhythmic structure, and so on" (Ochoa Gautier 2016: 117). The spaciousness and irregularity of the sonic patterns that characterize landform expressivity render them largely illegible to modes of musical analysis that focus on melodic or rhythmic structure. Additionally, the emphasis on multisensorial engagement frustrates disciplinary tendencies to reduce the music object to a sonic one. In this sense, grotesque musicality, as a concept and as a quality of being, is not in clear continuity with normative concepts of musicality.

To reiterate, this specific concept of grotesque musical being is not discussed explicitly, either in these texts or in the permaculture spaces that inform my research—this concept emerges from my own synthesis of permaculture thought and academic discourse. Following from this synthesizing approach, I propose that it is a helpful concept both for permaculture practitioners and for scholars as a way of framing permacultural efforts to 'be able to hear something.' The expressed aspiration to 'be able to hear something' is persistent and pervasive in permaculture discourse. For instance, Fukuoka, Mollison, and Starhawk represent three different generations of permaculturists (following Trauger's assessment of Fukuoka as an influential proto-permaculturist) working on three different continents, and they each bring distinct positionalities and histories into their writing and teaching. These differences, however, only underscore the significance of the thematic continuity that characterizes their work with regard to observation, pattern understanding, and music. Their ideas also align with the OAEC's pedagogical approach, as described previously, and they pervade everyday permaculture discourse. In noticing and analyzing this persistency and

pervasiveness, I arrive at the following two assertions. First, permaculture is characteristically motivated by an enduring fascination with the musicality of nature and oriented toward the perception and participation in that musicality, which I have identified as a kind of musical being-in-the-world, and second, these references to the musicality of nature focus on natural patterns (cycles of birth, growth, decay, and rebirth that unfold in landforms) and the capacity to understand these natural patterns.

Musical Being-in-the World: A Story for Living, A Story for Listening

I want to emphasize at this point that I am not presenting musical being-in-the-world as a requisite aspect of some normative permaculture attitude, but rather describing a pervasive aspiration toward musical being-in-the-world that informs permaculture discourse and shapes permaculture experience. This aspiration is critically relevant to, and even co-equal with, the prioritization of composing with, conversing with, and befriending ecological subjectivities as described in the previous chapter. To reiterate, though, not all permaculturists talk or think about their eco-social participation in terms of music. In this chapter I have, thus far, explored the way in which several prominent permaculture figures craft non-normative concepts of music that integrate with their understandings of regeneration and eco-social or naturecultural co-constitution. However, there are many permaculture texts (and many of these are referenced in the opening chapter) that do not give any substantial consideration to eco-social music or musicality. This is another example of permaculture's internal diversity, as described in the opening chapter. In the same way that "there are as many permaculture definitions as there are permaculturists" (returning to Macnamara 2012: 1), there are as many permaculture definitions of music and ecological

musicality as there are permaculturists. The indication that I observe in my data regarding this eco-social conceptualization of music must be considered in this broader context of diversity. Within this diversity of thought and practice, the idea of musical being-in-the-world is somewhat diffuse, but not fringe. More so than an errant weed, out of place and (seemingly, but never actually) inconsequential, I understand musical being-in-the-world more so as mycelium in the (metaphorical) ecology of permaculture discourse; it is subtly pervasive and even mostly non-apparent in permaculture conversations, threaded without mention underneath concepts like conversation, composition, listening, patterning. Mentions of music per se are few, like mushroom fruiting bodies scattered thinly across a forest floor—but what they indicate, and what they extend from, is a much more ubiquitous affective orientation toward ecological subjectivities as expressive entities.

The idea, and experience, of music as an aspect of ecosystems that emerges from, and thus can be perceived as, patterns of growth, decay, and expression in and across landforms is, following Haraway, one of many "stories for living in the Anthropocene" for permaculturists, and as such, it demands "a certain suspension of ontologies and epistemologies, holding them lightly in favor of more venturesome, experimental natural histories" (2017: M45). To this end, one of the intriguing aspects of permaculture discourses on listening, pattern understanding, and musicality is that they prompt a reconsideration of the ontological and epistemological commitments that undergird normative and disciplinary conceptualizations of music as humanly organized sound. This prompting has already been named above, but I find it a worthwhile refrain—the loosening of epistemological certainties is a necessarily iterative process (Robinson 2020: 72). In this particular iteration, in the context of the permacultural music concepts articulated by Fukuoka, Mollison, and Starhawk,

I observe a shift in register in which normative epistemological commitments regarding music and musicality are both disengaged and reinforced, rejected and repurposed.

To give a more detailed account of these reinforcing and disengaging aspects, the final part of this chapter will frame the permacultural music concepts described above within interdisciplinary debates on "the value of nature and the nature of music" (Gautier 2016: 107). Scholarly approaches to environmental issues in music and sound studies are characterized by divergent and contested conceptualizations of music, sound, nature, and ecology, and by a pervasive sense of urgency in addressing the escalation of planetary crises (Gautier 2016: 113-116, 134). Two of the key concepts at the heart of these debates and concerns that I will address below are; the eco-social implications of music as vibration and eco-social relationality, as explored in Jeff Todd Titon's sound ecology concept (2020) on the one hand, and the persistent commitment, described by Ochoa Gautier, to "music as political positivity" (ibid.: 123-124), on the other. In the follow discussion I will explore the tensions between Titon's and Ochoa Gautier's perspectives, seeking generative friction in the dialogue and analyzing the permaculture music concepts described above in the context of this friction. Setting permaculture discourse in dialogue with music and sound studies discourses, I suggest, challenges and (hopefully) enriches each of these discursive spaces.

Permaculture Musicality and Sound Ecology

In developing his concept of sound ecology, Titon offers a definition of music as "the corporeal expression of a sound connection as a vibrational exchange," adding that music " is also an information exchange, an economic exchange, and an ecological exchange" (2020: 274). While he argues that, "for human beings, nothing represents the sound connection and

the sound and just community, economy, and ecology better than music," he emphasizes that "all beings are in the world of vibrations and sound experience" (2020: 274). Extending Titon's definition, it follows that all beings are in the world of music—the world is constituted by beings of all kinds enmeshed in a "copresence of sound vibration" (ibid.: 272), and this enmeshment of vibrational exchange is the stuff of music. This ecocentric definition of music does not negate the reality of more immediately recognizable human musical structures, performative modes, technologies and media, but it places these within a broader, and more differentiated, realm of phenomena and experience.

Vibrational copresence, for Titon, constitutes the fundamental condition for connectedness and relationality in the world, and thus forms the basis of both ecological relationships. A sound ecology, Titon proposes, takes seriously this fundamental condition of vibrational copresence and orients toward the consequences of how copresence is navigated and experienced through sound vibration; "of course," he writes, "copresence of sound vibrations need not be benign. It can lead to predation and destruction" (ibid.: 272). He points to the negative effects of noise pollution, the military utilization of sonic torture (ibid., citing Cusick 2008) and the use of vibrational force for "sonic manipulation and crowd control in a modern nation-state" (ibid., citing Goodman 2009) as examples of sound's destructive potential. It is not despite, but precisely because of the tendency for sound to be mobilized toward destructive and extractive ends in industrial capitalist contexts that Titon argues for taking seriously the fact that "in a world of vibrating molecules, each vibrating body in the world may be understood to be reciprocally copresent with the others" (ibid.: 273). Copresence is, like care, a noninnocent condition. Similarly, vibration in Titon's sound ecology concept is a noninnoncent phenomenon, and music as sound vibration is likewise

entangled in both generative and degenerative relational webs. With this said, Titon ultimately orients toward the generative potentiality of sound and music; his theorization proceeds from the assertion that "as sound announces presence, copresence in sound vibrates two or more beings and in connecting them forms the basis for organic solidarity and, possibly, community" (ibid.: 258). "A sound community," Titon offers, "is a community connected by sound, and it is also a healthy community" (ibid.: 255).

This focus on the possibility of community arising from experiences of copresence parallels the rationale behind permaculture listening practices, which (as described in the previous chapter) orient toward collaboration and friendship with ecological subjectivities. I will also note that permaculture efforts to "compose with" and within holoents engender, or intend to cultivate, what Titon describes as "an ecological way of being, knowing, and doing that grows out of the copresence of living beings connected through sound" (ibid.: 264). While permaculture discourse does not center sound to the same extent as Titon, this difference is somewhat mitigated by Titon's reframing of sound as physical vibration that extends beyond audibility. Titon's sound ecology is in this sense more oriented toward haptic immersion (Eisenberg 2015: 197), and thus more compatible with permaculture's multisensorial conception of listening as immersion into and as place.

Titon's sound ecology concept also aligns with permaculture listening discourses in its underlying critique of Western individualism and economic rationality. Titon rejects the cultural construction of "Homo Economicus," or the Economic Man, and suggests "a different model, homo reciprocans, or reciprocating human" (2020: 261) characterized by cooperation within community. In the paradigm of homo reciprocans, Titon suggests, "the common good is not the added sum of private goods but rather the emergent good of the

social group and its environment as a whole" (ibid. 261-263). This critique of individualism and the proposal of a more collectivist subjectivity in the figure of homo reciprocans echoes the transdisciplinary discussion on ecological subjectivity presented in the second chapter; Titon's argument aligns closely with Anna Tsing's critique of homo economicus and the 'selfish gene' theory (Tsing 2015: 28, Titon 2020: 263), and extends, as Tsing does, toward models of collaboration and collectivism. Where Tsing focuses on the concept of contamination as a fundamental condition of copresence, Titon focuses on sound. For Tsing, contamination is collaboration (ibid.: 27); for Titon "sound connects" (Titon 2020: 255). Sound contaminates. Contamination sounds. Vibrational contaminations form the ground of difference that gives rise to ecosystems, their function and their dysfunction.

Permaculture listening practices, to the extent that they seek holoent collaboration and friendship through immersive copresence, can be understood to enact or prefigure Titon's sound ecology. Importantly, they offer a concrete example of how sound ecologies are imagined and cultivated (however strugglingly) in everyday contexts. The sit spot exercise, for instance, as practiced in the context of permaculture's ethical framework, provides relatively plain instruction for developing an ecological rationality grounded in experiential knowledge of specific landforms. Just as Titon privileges a multisensorial concept of sound as fundamental to possibility for ecological solidarity and community, permaculturists privilege a multisensorial concept of listening as fundamental to the possibility for eco-social participation and friendship. The recognition that these are precarious possibilities, and not a priori certainties, motivates the construction of an iterative practice around strengthening the listener's capacity to engage with vibrational copresence in a generative manner. This

practice is epitomized and codified in the sit spot listening exercise, as described in the second chapter.

It is also important to note that Titon's call to "consider the music of nature" (2020: 256) dialogues productively with permaculture references to ecological musicality—it invites serious consideration of Fukuoka's 'true music' concept, Starhawk's concept of 'hearing something,' Kendall Dunnigan's emphasis on tending to the song and dance of pollinators, and everyday permaculture practices of allowing "the rhythms and cycles of nature to permeate" their beings (Brady 2021). Permaculture discourses and practices, in this sense, model a particular way of conceptualizing and engaging viscerally with what Titon calls the music of nature. The term 'music of nature' itself becomes quickly entangled in an ongoing disciplinary debate around the value of music in relation to environmental crises, and I will turn to this debate presently. For now, I will emphasize that concepts of a 'music of nature,' or plural musics and musicalities of nature, motivate permaculture listening practices, and that my own study of how this motivation is articulated and acted upon is itself informed by Titon's identification of a disciplinary need to consider the music(s) of nature.

Titon's writing on cultural sustainability (2009), sound commons (2012), and ecology (2016) have been fundamentally influential to music and sound studies discourses, and particularly to the formation of ecomusicology as an interdisciplinary field focused on "the study of music, culture, sound, and nature in a period of environmental crisis" (2013: 8; Allen and Dawe 2016: 1-2). At the same time, Titon's concept of sound ecology represents a school of thought that is contested within music and sound studies, particularly with respect to the positive identification of sound with ecological connected-ness. In the following section, I will present counter-perspectives on the question of sound as a condition for

ecological connection, focusing primarily on Ana María Ochoa Gautier's argument against "music as political positivity" (2016: 123-124) and her engagement with David Ingram's philosophical critique of "the ecologization of sound" (Ingram 2010: 16). These critiques are not only pertinent to scholarly debate, but they are also directly relevant to permaculture listening discourses and to the music concepts described earlier in the chapter. As I will demonstrate, permaculture concepts of music and of listening offer compelling case studies for thinking through the turbulence of interdisciplinary discourses on sound and its relationship to hegemonic and counter-hegemonic constructions of nature and culture.

Ecophilosophical Claims and Music as Political Positivity

In establishing her critical assessment music as political positivity, Ana María Ochoa observes that "during the second half of the twentieth century…a prevailing Euro-American ontology of music, sound, and listening has emerged in which these are understood politically as that which sutures torn relationships either between humans and the environment or among humans. This is an acoustic philosophy," she continues, "that increasingly prevails in the conceptual order that defines the place of music, sound, and listening in the modern public sphere" (Ochoa Gautier 2016: 127). In her argument, she builds on philosopher David Ingram's concept of the ecologization of sound (Ingram 2010: 16) as "closely associated with the notion that music, sound, and listening are understood as that which politically resolves the separation between nature and the human or the conflictive relations between humans, understood as part of the ecological crisis" (ibid.: 125). The popular ecologization of sound, in Ingram's analysis, is grounded in several ecophilosophical claims; first, "that music is a form of utopian expression that prefigures a better society in the

future, including a healed relationship between music and the natural world" (Ingram 2010: 15); second, that popular entertainment thus holds "utopian promise" (ibid.); and third, which Ingram terms "eco-listening," that "the activity of listening itself has a special role to play in the formation of ecological awareness" (ibid.: 15-16). In this discussion I will address the first and third claims, regarding the attribution of a connective capacity to music and eco-listening, as these are particularly salient both to Titon's sound ecology concept and to permaculture music concepts of music and listening.

First, I will return to Fukuoka's concept of 'true music,' which, on a surface level, seems to fall neatly in line with Ingram's critique. 'True music' is cast as the music of an undisturbed nature, a utopian expression and experience, and the capacity to perceive 'true music' is equated with an undisturbed closeness to nature. However, it must be remembered that Ingram and Fukuoka hold divergent definitions of music, and that this divergence demands a more nuanced reading; Ingram's philosophical skepticism precludes the possibility of a musicality located outside of the atomistic human individual, whereas Fukuoka's eco-centrism locates music explicitly as an expressive aspect of the world that humans can apprehend to varying degrees depending on the level of damage they have accrued under the yoke of industrialism. Furthermore, Fukuoka seems to dismiss the idea of continuity between 'true music' and normative definitions of music as humanly organized sound. He argues, for instance, that "the child who is raised with an ear pure and clear may not be able to play the popular tunes on the violin or the piano, but I do not think this has anything to do with the ability to hear true music or sing" (Fukuoka 1978: 11). To the extent that Fukuoka argues for a discontinuity between 'true music' and popular tunes, his concept of music cannot be accurately assessed under Ingram's rubric of ecophilosophical claims,

which focuses precisely on case studies of popular music in developing his notion of music as prefiguring connections between humans and nature.

A similar issue arises in consideration of Ingram's critique of eco-listening; while permaculture discourse operationalizes many of the tropes that Ingram identifies around what he calls "immersive listening" (ibid.: 59), Ingram's analysis is focused on discourses surrounding rock music, which is imbued with "quasi-mystical promise" and "ego-less merger" through "sheer amplified loudness" (ibid.: 62), and New Age efforts at musical entrainment which he argues hold music as "a form of benign magic" (ibid.: 67). None of the musical examples that Ingram engages in his explanation (and somewhat derisive dismissal) of eco-listening actually involve listening to ecological processes (the growth and death of plants, the seasonal fluctuation of water levels in the soil, the appearance and departure of pollinators, etc.). In this sense, Fukuoka's concept of 'true music' and permaculture's related eco-social listening strategies, again, fall somewhat outside the purview of Ingram's critique. This is not to say that permaculture listening strategies do not operationalize some of the same ecophilosophical speculations around the connective character of physical vibration and the relational potential of directed awareness, or that Fukuoka's 'true music' concept does not position music as a utopian harmony—indeed, it is these points of convergence that prompt a more sustained and nuanced consideration of the contours of musicality and listening in permaculture discourse.

Fukuoka's distinction between an ostensibly 'true music,' identified with frogs and rivers and wind, and an assumedly, by contrast, 'untrue music' that he associates with playing instruments like violin or piano, constructs an ideal form of music that is undoubtedly "a form of utopian expression" (Ingram 2010: 15), while at the same time

displacing a normative music concept (music as humanly organized sound) from that ideal form. Similarly, permaculture listening discourses share with Ingram's eco-listening case studies an orientation toward ecological subjectivity, but instead of seeking immersion in ecological subjectivity through a proxy of human musicking (rock and roll or New Age music), permaculture listening endeavors immersion into ecosystem processes in specific places, and into the emergent patterns (sonic and otherwise) that constitute those places. So, when Ingram observes that "building on [the] recognition of music's role in the formation of collective identity, theorists within the deep ecology and New Age movements have begun to speculate on the role that it can play in fostering a sense of 'community' that is expanded to include not only human beings but also the natural world itself" (Ingram 2010: 65), he takes for granted, and operationalizes, a definition of music that is itself contested and (to some extent) displaced in permaculture discourse. Of course, permaculture communities do indeed use music to foster an expanded sense of community, and normative human-centric musicking practices do figure prominently into permaculture community-building strategies (this topic merits its own in-depth study and is beyond the scope of this dissertation). In the context of this discussion, however, it is crucial to recognize the distinction between an eco-listening that is tethered to the performance and reception of specific human-centric genres such as rock and roll or New Age, on the one hand, and an eco-listening that is oriented toward ecological processes and ecological subjectivities. While Ingram is concerned with the former, my study of permaculture listening is focused on the latter. I have demonstrated, to this end, that human encounters with ecological processes and ecological subjectivities are referred to as a musical experience in permaculture discourse, constructing a distinct eco-centric concept of music.

Ingram's argument, furthermore, is rooted in his dismissal of the concept of the "ecological self" as New Age-y radicalism that trades away rationalism for magical thinking. Ecophilosophical claims regarding ecological subjectivity, and derivative claims about the value of sound for ecological connection, emerge, in Ingram's assessment, from "different branches of radical environmentalism, including deep ecology, ecofeminism, ecosocialism and ecoanarchism" (ibid.: 14). Ingram dismisses these claims as "essentially political speculations" with little philosophical or scientific merit" (ibid.: 14-15). Against ecological subjectivity, he privileges the persistent skepticism of "neo-Darwinists, who reject the idea that the natural world really is a 'community' of living organisms" and instead "understand habitats as characterized by competition, either between species, between individuals within those species, or between individual genes" (Ingram 2010: 65). Ingram thus argues that "when radical ecophilosophers assert that the natural world is a 'community,' then, they tend to be making a political rather than a scientific point. In doing so, they risk conflating political arguments with scientific ones in order to give authority to their claims" (ibid.: 65-66, also see Keogh and Collinson 2016: 5-7). Woven into this political argument, Ingram observes, is a belief in sound and listening as medium and method toward the realization of the natural world as community. This construction obviously bears certain resemblance to permaculture discourses (as described extensively above) and also to Titon's articulation of sound ecology, which is indeed explicitly political in its call for "changing our unsound and unbalanced world to a world worth having" (2020: 274).

But all knowledge, and all systems of knowledge production, are situated in political projects of consolidating, challenging, or transmuting power (Haraway 1988). Titon, in contrast to Ingram, points out that scientific theories rooted in competition narratives are

themselves cultural constructs (2020: 262-263, 269); the separation of scientific argument from political argument that Ingram posits hinges on what Donna Haraway famously called the "god trick" of objective scientific authority, "seeing everything from nowhere" (1988: 581). The dismissal of ecofeminist theories of ecological subjectivity as political arguments seeking scientific authority, ironically, enacts a god trick of ascribing political neutrality (Keogh 2013: 5) and scientific authority and objectivity to neo-Darwinian theories of competition which themselves are deeply implicated in the consolidation of political power (Smith 2008: 43-45).

It is not within the scope of the current discussion to prove or disprove Ingram's philosophical argument; my intention here is rather to illuminate and explore a rift in thinking that has serious implications for the possibilities (and limits) of music as a concept and subject of study. The privileging, as scientific and apolitical, of the competitive-individualist worldview constitutes a fundamental epistemological difference with respect to Titon's sound ecology, and this difference leads to different conceptions of music; music for Titon, as "the corporeal expression of sound connection as a vibrational exchange" is fundamentally oriented toward not just the possibility, but the necessity of a more-than-human musicality. "In our posthuman Anthropocene," Titon writes, "distinctions blur between culture and nature, between music and sound, and between humans and nonhuman beings…. What it tells us, as musicians and music scholars, is that we must consider the music of nature in asking about the nature of music" (Titon 2020: 256). Ingram, however, relies on a definition of musical meaning (from Shephard and Wicke 1997) in which the bounded human individual is the only recognized actor, and within which nature, the "natural principles of acoustics and physiology shared by all [human] listeners" is cast as the given,

and culture, "the meanings that human beings project" is cast as the not-given (Ingram 2010: 19; Ochoa Gautier 2016: 116 also critiques this Nature-Culture binarism, although Ingram's argument becomes central to other aspects of the article). Ingram's rejection of ecological subjectivity thus seems to preclude, or at least ignore, the possibility of more-than-human musicalities or, in Titon's words, a music of nature.

These divergent ontologies of music, like all "stories for living in the Anthropocene" (Haraway 2017: M45) are best held lightly and with a sense of serious curiosity. What is certain, returning to Ana María Ochoa Gautier's critique of music-as-political-positivity narratives, is that "we can no longer afford a particular Western ontology and its relation to academic knowledge, that is, the 'persistent anthropocentric effort of constructing the human as the not given, as the being itself of the not given, as observed in all of Western philosophy, even the most radical'" (Ochoa Gautier 2016: 116, quoting Viveiros de Castro 2011: 44). In dialogue with Eduardo Viveiros De Castro, she argues for "the need to generate 'a new anthropology of the concept that corresponds to a new concept of anthropology, in which the conditions of ontological self-determination of the studied collectives prevail absolutely over the reduction of human (and non-human) thought to a dispositive of recognition'" (ibid.: 123, quoting Viveiros de Castro 2011: 16). As an example of how this new anthropology of the concept might proceed, she offers the notion of Gaia, which, in her assessment, "has increasingly been employed as a term that displaces the taken-for-granted notions of nature, earth, culture, human, and so forth in anthropology" (ibid.) This displacement is an outcome of "the central place given to rethinking the conceptual order within the political recasting that the crisis of the environment poses for all disciplines" (ibid.). Ochoa Gautier argues that music studies has struggled to incorporate this kind of rethinking, suggesting:

> The reaffirmation of the values of musical analysis, of musico-cultural relativism, of a post-colonial critique based on the constant confusion between Western ontology and epistemology (knowledge as being), and of the rejection of the drastic need to rethink the political stakes provoked by climate change is deeply rooted in certain political positivities that prevail within the notion of music itself in Western disciplinary contexts. (Ochoa Gautier 2016: 123)

What Ochoa Gautier advocates for here, riffing on Viveiros de Castro, is the need to cultivate a new ethnomusicology of the concept that corresponds to a new concept of ethnomusicology. This entails finding ways to disrupt taken-for-granted notions of music, specifically, of allowing for and giving language to “the intrusion of Gaia” (Stengers 2015: 43) into the study, and more fundamentally into the conceptualization, of music.

In this sense, while she utilizes David Ingram’s critique of the ecologization of sound, Ochoa Gautier also gestures beyond Ingram’s commitment to a normative disciplinary concept of music, and beyond disciplinary commitments to conventional modes of musical analysis. “The history of Western music’s analytical categories—melody, rhythm, and, perhaps, most crucially of all, the voice,” she observes “is traversed by a zoopolitics of the acoustic that is obsessed with separating the human from the nonhuman” (ibid.: 131). She argues furthermore that “music, like language, has been a fundamental ‘anthropotechnology’ used in projects that seek to ‘direct the human animal in its becoming man’ and that are central to Western philosophy and to the establishment of the human as a separate political community” (ibid.). What is at stake then, in the disruption of taken-for-granted notions of music, is a disentanglement, however agonistic and partial, from the political project of human domination.

It is important to note, returning to Aaron Allen’s critique of anthropocentrism in music studies presented at the opening of this chapter, that Ochoa Gautier and Allen converge in their perceived need to move away from disciplinary commitments to the study

of 'music as humanly organized sound,' or of 'people making music,' and orient toward critical re-examinations of basic terms of scholarly engagement. Disciplinary disagreements over the efficacy of ecomusicology, acoustic multinaturalism, or other subfields notwithstanding, there exists a shared interest in destabilizing anthropocentric notions of music. Whatever the figure of Gaia has done or not done for anthropology, ecofeminism, and the environmental humanities, Ochoa Gautier points to the need for music studies to generate similarly destabilizing figures for music studies. Similarly, whatever the successes and shortcomings of ecocentrism as a concept for ecology and the environmental humanities, Allen argues for a need to cultivate non-anthropocentric approaches to the conceptualization and study of music. This imperative also guides Titon's theorization of sound ecology, as well as Steven Feld's longstanding and influential framework of acoustemology (Feld 2017).

Chapter Conclusion

My analysis of Fukuoka's true music concept, and its relevance to and influence on permaculture practices, is situated in the context of the disciplinary imperative toward non-anthropocentric, ecocentric, or posthuman approaches to music. I have demonstrated that while permaculture concepts regarding a 'music of nature' operationalize an ecologization of sound that relies on familiar ecophilosophical claims regarding the connective, harmonizing power of sound, music, and listening (as described by Ochoa Gautier 2016, Ingram 2010), the grotesque ecological musicality that permaculture orients toward also upsets normative definitions of music and model an ecocentrism grounded in multisensorial listening and ecological pattern understanding. While permaculturists of course engage in more recognizable or normative forms of music-making, I have argued that permaculture's

ecocentric musicality is characterized by a discontinuity with these recognizable, anthropocentric forms. This ecocentric approach to music is embedded in key permaculture texts, expressed in conversational and pedagogical references to the musicking of more-than-human beings, and enacted in multi-sensorial listening (as codified in the sit spot exercise). It is critical to note here that, while this eco-centric understanding is pervasive and influential in permaculture discourse and practice, it operates alongside, and against, hegemonic understandings of music as humanly organized sound. In my own articulation of grotesque musicality or musicking—by which I refer to the experience of music as more-than-humanly organized sound emerging within grotesque ecological subjectivities—I seek to provide a grounding figure for this agonistic concept of music. The word grotesque is of key importance here, in that it builds on the previous chapter's discussion of how permaculture listening orients, in opposition to hegemonic perceptive regimes, toward grotesque ecological subjectivities and seeks eco-social conversation with these subjectivities. Grotesque musicking, importantly, is not a phrase that permaculturists use themselves or identify with, but it is, I suggest, a thing that they do.

Similar to the way in which grotesque ecological subjectivities disrupts the logic of enclosure that undergirds individual subjectivity, I have argued that grotesque musicality disrupts the disciplinary tendency, noted by Ana María Ochoa Gautier, toward the "reaffirmation of the values of musical analysis" (2016: 123). Instead of sonic structures or events open to analysis in familiar terms of melody, meter, or rhythm, the grotesque music of landforms that permaculture listening orients toward is constituted by the sympoietic tangling of bodies making and unmaking one another as soil, root, rock, and flesh. This figuration of grotesque musicality emerges in synthesizing transdisciplinary dialogue with permaculture

texts and discourses, music and sound scholarship, and ecofeminist environmental humanities discourses. Through this synthesis, I cast the figure of grotesque musicality as a helpful figure for destabilizing taken-for-granted notions of music, and also as a helpful tool for taking seriously the permaculture approaches to listening and landform musicality described in this chapter and throughout this dissertation.

While grotesque musicality disrupts, or disappoints, familiar modes of musical analysis, this does not render it beyond the reach of systematic study. As I will demonstrate in the following chapter, grotesque musicality can be understood to be both in discontinuity and intimate relationship with other kinds of musicality. While this chapter has identified and introduced permacultural concepts regarding a musicality of nature, ecology, or landforms, the following chapter will present an extended analysis of how these concepts of music and musicality exist in relation to various other forms or concepts of environmental music, such as soundscape compositions and the trope. I will use Thomas Turino's four field framework of music as a model for this analysis, in an effort to integrate my conceptualization of grotesque musicality into existing ethnomusicological methods and theories.

Chapter 4

Listening in Fields and Fields of Listening

I would also suggest that participatory music has more in common with a neighborhood baseball game or a good conversation than it does with presentational music and the recorded forms.
—Thomas Turino, *Music as Social Life*

October 25th, 2021

I sit in the middle of the garden, in between the two swale-and-berm beds, with elderberry, apple, and peach trees behind me, and blueberry bushes, pluot, and nectarine trees in front of me. I sit amongst the grasses, who are moist from the first heavy storm of the year, their seed-bodies awakening to the life-giving force of the water. An oak titmouse descends onto the branches of the nectarine. The bird calls out in a raspy, clicking voice—contact calls to their kin in the nearby oaks and wild plums. They notice me, and they turn their attention toward me, assessing the stillness of my body. I return the bird's acknowledgement with silence and calm. This is the closest that a titmouse has come to me in the garden, just a couple yards away. They drop down to my level on the ground, signaling that my presence is not immediately threatening, and hop into the swale that I had expanded during the summer months. I had dug out the swale (kind of like a long, shallow vernal pool) to slow the movement of rainfall down the slope, allowing the water to sink into the earth of the hillside, recharge the water table and nurture the soil life. Now, after the first heavy storm of the year, the soil is saturated and water lingers in the bottom of the swale. It is really not much more than a glorified puddle, but nonetheless a welcome, joyous transformation after the long dry months. The return of water is not to be taken for granted here—it compels marvel and celebration!

The titmouse forages in the swale, jumping cautiously back and forth between the water and the branches of the nectarine tree, grasping little bodies and bits of earth in their beak, and sipping rainwater from the swale. Throughout their foraging, they continue their contact calling; no other titmice come to join them, but I know they are nearby and I can perceive their small clicks and rustles in my peripheries. I am immersed in a mesh of communicative resonance. I listen to the contact calls, and to the soft landing of the tiny bird's body onto the water-heavy soil, a lively composting tangle of grass straw, rabbit pellets, chicken manure, and mature clay loam. I hear, barely, the dipping of the titmouse's beak into the soil and water as they drink and poke the ground for forage. I hear the scraping of the bird's claws as they return, moments at a time, to their perch on the nectarine limbs.

What are the relationships being expressed or sounded out in this moment? There are soil relationships at play, as the rainfall stimulates the soil, as root systems expand and microbial life swells, the lively wetness of the swale becomes a beacon and invitation for the titmouses. They descend to the swale as a place of water as well, as a place to drink from. In this way the very contour of the earth functions as a container for conversation; as a container for the expression and pursuit of desires. These desires fold into one another; the swirling desires of roots and soils bare fruits that become the object of desire for the titmouse and other animals, including myself.

My fieldnote entry above recounts a moment of everyday eco-social conversation in, and of, the garden. As discussed in the second chapter, this is conversation in the etymological sense of 'turning with,' wherein the bodies of the holoent garden turn with and make with each other. Following the third chapter's discussion, this is also a moment of

grotesque musicality taking place in and as the garden's ecological subjectivity; the conversational turning of bodies into and away from one another and the patterns of growth and decay that emerge from these conversations. But what is the relationship, in this holoent context, between music and conversation? Understanding music as a multivalent concept with diverse interpretations, what kind of music does grotesque musicality orient toward, and how can that particular music be situated in relationship to other, more normative, conceptual renderings of music and musicality? In following this inquiry, this chapter's discussion will situate the concept of grotesque musicality in relation (not equation) to a corresponding conceptualization of environmental sound as a crucial medium for eco-social participation. I will argue that grotesque musicality is characterized by eco-social participation amongst human and more-than-human beings, while giving a critical assessment of the textures and limitations of this more-than-human participation.

In many ways, the scene described in my fieldnote above is not unusual; all manner of songbirds were doubtless foraging in gardens, meadows, and along sidewalks throughout the city and into the pastures of Petaluma at the time, searching for puddles, chipping to their kin, and pecking at the moist earth. All over the city humans were surely noticing them, perhaps in passing or in rapture or anywhere between, as they pulled weeds or walked about in schoolyards or glanced out the windows of their trucks or offices or houses. Some humans, maybe, were feeding the birds by tossing breadcrumbs or pre-packaged seed mixes, and some by turning the soil. In this garden, my landmates and I feed them by turning the soil and tending the flowers and trees. Through our tending and turning we participate in and amplify patterns of growth that provide forage for the birds. Their chirping and scuffling is thus indexically tethered to my experience of working the soil—in this sense the scene, for me, is

definitively more about soil becoming birds and then soil again than it is about birds alone. In any case, there is nothing unusually spectacular going on here; most things are most always composting.

And yet, this moment holds specific significance for me in my relationship to the garden, because I have waited months to see what would happen when the first rains filled the swales that I dug. As subtle as the movements and resonances of these soil-human-water-bird-tree intra-actions are, they express a holoent relationality that at once extends beyond my participation in the garden and is also fundamentally shaped by it. This moment also signals an important point in my fieldwork; at the threshold between summer and autumn, I witness the ethos of the garden transform with the season, and I witness the ways in which my small, cautious initial efforts at permaculture design with this garden holoent become entangled in seasonal transformations. In this way, the moment is both very mundane and very poignant—indeed, much of the work of permaculture entails cultivating, and noticing, affective potency in mundane moments.

In order to explain this affective potency, I will briefly contextualize this moment in the trajectory of my ethographic engagement with the garden. Following the principle of protracted and thoughtful observation, I witnessed the drying of the land from the late spring through the summer, and I carefully walked the contours of the land, tracing the etches of the rains, past and future. I mapped out the topography of the hillside and the flow of water both on paper and kinesthetically in my body. I felt the hardness of the clay soil, still compacted from the generations of cattle ranching and chicken farming, evidence of the ongoing ecological neglect that has accompanied colonial land theft. I listened and watched for the movement of birds through the garden, how they clung to the shadowed edges where Coast

Live Oaks and Wild Plums offered shelter, safety, and softer soils. I watched deer graze in the open meadow beyond the fence, just downslope from where Rachel said there had been a seep-spring that went dry a couple years back. I felt and smelled the dry heat baking the open meadow, the air shimmering with thirst and sucking moisture from leaves and petals and roots and from soils, and also from my skin and my lips. I felt sweat bead and evaporate on my back, and I felt the bodies of grasses and flowers withering. In attending to the conversation of the land, I perceived and experienced a desire for moisture, both within myself and pervading the holoent.

My perception, like my emplacement in the garden, "emerges at the porous interface between my exterior environment (the world 'around' me) and interior environment (my embodied, cognitive-affective subjectivity)" (Goffman 2020). It partakes of and participates in the collective flesh of sensibility that forms and animates the garden—and it is in this way that I, with a mixture of certainty and curiosity, felt a relationship between my own thirst and the thirst of the ecological subjectivities that I was comingling with. I responded to this sensibility in a small, cautious way by digging out the garden swale, to slow the rainfall and let the earth drink in the water before rushing down to the roadside and the storm drains. After digging, I covered the bare earth in grass and mulch to keep it sheltered from the drying effect of sun; if the clay soils became too baked, they would lose their capacity to absorb rainfall, and our whole effort would result in injury to the land. I watched the mulch turn golden and dry, and added more where it withered or shifted away, checking the soil for signs of overexposure. I tapped the soil, listening for brittleness or the presence of water, feeling the structure and crumble. I waited, with the soil, and with my landmates, for rain. So then, on that October afternoon described above, the small pools of water were filled,

brimming, not just with water but with affective potency for me; they were pools of relief, gratitude, and curiosity. I did not just listen to birds in the garden, but I listened for the resonance of my care, and for the ways in which my participations within the ecological subjectivity of the garden brought transformations, however subtle, ephemeral, or ambivalent.

But what does it mean to listen for the resonance of care, and where are the resonances of care located? This is a question that emerges in direct response to permaculture's commitment, on the one hand, to a particular eco-social ethics of care (described in the first chapter), and, on the other hand, to a practice of listening to eco-social conversations as they emerge in and across ecosystems. How do permaculturists listen for and perceive the resonance of specific acts of care and participation in specific eco-social contexts? And how does the anticipation of these affective qualities (in participation and care) give rise to a particular conception of sound? Moving from these questions, this chapter's discussion will situate permaculture understandings of sound and sonic gesture within a comparative framework that identifies and describes four distinct renderings of environmental sound (a phrase full of contested terrain that I will discuss in detail below). By the word *rendering*, I refer to the ways in which "the senses are mediators of social values rather than simply mechanistic receptors of information" (Rice 2005: 200). Information, furthermore, does not exist prior to its mediation, and is rendered in specific ways in specific contexts. In this specific context, for instance, I posit that the coalescing and dissipating of patterns of growth and decay in the garden constitute a grotesque music, and that my observation of and participation in those patterns thus becomes an enactment of grotesque

musicality. This position operationalizes a particular rendering of music, and, implicitly, of sound and resonance, which will be the topic of the proceeding discussion.

Copresence and Eco-Sociality

One important distinction of permaculture listening, I suggest, is that it is grounded (both ideologically and practically) in participatory copresence. As discussed in the second and third chapters, permaculture listening techniques are oriented toward immersion within the animate force of landforms, and toward immediate encounter with the resonance of place. Permaculture comes to know and relate to the animate force of place through whole-body, multisensorial immersion, which entails attending not just to the audible resonance but to inaudible vibrancy and multisensorial interaction. To talk about a permaculture acoustemology then, is to foreground copresence (as Feld does in his explication of acoustemology as an analytical framework, see Feld 2017) and, further, to privilege copresence over audibility. In this sense listening is primarily about copresence within ecological subjectivities, and secondarily (not unimportantly) about audition or sensory perception of those subjectivities. The primacy placed discursively on immersion within (or merging with) ecological subjectivities mediates the perception of environmental sounds and renders them as holoent gestures and expressions of participatory eco-sociality.

But copresence does not necessarily entail collaboration or participation. Copresences can be marked by indifference, antagonism, or any array of compounded affective orientations; for instance, the mule deer who graze in the meadow above the garden are generally wary of my presence. They will sleep right on the other side of the fence, under the

same wild plum that drops fruit into the garden soil, but usually when I come out to work or listen they take some distance, shifting uphill a few yards or sometimes slipping into the cover of the oaks. In these moments the deer and I scuffle about on the hillside in loose proximity and relative calm; I check the health of the garden, testing handfuls of soil and bringing pails of water, while the deer browse the grasses and brush. During their fawning months in spring, however, they can be quicker and more expressively forward in their distrust. In March of 2020, during my first spring of fieldwork, the does would approach me with hard halting steps, stamping, hissing, and staring at me intently, tracking my every sound and movement. In these encounters I would stay still for a moment and then slowly walk away, accommodating their clear demand for distance. These encounters gave me a visceral understanding of how copresence is also something that cannot be taken for granted or assumed as a given, unchanging condition of experience within holoent formations.

Copresence is of course—and particularly in circumstances of species and ontological difference such as human-to-deer or human-to-landform encounters—experienced asymmetrically. The deer's affective reaction to my presence and observation, the stamping and snorting, sound out at once the certainty and discomfort of copresence. This discomfort is mostly unknowable to me, except through my reception and interpretation of these agitated gestures, their resonance, their movement, and the atmosphere they generate. I recognize my presence as unwelcome, and step back, absorbing and enacting the deer's desire for distance. From the time of our earliest encounters, these deer and I have shared the meadow many times (always, still, separated by the neighbor's thin wire fence); I have learned how to navigate our copresence in ways that do not upset the deer, and the deer, I suspect, have grown more accustomed to and trusting of my presence and intention. We are learning to co-

habit calmly with one another—though it would be dishonest and disrespectful of me to claim to be in participatory relationship with these beings. I hold deep admiration and gratitude for them, for the way that they graze the meadow so listeningly and quietly. But the deer, apparently and very understandably, hold a different affective orientation toward my presence. Our copresence is marked by impasse, not just the physical impasse of the fence and the ideologies of property and species hierarchy that the fence enacts upon the bodies of the deer, but by the firm gestures of refusal from the deer themselves. These physical and affective impasses contribute to a pervasive, palpable atmosphere of wariness in the space between our bodies.

This wariness that marks my intersubjective encounter with the deer across the fence however, is only a part of the dense web of affective tethers that coalesce in the atmosphere of the garden. My presence in the garden sets me into relationship not just with the neighboring deer, but to countless other creatures below and above the soil; the seeds that grow from the deer's manure and eventually tunnel under or float over the fence, the coyote who track and stalk the deer, resting under the oaks and waiting for moments of vulnerability and opportunity; the wild plums who shade and feed the deer in the summer months, and who also shade and feed me and the plants in the garden. The ecological subjectivity of the garden, as discussed in the second chapter, emerges in the relational between-nesses that proliferate in and around them. As I move toward building friendship with the ecological subjectivity of the holoent garden, then, I hold the affective tension of my relationship with the deer in relationship to these many between-nesses. The non-participatory impasse that I respect with the deer shapes the way I move in and participate with the holoent; in seeking approval, or at least calm indifference from the deer, I become enculturated into a sort of

quietude that I perform as I go about my tending, weeding, watering and other work in the garden. I have learned, and continue to learn, about how to gauge the mood of the deer in relationship to the mood of the meadow and of the garden and in relationship to my own active copresence.

Listening, serving here as a metaphor for giving careful attention, is crucially oriented toward this kind of affective learning through copresence. Listening in this permaculture frame is about absorbing and integrating the particular patterns of expression, behavior, and sentiment that pervade the garden in the troubled endeavor to make friends, and "learning to be affected" (Roelvink 2015: 57; Latour 2004: 209-210). The encounter with the deer is one salient example of how the ecological subjectivity of the ecosystem shapes and permeates my affective body, and also of how ideas about friendship can become troubled or falter. But making friends takes staying with the trouble (Haraway 2016)—with regard to the deer, this means finding ways to respect the eco-social boundaries that they express while continuing to tend to the ecological subjectivity that we share and co-constitute.

Mediation and Rendering of Sound and Environment

The emphasis on copresence within holoent subjectivities distinguishes permaculture listening from modes of engagement with environment and environmental sound based on audio recordings, wherein sounds are processed and perceived in extracted isolation from their sources and listening becomes a schizophonic (Schafer 1994 [1977]: 90; Feld 1994b; Eisenberg 2015: 197) or acousmatic endeavor (Chion 2012: 52; Sterne 2012: 210). Prominent examples of recording-based ecosystem listening include the disciplinary methods of acoustic ecology and soundscape ecology, which have come to rely increasingly on

"automated digital recording systems" (Pijanowski et al. 2011: 206), and the musical practice of soundscape composition, which actively and creatively constructs a place's (real or imagined) soundscape through the recording and manipulation of acoustic phenomena, as well as other related forms of environmental audio recording that create sound objects for a variety of listening experiences, such as musical curations of whale song (Rothenberg 2014), or documentary representations of "everyday life" (Edwards 2016: 161). The audile techniques that sound reproduction technologies engender certainly shape listening habits and experiences outside of recorded-audio contexts; the very concepts of liveness and originality emerge interdependently with the technological-ideological possibilities of non-live recorded sounds and copies (Sterne 2003: 220-221; Benjamin [1968] 2007: 232-233). However, just as Greg Downey refutes the conflation of musical objects with musical experience (Downey 2002: 487), I suggest that the participatory copresence that permaculture listening practices orient toward cannot be mapped onto objectifying concepts of liveness and originality, or vice versa. This has to do, in large part, with the fact that permaculture listening practices are situated precisely in the experience of intersubjective encounter, which is irreducible to an acoustic dimension.

The characteristic emphasis on collaborative co-composition in permaculture listening also results in an experiential rendering of environmental sound that differs (though again with certain influence and overlap) from less participatory forms of ecosystem listening. Examples of less- or non-participatory ecosystem listening include wildlife tours and wilderness excursions where human presence is situated legally and ideologically as external to the (curated) presentational spectacle of the wild, as well as more everyday experiences of human-nonhuman encounter in urban and rural settings, where hegemonic

ideologies regarding wildness, and the spectacle of the nonhuman, remain operative. Even while, as Dana Graef notes in dialogue with William Cronon, that "wildness 'can be found anywhere,' that is 'within and around' each of us. It can be found in a backyard garden; it can be found in the city…wildness need not reject the human" (Graef 2020: 523; Cronon 1996: 86-89), the hegemony of wilderness discourses still bear heavily on Western popular imaginations of wildness as a quality external to (imaginations of) built environments. Where wildness, or nonhuman-ness, is rendered as spectacle (though not necessarily spectacular), the sounds of wildness are also rendered presentational. Listeners, in this wilderness scenario, are compelled to inhabit positions of audience to environmental sound. Listeners with distinct positionalities will inhabit and enact wilderness scenarios in varying (creative) ways, but this variance does not negate the existence or compelling force of hegemonic wilderness ideology.

I will go into more detailed discussion of each of these renderings of environmental sound in the following sections of this chapter. Before proceeding further in this comparative discussion, however, I will emphasize that the term environmental sound itself warrants scrutiny and explanation. Parallel to "the problem of ecology" identified by Aaron Allen (2018: 1), there exists a problem of environment, or, to riff on Allen's writing, one environment and many environments. The word holds diverse associations in different contexts and, as Allen and Kevin Dawe argue "goes beyond multivalence to be downright problematic: by setting up 'environment' as distinct from what is 'human,' we create a nefarious binary that seems somehow to set up 'out there' as distinct from 'us,' when we are in fact part of, from, and nothing more than nature or the environment 'out there'" (Allen and Dawe 2016: 9-10). When operating as a sort of hyperobject within Western epistemologies

(Morton 2013: 19, 28) the concept of Environment conflates with Nature, invoking dichotomies that exclude human material cultures from the environment, or include material culture as a marked form of "built environment" (Allen and Dawe 2016: 10; Christensen and Heise 2017: 452; Novak 2015: 129).

Music technology scholar Robindra Raj Parmar observes that "the main problem with 'environmental' is epistemological. It assumes a model of place in which objects occupy an environment that pre-exists their presence, where object and surround can be readily distinguished, and where objects are shaped and defined by their environment, but not the other way around" (Parmar 2019: 22). Parmar argues, however, that the term can be usefully disentangled from "an exclusive definition of nature" and reoriented toward "an inclusive formulation, one that recognizes our species' place in the Earth System" (ibid.: 24). Here he draws explicitly on an Aristotlean construction of "nature as *physis*" wherein "humans are similar to growing plants and the remainder of the cosmos, since these constituent parts are always in motion, always changing" (ibid.: 19-20). Parmar's own theorization of environmental music in his dissertation *Platial Phenomenology and Environmental Composition* sets Aristotle's view of "an *inclusive* nature, one that integrates our species with the life forces around us" (ibid., emphasis in original), along with a plurality of Greek conceptualizations of place (*geos, topos, khoros*, *xoros*) in dialogue with the artistic practices of electroacoustic composers who incorporate field recordings into their work (ibid.: 9-12). Parmar then proposes environmental music as a term "to include products (fixed pieces, installations, performances) that use field recordings as primary material, where the intentions of the practitioner are primarily aesthetic, as opposed to scientific or documentary" and where "the sounds are not planned or scored, but are largely unexpected, encountered at

hazard. The composer first encounters these within a phenomenological milieu, as a listener" (ibid.: 9). His formulation involves a philosophical re-tooling of environment as much as, or perhaps even more than, it does of music, which remains largely in the discretionary mind of the composer.

My own conception of environmental sound takes inspiration from this articulation of environmental music, while also gesturing beyond the boundaries of Parmar's definition. Specifically, I note that while Parmar explicitly challenges exclusive definitions of nature in his compelling theorization of platial phenomenology, his particular use of the term music simultaneously reinscribes these exclusionary boundaries: music is ultimately affirmed in Parmar's writing as a material product of human composers. "Natural sounds," tracking Parmar's engagement with influential composer Luc Ferrari, only become musical sounds when captured and re-composed by the human artist. In Ferrari's conception, natural sounds "do not exist for you, they are not there waiting for you. An outdoor sound is fugitive. One wonders, will it return?" (Parmar 2019: 20). The recordist-composer renders these fugitive sounds musical through techniques of technological capture and recognizable compositional styles. The composer, in this sense, acts as an alchemist or gatekeeper between the basically exclusive realms of natural and (human) musical sounds. In substituting sound for music (if only temporarily and in relation to Parmar's writing), I invite the fugitivity of these ostensibly natural sounds into a broader consideration of both recorded and unrecorded sonic gestures that emerge in the context of an inclusive nature, a grotesque nature of holoent relations. This invitation is logical and necessary in the context of my study of permaculture listening, which attends directly to these fugitive and grotesque sounds. I am primarily interested here in using the broad category of environmental sound to facilitate inquiry into

how the worldmaking sounds of sympoiesis are situated within different modes or fields of discursive and experiential framing, and how listeners' relationships to environmental sounds shift across each of these framings. In other words, I am interested in what is at stake in choosing to encounter environmental sound as grotesque music versus a compositional resource for human music, or a tool for retrospective, quantitative ecosystem analysis. Understanding what is at stake in these distinct renderings, I suggest, requires a systematic exploration of each of their characteristics, to which I will now turn.

Framing Four Fields of Environmental Sound

In dynamic and partial contrast to the non-participatory listening engendered by wilderness and conservationist discourses, and to the acousmatic character of recorded forms of ecosystem acoustics (high-fidelity recording and soundscape composition), I identify permaculture as a realm of immersive participatory eco-social listening. In doing so, and in direct dialogue with Thomas Turino's four-field model of music (2009), I propose a model of four conceptual and experiential registers or fields of environmental sound: participatory, presentational, high fidelity field recording, and soundscape composition. These four realms are not exhaustive or exclusive, but are intended to account for four distinct ways in which environmental sound can be imagined, rendered, perceived, and mediated within and across cultural contexts. To reiterate my purpose in more direct dialogue with Turino, I attend here to the ways in which environmental sound becomes something different and does something different in each of these renderings, as does the task of listening.

In his four-field model of music, Turino distinguishes between four specific but non-exclusive fields of music—participatory performance, presentational performance, high

fidelity recording, and studio audio art recording (2009: 95; 2008: 90-91). Turino's model explicates nonhierarchical differences that "point to fundamentally different conceptions of what music is and what it can do for people" (ibid.: 88) within and across cultures. For instance, he identifies studio audio art as generally operating within a conception of "music as an art object to be created by one group for consumption by another group not present in face-to-face situations and with no reference to live performance," directing "maximum attention to shaping the sonic object," whereas music in the high fidelity field references face-to-face situations and is "recorded to represent live performance" (ibid.: 91). Both of these fields are grouped as "recording music" in Turino's model, in juxtaposition with participatory and presentational fields which are grouped as "live performance" forms (ibid.) and are differentiated in turn by the level of separation between performers and audience members. Understanding that these fields often combine and shape one another (ibid.: 87), Turino's model challenges "people to suspend their habitual conceptions of what music is and to actually think of the four fields as separate art forms with different potentials for human life" (ibid.: 89). For instance, whereas studio audio art, Turino suggests, "has more in common with sculpture, painting, and other studio art forms," participatory music has more in common with "a good conversation than it does with presentational music and the recorded forms" (ibid.: 89).

Turino's model, as described within his broader theorization of "music as social life" (2008) stands as one of the most comprehensive and enduring approaches to the study of music within the discipline of ethnomusicology. My intention in paralleling Turino's model, then, is to ground my discussion in an analytical framework familiar to ethnomusicologists, and to make explicit the task of resituating the study of music from a social to an eco-social

context. As may be clear already, the four fields of environmental sound that I have proposed map one-to-one onto Turino's four fields of music making; I suggest correlations respectively between participatory eco-social conversation and participatory performance, presentational ecosystem listening and presentational performance—the mapping of high fidelity recording category and the soundscape composition/studio audio art category are even more obvious. These correlations are not meant as simple equations, and I draw them in order to interrogate differences as well as similarities. To do so, I have repopulated Turino's table from *Music as Social Life* (2008) in which he breaks down the differentiated aspects of each field (see figure 1 on pp. 238-239). I have also adapted the content of the table to reflect my own interpretations of these four fields of environmental sound, keeping the same evaluative criteria in the left column to facilitate analytical continuity. In the discussion below I will attend briefly to each of these four fields, giving most weight to the consideration of participatory eco-social listening.

Why construct this parallel model? What is the value of constructing these categories of environmental sound? While Turino's four-field framework is focused explicitly on human social life and human musicking, I suggest that an adaptative repurposing of his model toward environmental sound is helpful for thinking through the acoustic experiences of permaculture eco-sociality and intersubjective encounter, and for thinking through cultural constructions of environmental sound and music more broadly. My approach here is guided by the following inquiry; as the social becomes eco-social, what becomes of music? How does the defamiliarization of social life prompt a further defamiliarization of music, as an object of study and as a mode of everyday experiential interaction with the world? Situated inquiries into the musicality of eco-sociality, I propose, can illuminate culturally situated

logics and experiences of environmental sound. For instance, it becomes apparent through this four-field framework that while environmental sound is effectively rendered musical in normative Western frameworks through soundscape composition, high-fidelity recording, and even the curational framing of presentational listening to natural or wild soundscapes, participatory eco-social immersion does not so readily render environmental sound musical unless one of the other three fields comes into play. As noted above in engagement with Parmar's conception of environmental music, the fugitive and grotesque sounds of eco-social conversation are often excluded from the category of music until they are captured by recordists or composers, rendered as resource and raw material for the material-cultural practices of human beings. Thus, as I will discuss, the participatory field represents a space of more-than-human encounter, both crucial and quotidian, in which ideological and perspectival commitments to "music as something essentially human" (Brabec de Mori and Seeger 2013: 270) are enacted and contested both discursively and experientially.

The point of this extended comparative engagement with Turino's model is not simply to further inflate the category of music to consume eco-social participation, but to interrogate the discursive terrain of music at its ragged, fugitive edges, to follow musicality to places of precarity, where anticipated logics and structures begin to falter and different strategies of listening and sounding emerge out of necessity. Permaculture's particular acoustemological character serves as one vehicle for this interrogation—and it is certainly not the only one; immersive approaches to participatory eco-social listening, of course, do not begin or end within the framework of permaculture. Environmentally-oriented threads of ethnomusicological scholarship offer myriad examples of naturecultural conceptions of musicality and their implications for the study of music and sound (Silvers 2020; Dirksen

2019; Seeger 2016; Ramnarine 2009; Feld 1990). As such, I position permaculture as one example among many of participatory eco-social listening and sounding, and I offer my analysis of permaculture's specific entanglements and frictions with hegemonic conceptions of environmental sound as a small contribution to longstanding and emergent interdisciplinary discourses on the perception and engagement of more-than-human entanglements.

Soundscape Composition, or Environmental Music: A Studio Art

While I use the term soundscape composition as a more recognized term, I acknowledge Parmar's proposal of the term environmental music (discussed above) as perhaps a more versatile referent. Parmar notes, for instance, that Barry Truax's authoritative definition of soundscape composition "though couched in neutral language…masks problems of ideology that are inherent in Schafer's soundscape. The primary problem is a foundation in an exclusive nature, one in which humanity is apart from (and even superior to) the natural world" (Parmar 2019: 23). While Parmar, as a practicing composer, is understandably invested in crafting a less ideologically burdened musical identity, my own engagement here is more descriptive; I understand a rough referential equivalence (also identified in Parmar 2019: 23) between the terms soundscape composition and environmental music. Recognizing its wider currency and familiarity in music and sound studies literature, I will use the term soundscape composition in this section, although the concept of environmental music will remain relevant throughout the discussion.

Under either name, soundscape composition or environmental music presents as a rather clear subset of Turino's studio audio art field. This is a crucial point, because it signals

the recognition of environmental sound as musical material, if only within the cohorts of studio artists and academics (Turino 2008: 88); environmental sound becomes transformed through the mediation of sound technologies and through the human composer's creative process, rendered as an artistic product with aesthetic and cultural value. The transformative element is a central defining feature, as composer Michael Rüsenberg notes in his reflexive observation that "the soundscape composer very often works with sonic phenomena other people in the same context call noise…Let's face it: soundscape composition often means bringing noise into the concert hall" (Rüsenberg in Westerkamp 2002: 54). Composer and co-founder of the World Soundscape Project Hildegard Westerkamp challenges this perspective, advocating for more ethical considerations, arguing that it is "in fact the composer's responsibility to create a sonic environment with his or her compositions that does *not* damage the listener's hearing, as much as it is the city planner's responsibility not to expose commuters to excessive noise? Is it not the soundscape composer's responsibility to act like an acoustic ecologist?" (ibid.). Barry Truax (also a founding member of the World Soundscape Project) gestures toward this ethical precarity in his assertion that, in principle, a soundscape composition "enhances our understanding of the world, and its influence carries over into everyday perceptual habits" (Truax 2008: 106). As Westerkamp and Truax both note in their own way, it is not just noises that move into and out of concert halls through the vessel of soundscape composition, but ways of attending to and feeling about particular noises in particular places.

The contested relationship between composer, composition, audience, and place that surfaces in this dialogue between Rüsenberg, Westerkamp, and Truax illuminates the key characteristics of studio audio art as presented in Turino's analysis; the "desire for maximum

individual control" and the temporal-spatial distancing of human interaction (2009: 105; 2008: 83). "Socially and artistically," Turino observes, "studio audio art is the most autonomous field, and, like the other fields, it has its own positive aspects and drawbacks. On the positive side there is artistic control and a broad sound palette; on the negative side there is less human interaction to guide the artistic process (e.g., direct audience response), or to be enjoyed as a basic part of music making" (Turino 2008: 83). Extending Turino's analysis, I observe that soundscape composition also, at least in the moment of listening, entails a physical separation of the listener from the sources of the environmental sound; in this sense there is less eco-social interaction to guide both the artistic process and the listening processes of the audience. The spatial-temporal separation of sounds from their original physical sources gives rise to new listening discourses, strategies and proficiencies (Sterne 2003: 25; Chion 2012: 50-52). Building on Pierre Shaeffer's concept of acousmatics, Michel Chion notes that "acousmatic sound draws our attention to sound traits normally hidden from us by the simultaneous sight of the causes—hidden because this sight reinforces the perception of certain elements of the sound and obscures others" (Chion 2012: 52). Thus, he argues, "the acousmatic truly allows sound to reveal itself in all its dimensions" (ibid.). Acousmatic listening involves deeply historical practices of enculturation (Sterne 2003: 12) as well as specific skillsets for attending to sound as revealed 'in all its dimensions.'

Chion's assessment, it must be noted, relies on an a priori assumption of sound as a thing that somehow exists in all its dimensions outside of any relationship to other phenomena, as well as a positioning of sound-reproduction technologies as "purely natural, instrumental, or transparent conduits for sound" (Sterne 2003: 25). Sound is rendered here not just as capturable, but as inevitably captive to the technologies of its reproduction to the

extent that it can only be fully apprehended through its reproduction in an acousmatic state. The learned transparency of sound reproduction technologies is necessary to the feeling of immersion that soundscape compositions seek to facilitate. Soundscape compositions can also, however, deliberately and creatively disrupt the learned transparency of sound-reproduction technologies. Hildegard Westerkamp demonstrates this nicely in her piece "Kit's Beach Soundwalk" through a narrative explanation of her in-studio manipulation of bandpass filters. By naming the role of technological mediation and post-production in the creation of soundscapes, Westerkamp also elegantly demonstrates "the problems with treating a soundscape recording as pure documentarity" (Sterne 2012a: 92).

The challenge of soundscape composition, in Westerkamp's assertion, centers around the question of how "to create such a *composition* from the found sound materials, in other words as a piece with its own integrity, a new moment in time in a new place with its very own life and characteristics, yet still sonically connected to the place and time of the original recordings and composer's own experiences?" (Westerkamp 2002: 53). This inquiry can also be understood as relevant to non-musical approaches to soundscape recordings, which also inevitably confront the challenge of creating new sound objects that simultaneously communicate their own integrity and a convincing sonic connection to the place and time they capture. All soundscape recordings, however scientific or objective in their presentation, are fundamentally tethered to studio art practices (Sterne 2003: 219). In this sense, the proceeding discussion concerning high-fidelity recording unfolds in continuum with practices of soundscape composition. As I will discuss below, the threshold between soundscape composition and what I will call high fidelity environmental recording consists

mainly in the prioritization of the sonic connections to originality, or of representations of liveness.

High-fidelity (Environmental) Recording: Representing Liveness

High-fidelity recording, as a category distinct from soundscape composition, redirects technologies and techniques of sonic capture toward a distinct rendering of environmental sound grounded more fully in the concept of liveness. Tracking with Turino is again helpful here: whereas soundscape compositions, like studio audio art, generally focus inward on the "compositional process and product" (Turino 2008: 91) and toward the composer's experience and intention, high fidelity recordings of environmental sound aim to produce sonic objects that accurately, or evocatively, represent live events. This is akin to the "emphasis on the art object and the representation of live performance" that Turino associates with the high fidelity field of recording music (ibid.). High fidelity representations of environmental sound become critically important to scientific research methods, particularly to the fields of acoustic ecology and soundscape ecology, wherein the collection of reliable acoustic data sets has becomes a central methodology (Angeler, Alvarez-Cobelas, and Sánchez-Carrillo 2018; Krause 2017; Krause 2015: 91-96; Kohut 2015; McKinnon 2013: Sykes 1993: 82). These disciplinary frameworks operate on the conviction that "soundscape observation creates an opportunity for emplaced analysis" (Goffman 2020) of ecosystem interactions as well as the behavior and perception of individual organisms in the landscape (ibid.; Farina and Belgrano 2006).

Scientific methodologies project positivist ideological and epistemological assumptions onto sound-production technologies that rely (similarly to the artistic practice of

soundscape composition) fundamentally on “the idea of a sound’s ‘fidelity’ to its source” (Sterne 2003: 25) and the transparency of sound-production technologies as “vanishing mediators” (ibid.: 218). Listening to environmental sound as rendered through high fidelity recordings entails the practiced development of what Jonathan Sterne calls “audile technique” (ibid.: 223) and the “extension of pure audition” (ibid.: 256-265); the separation of foreground and background sound into *interior* and *exterior*, the privileging of sounds interior to the recording and the learned dismissal, or “wishing away” of the exterior “noise of the machine,” which Sterne equates with “wishing away the noise of society,” the noise of the complex social relations and practices that constitute the medium of sound-recording technologies (2003: 259). This move toward pure audition (which is by no means limited to the context of scientific research, but normalized throughout society, as Sterne demonstrates) takes on added significance in the context of environmental sound, where the technophonies of modernity are methodologically and epistemologically separated from sounds labeled discursively natural and categorized as biophony and geophony. Modernity (and its cyborg mediation) is carefully excised (vanished) from “wild soundscapes” (Krause 2015: 25-26, 125) and society is wished away from Nature. It is in this sense that soundscape recording also becomes a form of salvage activism—recording the last “natural” or “wild soundscapes” before they fall prey to the expansion of “human din” (Krause 2017; Spring 2012: 34). Tracking with Turino’s analysis of high fidelity recording, the high fidelity soundscape achieves a “semi-permanent existence” as a sound object, allowing for the archiving and preservation of acoustic imprints of actually vanishing ecosystems, species, and lifeways; sonicized ghosts of the Anthropocene (a la Tsing et al. 2017). The extent to which these recordings are valued as accurate and meaningful representations, memories, or continuances

of “voices of the wild” depends on the maintained integrity of cultural ideologies and audile techniques that adhere to discourses of fidelity and authenticity.

The production and perception of an authentic realism in soundscape recordings is an inherently and thoroughly ideological process, enacting and “reflecting our sonic and epistemological predilections quite as much as music does” (Goffman 2020, also see Doughty, Duffy, and Harada 2019: 1; Chatterjee and High 2017; Coates 2005; Moore 2003; Sterne 2012b). In recognition of this fact, Krause notes that the goals of acoustic realism “are still largely subjective and depend entirely on the listener-cum-recordist at one end, and the listener-cum-audience at the other” (Krause 2015: 78). Here he converges partially with Sterne’s argument that fidelity is more so a result of cultural practices and learned techniques of production and audition, but his formulation effectively positions (through omission) sound-production technologies as vanishing mediators; the ideal recording system captures and faithfully reproduces everything except for its own presence. In this way, high fidelity soundscape recordings, like soundscape compositions, render environmental sound as a sonic object that has an ostensibly (and culturally constructed, following Sterne’s analysis) faithful representational relationship to a place in the world at a particular time.

To this point, I observe that Sterne’s analysis of acousmatic sound is bounded by his focus on recordings of the human voice. His argument, for instance, that “sound reproduction always involves a distinct practice of sound production” (2003: 241) is based exclusively on case studies wherein human singers and speakers modified their performance practice in response to the recording technology and the organized network that the technology embodies. It is not apparent, however, that this argument can be extended to more-than-human circumstances such as soundscape recording; garden holoents, for instance, do not

apparently modify their acoustic performance in the presence of sound recording equipment, unless that equipment is accompanied by some disruptive sound or movement (e.g., if I am carrying a recording device with me as I walk heedlessly through the garden). Indeed, the disciplines of acoustic ecology and soundscape ecology proceed fruitfully on this fundamental premise; that recording devices can (to varying degrees of success) be placed clandestinely and strategically within ecosystems to record a wide spectrum of animal communication and environmental sounds, and that the sounds that these surveillance devices capture correspond to authentic (meaning true and unprovoked) acoustic expressions of the ecosystem and its cognitive landscape (e.g., Farina and Belgrano 2006; Farina and Pieretti 2013; Staaterman et al. 2014; Ricci et al. 2016). Sterne's argument that sound reproduction always involves a distinct practice of sound production certainly applies to the curational intentions of recordists and the operative ideological constructs of nature, culture, and technology (and their technical correlates of biophony, geophony, anthrophony, etc.) that inform their choices, but it does not necessarily apply to the ecological subjectivities that recordists seek to capture.

The philosophical implications that arise here with regard to originality and authenticity deserve extended consideration beyond the scope of the current study. My brief engagement with Sterne's critical historiography of sound-reproduction technology serves mainly to articulate several key aspects of high fidelity recording of environmental sound. First, like high fidelity music recording (Turino 2008: 73), it prioritizes the representation of liveness. Second, like high fidelity music recordings, high fidelity environmental sound recording entails an "unspecified time delay between production and reception" through which listeners and producers alike are separated from the environmental sounds and eco-

social contexts that are represented in the recording, although reproductions strive toward realism and a sense of "emplacement" (Goffman 2020). Third, I have noted that the high fidelity recording of environmental sound cannot be analyzed on the same terms as human-centered recording processes, specifically because the ecological subjectivities that are represented in environmental sound recordings cannot be understood to employ "a distinct practice of sound production" in relationship to sound reproduction. In this way, soundscape recordings also diverge somewhat from Turino's category of high fidelity music recording, which identifies (in alignment with Sterne) a certain modification of performance practices on the part of human musicians toward mediated networks of representation and circulation.

Presentational Ecosystem Listening

What I am terming presentational ecosystem listening involves spatiotemporal copresence of the listener with or within the ecosystem being listened to, and, at the same time, a level of social separation between the listener and the listened that renders the sound object presentational or spectacular. For example, in curated wilderness spaces such as national parks where, in the U.S. context, human participation is limited by environmental legislations and conservationist ethics, park visitors are expected to enjoy the serenity and perceived beauty of wilderness soundscapes as presentational displays but they are discouraged from participation in those presentations, or from attending to the colonial histories from which they emerge (Cronon 1996: 79). In this sense, the 'leave no trace' motto of the National Park Service engenders a non-participatory form of listening wherein park visitors take on the role of audience members; "wolves howl and people listen" (Deluca 2016: 87). Of course, park visitors, along with rangers, researchers and citizen scientists, are

actively participating (in various ways) in the ideology and institution of wilderness, and in the perpetuating construction of wilderness as an intellectual category and a geopolitical terrain, as well as in the design and implementation of conservation strategies. For this reason, Deluca argues that citizen-scientists and wildlife biologists enact “a nuanced form of participatory, situational environmental music playing out in everyday life” (2016: 89). While Deluca uses the term ‘participatory’ to distinguish this form of co-present environmental music from recorded soundscapes and soundscape compositions (ibid.), I suggest a more nuanced understanding of this kind of ‘environmental music’ that takes into account the alienating ideologies that shape, constrain, and ultimately restrict participatory modes of encounter and experience. I argue that the operative ideologies of wilderness and scientific reductionism engender (though not incontestably or entirely, as practices such as the stocking of lakes and waterways with fish for reacreational and subsistence fishing demonstrate) a separating orientation toward the ecological subjectivities of curated wilderness ecosystems, which are rendered spectacular and presentational.

The separation of listener and listened that characterizes Deluca’s description of environmental (wilderness) music bears resemblance to Turino’s description of presentational music, which he defines as “a field involving one group of people (the artists) providing music for another (the audience) in which there is pronounced artist-audience separation within face-to-face situations” (Turino 2008: 52). However, this definition cannot be simply resituated into the context of ecosystem listening without accounting for the ontological, political, and agential differences between ecosystems and their ecological subjectivities, on the one hand, and human artists and listeners on the other. Specifically, while Turino’s discussion of presentational music focuses on consenting musicians

performing in presentational settings, wilderness enclosures—and all property enclosures—on the other hand entail the domination and (variously evaded) capture of landforms and their inhabitants, rendering "performers" captive to the audience if only on an ideological level. The anthropocentric logic of this scenario operationalizes "exoticism as a mediator of everyday experiences of nature" in "natural urban environments" as well (Colléony et al. 2017). In this way, normative listening often orients to environmental sound as presentational display.

One of Turino's key points regarding the presentational field that holds relevance to the context of environmental sound is that, for the audience, "attention is in the moment, sound-motion exists only in the moment" (2008: 90). While Turino gestures here to the temporal, ephemeral nature of sound, he is also, and more importantly, speaking to the situated ephemerality of intersubjective encounter that marks copresence. This ephemerality of encounter also figures into the experience and act of listening to ecosystems in presentational contexts. While audio recordings can, within the logical framework of acousmatic sound, be played back repeatedly for extended analysis, environmental sounds that are perceived and not recorded can only be "re-experienced" within the continuous temporal flow of the encounter. The reverberations and relationships of sonic gestures can be traced almost limitlessly (Nancy 2007: 2), but they cannot be re-experienced in isolation or in fragmented repetition outside of their co-present unfoldings. For example, as the citizen-scientists and researchers in Deluca's case study hear a wolf howl, they can listen for how this sound reverberates in the world, the silences and shuffles and rejoinders that arise in its wake, the sensuous, affective imprint that the howl leaves on the land and on their own bodies, but they cannot re-experience the specific timbre and pace of the initial sonic gesture.

This is significant because it engenders different strategies of listening outside of the possibility (but not outside the imagination) of reproduction.

The enduring (continuously re-emerging) ephemerality of copresence does not indicate a lack of mediation, however, as noted above. In the case of wilderness listening, copresence is often mediated both physically and ideologically, by fences or walls, signs, officials and guides, as well as by the invisible structures of the underlying colonial apparatus. Prominent among these, returning to Dylan Robinson's discussion on listening positionalities, is "the self-censoring listening of settler colonialism" that acts as a "percepticide" (see Taylor 2003: 28) against the experiential possibility of human-nonhuman relationships. These ideological and epistemological mediations are situated in specific bodily histories and their outcomes cannot be assumed universal; "hearing requires positionality" (Sterne 2012a: 4). As such, different people will (dis)inhabit and relate to the presentational field differently. It is, nonetheless, a mode of perception that is pervasive and actively imposed by real social and political structures (for instance the institutionalization and ideology of wilderness conservationism named above). The related institutional logics of private property can also serve to facilitate presentational renderings of environmental sound, as they similarly alienate listeners from the (objectified, owned) environment and its sonic gestures.

Another prominent layer of mediation that shapes presentational renderings of environmental sound, and an illuminating example in this discussion, is the cultural expectation of non-reciprocating silence—returning to Deluca's observation that in national parks "wolves howl and people listen" (Deluca 2016: 87). First, Deluca's observation is explicitly situated in the cultural framework of conservation biology; outside (and, doubtless,

also within) this cultural framework, many people do in fact howl back, and for many different reasons. But Deluca points to the overriding hegemony of wilderness discourse characterized by particular conceptions of Nature and Culture as alienated and exclusive. This hegemonic acoustemology infiltrates, affects and even provokes counterhegemonic modes of listening; Robinson calls this the "civilizing sensory paradigm" of hungry listening that has been imposed murderously on Indigenous peoples in the North American context (Robinson 2020: 3), as well as on European populations in the brutal imposition of capitalist relations (Federici 2004). The perceptive regime of wild-as-spectacle pervades everyday listening in the world, variously shaping humans' situated perceptions of squirrels and supermarket isles, oak trees and gas stations, ridgelines and fencelines; the vibrant matter (Bennett 2009) of the world is rendered presentational through ideological (and physical) structures of enclosure that effect a kind of "disenchanted enchantment" (Ritzer 1999; Jenkins 2000).

This is not to suggest that presentational renderings of environmental sound are completely determined by, or even originating in, the alienating logics of capitalism and colonialism. Just as the motivations for listeners to inhabit the role of audience for human speech or musicking can vary infinitely, motivations to inhabit the role of audience for more-than-human sonic gestures are similarly (if asymmetrically) variable across cultural, historical, and socioecological contexts. Ethnomusicological literature provides a diversity of examples of cultural frameworks wherein environmental or more-than-human sounds are attended to as presentational sonic gestures (Brabec de Mori and Seeger 2013: 270; Seeger 2016; Feld 1994). Feld's seminal study of Kaluli acoustemology, for instance, describes ways in which the "pattern of sounding in the natural environment [becomes] the inspiration

for many Kaluli vocal and instrumental forms" (Feld 1994: 4) through extended and enculturated practices of listening to the sounds of the forest as the musical-presentational displays of the dead and other beings. Michael Silvers' research on the relationships between popular music and traditional ecological knowledge in Brazil describes the importance of listening to birdsong as a method of predicting rainfall and drought conditions (Silvers 2015: 382-383). In Silvers' case study, birdsong and other sonic gestures of ecosystems are rendered presentational displays with prophetic meanings. As these studies demonstrate, the role of audience-to-the-land may be inhabited from a plurality of ontological and cosmological positions that result in differential renderings of environmental sound as presentational or performative. Furthermore, presentational experiences of environmental music or sound often directly inspire human musical forms and expressions (Taylor 2017; Simonette 2016; Seeger 2016; Von Glahn 2013; Keller 2012; Feld 1994).

These roles of audience and performer are also neither static nor mutually exclusive, either within or across cultural and eco-social contexts. For instance, as discussed in the previous chapters, permaculture listening techniques include an etiquette of quietude that aligns, at least superficially, with hegemonic expectations of the ideal nature-listener as silent and external to the natural world. In permaculture contexts, however, this etiquette is positioned within a conversational, call-and-response flow of eco-social encounter. Whereas wilderness areas under the auspices of the National Park Service render audible and palpable the nature/culture dualism (ibid.), permaculture listening techniques are oriented intentionally (if strugglingly) toward the transgression of the boundaries of this dualism through regenerative, participatory strategies. But boundary-crossing always implicates an interstitial experience and a navigation of multiple realities (Rose 2002: 314). It is in this sense that

hegemonic and counterhegemonic listening habits are also both at play and in friction with one another in presentational renderings of environmental sound. And it is also in this sense that permaculture's participatory strategies proceed from, and return to, moments of relatively removed observation in dynamic interplay with moments of participatory intra-action.

Participatory Eco-social Listening

In his description of participatory musics, Turino emphasizes that "music making in the participatory field *is not about making music for listening apart from the act of doing*" (2009: 99, emphasis in original). This is the most fundamental distinction between the participatory field and the presentational, high fidelity, and sound art fields, in which sonic gestures are reified through various mediations as an object of attention for listeners "who do not participate in producing sounds or motions that are deemed fundamental to the performance" (ibid.: 101). Characteristic distinctions in formal structures, emphases on variety and contrast, evaluations of virtuosity, and approaches to achieving flow states (ibid.) can be understood to hinge largely on the basic understanding that "in this [participatory] field, 'music' is more like a game, or a ritual, or a conversation, than an art object or product" (ibid.: 106). As mentioned in this chapter's introduction, Turino's identification of correspondence between participatory music and conversation holds direct implications for permaculture's acoustemological orientations toward the eco-social, holoent conversations that take place within landforms. Specifically, while music is rendered as a genre of conversation or "direct social intercourse" (2009: 106) in Turino's participatory field, I observe a parallel rendering of environmental sound practices (sounding and listening) as a

genre of eco-social conversation, or, following Turino's phrasing, direct eco-social intercourse. While much of Turino's explanation of participatory music (such as collective decision-making processes regarding event preparations, the accessibility and difficulty level of repertoires, and overall aesthetic cohesion) holds specific and seemingly non-transposable meaning for human-to-human social interactions, I will focus here on several aspects of his discussion that can be usefully extended to the experiential frame of grotesque eco-sociality as described in the second and third chapters. These include; the goal of maximum participation, the emphasis on *doing* among all present, and the diminished attention to sound as an art object.

Turino observes that "a primary distinguishing feature of *participatory performance* is that there are no formal artist-audience distinctions, only participants and potential participants" (2009: 98, emphasis in original). His intention here is not to construct a universal (flattened) category of the participant—indeed, the navigation of difference (both in musical inclinations or abilities and in intersectional positionalities) is recognized to play crucially into both the function and dysfunction of participatory events. In the eco-social context of permaculture co-composition, the category of "participants and potential participants" also entails differences of species and ontology, further complicating the (bio)politics of participation and, on a more phenomenological level, the discernment of participatory modes. For instance, in my fieldnote at the opening of this chapter, I discern the titmouse's movements and sounds as gestures of holoent response to my call of widening the swale; the movement of water, the growth patterns of the soil and plants, and the movements of the foraging bird all participate, or take part in, the invitation that I (and my landmate Rachel before me) gave in the digging and shaping of the earth. All of these participations,

including my own, are asymmetrical to one another, and at the same time they are woven into what Deborah Bird Rose calls “multispecies knots of ethical time” wherein “time, species, and nourishment become densely knotted in ethics of gift, motion, life, and desire” (Rose 2012: 127). The bird eats the creatures of the soil, the body of bird “returns to bacteria, and bacteria return the body to the living earth” (Rose 2012: 127; Margulis and Sagan 2000: 91), lives and deaths fold and unfold synchronously and sequentially in entropic cascades.

While the corporeal and energetic realities of these multispecies knots is undeniably ever-present, their status as modes of participation are fundamentally situated in my own perception and discernment. I cannot presume to represent, or even comprehend, the titmouse’s internal affective experience; nor can I presume to represent the affective experience of the holoent’s distributed ecological subjectivity outside of my own partial and porous positioning within it. However, just as the participatory nature of these gestures does not precede my situated perception, neither does it follow my perception in some reflective, after-the-fact manner. Rather, my perception, following Don Idhe’s phenomenological account of listening, is pervaded by “certain ‘beliefs’ which intrude into my attempt to listen ‘to the things themselves’” (Idhe 2012: 23). For Idhe, to listen phenomenologically entails a process of “gradual deconstruction of those beliefs which must be surpassed” in order to arrive at “the things themselves,” implying that perception does precede interpretation but emerges entangled in and constituted by it. To the extent that Idhe’s phenomenological method is deconstructive, it both articulates the inherently mediated nature of perception and applies further layers of mediation. That is, it does not arrive at a more immediate reality; perceptions cannot be extracted from ontological commitments, but always take, and make, place within them. It is in this sense that permaculture’s particular relational ontology

informs the perception of environmental sounds or sonic gestures, rendering them participatory and eco-social.

The perception of participation unfolds in the context of interactions and intra-actions that constitute eco-social conversation; perception is oriented toward what holoent bodies are *doing* with, to, and within each other, and to the dynamic emergence of the ecological selves that coalesce through these doings. Returning to my opening field note example; the land emanates thirst, I dig a swale, seeds drift into it, water fills it, birds scratch at it, worms turn through it, the soil ruptures and bulges with the growth of roots and the burrowing of animals. I perceive and experience participatory co-composition through the actions of ecological subjectivities in relationship to my actions. My focus is inward on the relationships between our actions and the emergent conversational sympoiesis that they sound out. Through concentration on this emergent sympoiesis, this making-with of the garden, I come into increasing clarity and intimacy with the ethos of the garden's ecological subjectivity.

This intimacy can be further understood through a brief engagement with Michel Chion's formulation of three basic listening modes: causal, codal (developed from the category of semantic listening), and reduced (2012: 48-52; 2019: 22-26). While Chion's analytical framework is developed in the disciplinary context of film studies, his work engages directly with broader sound studies discourses and holds important implications for the study and perception of environmental sound. Causal listening, which for Chion "consists of listening to a sound in order to gather information about its cause (or source)" (Chion 2012: 48), involves locating specific sonic gestures within specific bodily interactions, such as the coarse scratching of a bird's feet against the bark of a tree. Causality can be listened

for at various levels of uniqueness or generality; from the level of a general scraping sound, to the level of something scraping against a tree, to the level of bird's feet clutching and scraping against a tree, to the level of *that* titmouse perching and scraping their feet against that nectarine branch. Discernment of sonic causality thickens with extended copresence and experience, and also with affective-cognitive engagement. In this way, causal listening quickly becomes entangled with codal or semantic listening.

Chion's concept of codal listening builds on Pierre Schaeffer's concept of semantic listening, and refers to "the listening mode that aims to decode the signal to get the message" (Chion 2019: 25). While Chion focuses on human language and symbolic code systems, this mode of listening for signals and significations, I suggest, can be extended to the context of holoent conversations as well. Here I reframe Chion's codal listening, in dialogue with Donna Haraway's conception of sympoiesis as semiotic materiality, as semiotic listening—a weaving of making-with and knowing-with. In listening for semiotic materiality, I perceive that the contact calling of the titmouse as they forage in the swale not only communicates directly to other titmice and songbirds in the surrounding brush, but contributes to the dynamic mesh of perceptive awareness, the flesh of sensibility (reengaging the second chapter's dialogue with Hufford and Merleau-Ponty) that constitutes the porous holoent of the garden. The sound of feet on branches holds layers of signification that emerge between the experiential awareness of the listener and the expressive resonance of ecological subjectivities. In my situated awareness, the titmouse's feet on the nectarine bark signifies the presence of water in the swale, and the accompanying presence of worms and insects for the bird to eat. I cannot see these from where I sit, but my experience widening the swale, and my hopeful anticipation of providing forage and quenching sustenance for the creatures

of the garden intrudes upon and informs my perception, fills it from the first instant with semiotic density.

My perception, as named in the opening of this chapter, is furthermore filled with affective density, particularly as I interpret an indexical relationship between my work in the swale, the lingering of water (however short-lived), and the nourishing of the titmouse's body, as well as the bodies that the titmouse eats and whom I cannot see or hear from my position. In this moment I recognize my own investment in permaculture's non-innocent ethics of care, and in the ontological stance that "we are nature working" (Puig de la Bellacasa 2018: 128). The semiotic and affective density of my perception, which accumulates over extended periods of copresence and collaboration, engenders a participatory perception, a perception of sympoietic tangling in which I am intimately, if peripherally and differentially, involved.

The focus of attention on these sympoietic entanglements renders environmental sound inseparable from the actions and interactions that they accompany, signal, invite or discourage. In this way, techniques of "reduced listening," oriented toward an extractive apprehension of "the traits of [a] sound independent of its cause and of its meaning" (Chion 2019: 25) become less important in eco-social participatory renderings of environmental sound. This parallels Turino's analysis of participatory music and his argument that it characteristically involves diminished attention to the sound as an art object, becoming something more akin to conversation. While enculturated senses of beauty certainly affect participatory perception (as they do in the realm of human participatory music making), sonic gestures are interpreted primarily for their semiotic and affective associations, and secondarily for their perceived aesthetic value.

The Four-Field Framework in Review: Categories and Crossings

In outlining these four fields or renderings of environmental sound, I do not intend for them to be considered exclusive or independent from one another; like Turino's fields of music, they act in dynamic interplay with one another and collectively provide a (partial) account for a continua of sonic, multisensorial, and/or musical experiences (Turino 2008: 87). The modes of listening associated with each rendering, furthermore, can be employed or experienced in quick succession or overlap. Returning to the example above of my encounter with the deer, I notice myself inhabiting a kind of reduced listening, attending to the specific timbral and durational qualities of their exhalations and their stamping; clusters of high frequency vibrations that start and stop sharply, abruptly, interspersed with heavy, thudding tones that are equally staccato but that I feel with my body more than I hear with my ears. But almost simultaneously, I inhabit causal and semiotic listening; which deer gave that hissing sound? What is the soil like under their feet that carries those low frequencies to my body? Why are the deer stomping and hissing? Different modes of listening co-occur and inform one another (Rice 2015: 107-108).

Also, while participatory copresence is prioritized in conceptions of permaculture listening, recordings could be deemed appropriate and useful for developing generative site designs. I myself took many audio recordings of and within the garden, though these have primarily functioned in the context of my role as an academic researcher (acting as extensions of my memory and a sonic augmentation of my field notes) and not so much in my role as a participant in the ecological subjectivity of the garden; nonetheless, the presence of my field recorder shapes my listening. When I take the recorder to the garden, I anticipate

sound reproduction, and this anticipation of a “copy” orients me toward the concept of an “original” experience in the garden. When I don’t bring a recorder, this dichotomy is less relevant to my experience of encounter; however, when I make the decision to not take audio recordings, the logic of acousmatic sound and my own internalization of audile techniques that serve me in other contexts still, inevitably, shape the way that I attend to the resonances of the garden. For example, my co-present listening to non-recorded moments in the garden is colored by my deep enculturation in to the concept of liveness (Sterne 2003: 220-221), and to the extent that I listen to the garden as “live,” I listen in relationship to the potentiality of the copy, and of acousmatic sound. This is one way in which the fields of high fidelity recording or even soundscape composition, distinguished by their orientation toward acousmatic listening practices, permeate my experiences of eco-social participatory listening.

While the identification of distinct listening modes and fields of environmental sound may serve as a useful analytical “strategy for imposing conceptual order on the flux of sounds and approaches to sounds,” these categorical distinctions, extending Tom Rice’s argument, “may not accurately reflect—and indeed may at times distort—the perception of listening as it occurs within the holistic context of lived experience” (Rice 2015: 107-108). This is particularly relevant to the context of my engagement with environmental sound as both a researcher and a permaculture practitioner, where my encounters within the holoent form of the garden inevitably bleed across and exceed categorical descriptions. The grotesque aspects of holoent bodies (all bodies), their permeabilities, excesses and contaminations, necessitate a grotesque approach to categorization as well; boundaries “are to cross” (Rose 2002: 314), containments are to exceed, types are to contaminate. Any imposition of conceptual order on experience must also reckon with grotesque reality. As

such, the four-field framework for environmental sound that I outline above, and that is presented in the table below is characterized by "boundaries [that] exist to connect difference" (ibid.).

Figure 1. Four Fields of Environmental Sound

Grouping	Ecosystem Copresence		Ecosystem Recording	
Field	Participatory	Presentational	High Fidelity	Studio Audio Art
Listening mode	Participatory eco-social	Presentational	High Fidelity	Soundscape composition
Goal	Co-composition, maximum participation	Curation of sound environment for aesthetic appreciation	Recorded to represent live ecosystem interactions and expressions	Maximum attention to shaping the sonic object
Conception, rendering	Environmental sound as a medium of eco-social participation—listening as a mode of eco-social intercourse amongst copresent participants; emphasis on the *doing* among all present	Environmental sound as an activity and object created by one group (an ecosystem or holoent) and received by another group (listener, observer) in situations of copresence; emphasis separately on the *doing* (ecosystem) and listening (listener)	Environmental sound as an object to be recorded for analysis, circulation, and/or consumption. Listeners are not in copresence with the ecosystem but the sound object references copresence or emplacement; emphasis on representation of liveness	Environmental sound as an art object created by one group for consumption by another group not present with either the recorded environment or the recordist/composer. Reference to live performance not necessary; emphasis on the compositional process and final product.
Roles/Mediation	Human listener intends toward participatory role, activities	Clear ecosystem-audience distinctions; ecosystem and	Ecosystem mediated by electronic devices; human technicians not necessarily co-present with recording devices in the field.	

	vary among participants and across time (call-and-response, stillness-and-movement)	audience mediated by physical markers such as fences, ropes, and signs within situations of copresence	Ecosystem-listener relations mediated by recordings.	
Time and Attention	Focus of listener is inward among eco-social participants, and is in the moment; sound motion exists only in the moment	Focus for the listener is on the ecosystem, its inhabitants, and its sounds, attention is in the moment, sound-motion exists only in the moment	Recordists' focus is on sound for information density and fidelity. For listener, focus is on recorded sound, visual representations of acoustic data; unspecified time delay between production and reception; sound object has semi-permanent existence	Composers' focus is largely inward within soundscape composition art cohort; artist focus on compositional process and product; listener focus on compositional process and product; unspecified time delay between production and reception; sound has semi-permanent existence
Continua	Less attention to sound as art object Quality of eco-social interaction is of central concern Sound-motion in the moment, immediate and nonlinear feedback as to how one is doing; sound is ephemeral but resonances transform the grounds of encounter		Increased physical separation among actors (recordists, listeners, ecosystems) Quality of sound is of central concern Greater planning and control of sound object Indefinite time delay between ecosystem sounding and listening; sound is semi-permanent Focus for recordists is on the shaping of sound object and the reception of audience, focus for listener is toward the sound object alone	

This framework is also helpful in that it lends conceptual order not just to different modes of experience (in experiencing sound as presentational or participatory for instance), but to the permeable boundaries between ecological subjectivities. Discernment of the experiential boundaries between participatory or presentational listening and sounding entails the discernment of the material boundaries and the ways in which these boundaries are crossed by bodies and gestures. Sound, as a material vibration, traverses space, fills environments, spilling from and across thresholds of place and being. Attending to the shifting character of perceived sound, as well as inaudible vibration and movement, constitutes a way of noticing holoent boundaries in the world, and the character of these boundaries. The thresholds between and within holoents are permeable and subtle, but their crossings are consequential, and often resonant. For example, when I step into the garden, certain sounds might recede at first (like the contact calling of song birds), and other sounds might arise (like the alarm call of a scrub jay). Sonic gestures signal the crossing of thresholds, and they also enact these crossings themselves; the dialogue, or conversation that permaculture orients toward happens in the crossing of these myriad thresholds within and across ecological subjectivities. What makes these conversations meaningful, and challenging, is the diversity of thresholds and crossings. Some boundaries are, returning to Rose, to be crossed, and some boundaries are not. Some crossings signal participation, some signal indifferent copresence, some signal hostility, some waver ambivalently in mixtures of affective orientations and desires. Additionally, some boundaries are substantial and large, like a fence or a cliff, and some boundaries are more subtle, like the boundaries of a low-point in the land that stays cooler throughout the day and night, or the boundaries of the

microclimate created by a system of swales and berms that stores an increased amount of water in the soil.

Listening in the Field(s): The Smallest Things

In efforts to notice the permeable yet differentiating thresholds between holoent ecological subjectivities, permaculture pedagogy often orients toward the everyday and the small. In the context of the Occidental Arts and Ecology Center's course, for example, emphasis was placed on noticing how subtle variations in cross-species interactions, the cycling of matter (soil, water) and the flowing of energy (sunlight, wind) shape the eco-social conversation. In one of our discussion groups, OAEC instructor Leslie Geathers reflected that "we often notice the biggest sounds…but it's the smallest things, the birds and insects, that will teach us more about the microclimates that we have in our yards." Small sounds express the characteristics and contours of microclimates and ecological subjectivities, and their temporal and spatial dynamics. For example, when I pull grasses from our bermed garden beds, I experience the being of the ground through the small resonance of my hands against the grass and the soil. I will give an example from my field notes of an ethographic encounter that took place in November of 2021, a little less than a month after the swale-titmouse encounter presented at the opening of this chapter:

November 23, 8 AM

Today the sun came early, a clear sky from dawn—when I went up to the garden the grass was thick with the shimmer and brilliance of the morning dew, all whites and silvers and golds cloaking the green bodies of the plants. They have grown considerably just in the past week, which has been consistently warm and sunny, and

they are forming a thick cool carpet over the hillside. I pulled a few encroaching grasses from the new berm, where Rachel, Magnolia, and I buried elecampane root cuttings and fava beans, and broadcast wildflowers and an oat and clover cover crop just last week. As I pulled the grasses from the fresh-seeded berm, I focused my attention on the sound of my weeding.

The acoustemology of pulling a body from the earth—noticing the slip and drag of fiber against soil, watery, slick, squishing. The soil sounds wet and vital, feral and cold to me in the morning, and the grass sounds plump with water, full and resonating under the pressure of my grasp with squeaky sounds that fill the whole tiny body and shiver into my own fingertips as they tug. But I don't need to tug, the roots come loose almost immediately. I am reminded now of how honeybees give their honey willingly (to those who know and respect the protocols) in the early glow of spring when nectar is abundant on the land and their winter stores are not needed, and they are overflowing with energy and sweetness. But they become wary and stubborn in the dry season as they prepare for the thin months of winter. The grass, or the earth, or both, feel similar in the sense that, in times of plenty, times of growth and overflow, they give their vitality freely—roots loosen from the soil without resistance—but in the summer the roots set in and cannot be pulled, and the earth refuses to let them go, knowing that each fiber, each blade, each body, is a precious bit of protection against the hardening, hollowing heat of the long dry season.

My slowly deepening awareness of subtle differences in this soil's timbre across seasons is inextricable from my bodily engagement with the soil; my tugging at leaves and roots, my observation of the fine mycelial threads that cling to the roots and crumbs of soil, my

smelling of the earth, and also from my desire to care for the soil, to cultivate vitality, and to learn to be affected (Latour 2004: 210). My listening, in this sense, cannot be reduced, but is rather wholly and messily involved in the sympoiesis (the making-with) of the holoent.

Bigger sounds cross thresholds between microclimates and ecological subjectivities, simultaneously traversing and expressing (making noticeable) these boundaries. As I listen to the small, sparse sounds of the soil, louder sounds seep in from the rumbling drone of freeway traffic from the 101, which snakes along a hilly mile to the east, charting the sloping ridges of Petaluma. The soil tremors in sympathetic resonance with the passing of the heaviest trucks on the road, a vibration that enters also from the soil into my body. In these moments, I experience that the garden and I are filled and moved by the same low shadow of sound.

The sounds of the passing trucks and the sounds of the squeaking grasses being uprooted are both situated in the same soil, and in the same holoent, but they signal different kinds of copresence and they engender different modes of listening from me in the context of my observation and tending in the garden. I listen to the tiny sounds of my weeding work in a participatory way; indeed, the sound is fundamentally a resonant result of my hands on the grass and in the soil, and my own being and intention is implicated in the sound. In contrast, my attention to the resonance of cargo trucks in the soil is less participatory—I am not (in the moment) involved in the production of the sound and the sound does not respond to my copresence or my action. The physical distance and character of irresponsiveness that defines the freeway resonance renders the sound more presentational for me—I inhabit the role of audience. Of course, I am implicated in the sound of the freeway traffic, and when I myself drive on that same freeway I participate directly in its resonance—this embodied

transtemporal awareness also shapes my perception of the sound itself. In this sense, the sound of trucks in the garden soil gives another example of how the four-field model of environmental sound outlined above must be approached in a fluid manner; participatory and presentational modes of listening overlap and co-constitute holistic everyday experiences.

Chapter Conclusion: Environmental Sound as More-than-humanly Organized Sound

As has been demonstrated, the fields of soundscape composition and high-fidelity recording fall, for the most part, within conventional disciplinary definitions of music; high fidelity recordings are also used as a tool for re-presenting or rendering “natural sounds” as music both in the context of scientific research and artistic creation. The field I term ‘presentational,’ modeled upon Turino’s framework, also entails a kind of musicalization of more-than-human sonic gesture. I have shown how, in Western contexts, this musicalization is grounded to a large extent in a wilderness ideology that exoticizes the nonhuman. The “environmental music” that Deluca describes in his study of citizen-scientists listening to wolves in national parks presents a compelling example of the ways in which nonhuman sounds are rendered musical through the mediating (and neutralizing, dominating) apparatus of colonialism and capitalism. But Deluca’s figuration of environmental music gestures toward a conceptual and experiential “place where music as environmental activism is not only an objectification of the very nature it seeks to protect but also an act of listening through an ongoing dialogue with humans and their relationship with ‘nature’ through sound” (2016: 89, quote in original). Deluca’s concept of environmental music as a “participatory, situated” act of dialogic listening, however, conflicts with Turino’s formulation of participatory music, which uses “the idea of participation in the restricted

sense of actively contributing to the sound and motion of a musical event through dancing, singing, clapping, and playing musical instruments when each of these activities is considered integral to the performance" (Turino 2008: 28). Turino's stated criteria for participation largely negate the possibility of more-than-human participation; his model operates from a disciplinary definition of music as humanly organized sound, and the structures of participation, presentation, and reproduction that he articulates follow from this fundamental epistemological commitment (see Ochoa Gautier 2016: 120-121).

The value, and challenge, of Deluca's proposed conception of music as a dialogic more-than-human experience lies in its grappling with the possibility and reality of more-than-human participation, and contributes a multispecies and whole-ecosystem perspective to ongoing discourses across music and sound studies on the more-than-human subjectivities at play in musical expression and experience (Robinson 2020; Taylor 2017; Keller 2012). I have argued that Deluca's case study of citizen-scientists and wolves ultimately constitutes a more presentational rendering of environmental sound, shaped by the hegemony of wilderness ideology and an exotic-transcendent construct of Nature; however, I extend his idea of "participatory, situational, environmental music" (Deluca 2016: 87) toward my study of everyday permaculture listening practices and toward the concept of grotesque musicality articulated in the previous chapter. I situate permaculture thought and practice as another context for understanding this extension of participation from the strictly (human) social frame to the (more-than-human) eco-social frame, and particularly for understanding the impacts this extension may have on concepts and experiences of music.

It is important to reiterate that while normative concepts of music—both disciplinary and popular—are relatively compatible with the first three fields of environmental sound that

I describe in this chapter (soundscape composition, high fidelity recording, presentational), the concept of participatory music, as articulated by Turino and operative in ethnomusicological discourse, is less immediately amenable to more-than-human participatory listening and to the related concept of grotesque musicality. This is largely due to the fact that the musical potential of human-nonhuman relationships hinges, in the Western hegemonic frame, on human organizational actions that render “natural sounds” (returning to Parmar 2019: 20) reproduceable or presentable and legible to the analytical categories that emanate from Western music’s canonic center (Ochoa Gautier 2016: 118). The organizational capacities and actions of more-than-human actors are deprioritized in this disciplinary definition of music, leaving little room for theorization of or practical engagement with the potential of human participation in more-than-humanly organized sound.

Counter to the hegemonic construction of music as humanly organized sound, the experience of music as more-than-humanly organized sound operates in important ways for permaculture discourse on and practices of listening differently and composing with place. Musicality is frequently referenced as a way of describing ecosystem interactions or perceptions of landforms. This is evident in permaculture literature, as described in the previous chapter, and in permaculture discourse. For instance, in reflecting on the challenges and traumas of the Covid-19 pandemic, OAEC instructor Kendall Dunnigan offered the following perspective: “Amidst all the intensity of our pandemic, the land still continues to care for us, the plant roots continue to build soil that we can grow our food in, the water cycle and the bacteria conspire to give us rain and sweet water to drink, the insects continue to sing and do their pollination dance.” The singing and dancing of insects here is not

separable from, but in coconstitutive participation with, the conspiring of water cycles and bacteria, the growth of soil and plant communities, and also with the needs, desires, and actions of humans. These participatory webs are understood to be characterized by a more-than-human singing and dancing that constitutes, in this instance, a register or aspect of care; a more-than-human care in which humans are held and within which humans act. The resonant expressions of these grotesque sympoietic entanglements, as more-than-humanly organized sound, are imbued with musical potential for permaculture listeners. This grotesque musicality is in turn imbued with a participatory potential; composing with landforms becomes a way of participating in their resonant expression. In digging swales, tending soils, tugging at roots, and listening for the permeable and affectively resonant boundaries of ecological subjectivities, permaculturists enact an intention to reciprocate within these sympoietic entanglements and their perceived musical potential.

This kind of eco-social participation interfaces in productive ways with Turino's more anthropocentric concept of participation that informs his categorical definition of participatory music (2008: 28). In the same way that social musical participation, for Turino, centers on participants' capacities to make active contributions that are integral to group performances, eco-social participation, in the permaculture context, hinges on participants' capacities to contribute in integral ways to ecosystem processes and patterns of ecological regeneration. Following Turino's analogy between participatory music and conversation, participation is about doing the right things to keep the conversation going well, or at least going. What this means varies from one context to another: in joining Turino's string band circle it means bringing an appropriate instrument—an acoustic steel string guitar as opposed to an electric guitar, for instance—and knowing when to play or sing quieter and louder,

when to be silent, how to maintain conversational rapport with other musicians, and how to track and respond appropriately to countless physical, linguistic, sonic, and musical cues. In my encounter with the deer that I describe earlier in this chapter, keeping the conversation going means first and foremost being still and quiet, learning how to move slowly enough to maintain an equilibrium of copresence with them. My slowness and quietness also allows the deer to continue and deepen into eco-social conversation with other creatures in the ecosystem and within the distributed ecological subjectivity of the hillside of the landform. If I have a louder, more active task to do, such as digging out a swale or transplanting a young pomegranate tree, I will try wait for a moment when the deer are either not in the meadow or at least farther off and actively grazing. I develop my own pattern of relative quietness and loudness through a learned sense eco-social etiquette that is hyper-specific to my relationship with this garden, this hillside, and these deer.

The similarities between learning how to participate within a string band circle, on the one hand, and a hillside garden, on the other, are clearly limited, and it is not my intention to conflate the two scenarios or to reduce them to some essential unity. My aim is rather to demonstrate the consistency of the principle of participation that is operative in both scenarios—the anthropocentric social and the grotesque eco-social. This consistency is significant because it invites a consideration of eco-social participation as a learned and learnable skill. Just as the cultivation of string band musicianship involves a learning process unique from that of orchestral musicianship or hip hop musicianship, for instance, the cultivation of grotesque musicianship involves a unique learning process that brings participants into intimate, iterative encounters with specific ecological subjectivities. I have described aspects of this learning process in this chapter and in previous chapters—the

second chapter's explication of the sit spot listening exercise being a central example. Through these descriptions, it has been demonstrated that permaculture listening practices are oriented toward the task of learning how to join an ecosystem, sonically and otherwise. This task appears obvious and inevitable from the perspective of permaculture's natureculture worldview (and from other natureculture worldviews), but it is not a task that is obvious or inevitable within worldviews that operate more fundamentally on Nature-Culture binaries. The hegemonic concept of (Human) Culture as separate from Nature renders the task of eco-social participation irrelevant at best or even absurd; the monologic perspective (returning to Hufford 2019: 28) cannot conceptualize the task of participation as long as it "sees nothing looking back" (ibid.). Learning eco-social participation, then, means first choosing to perceive and encounter something looking back, sounding back, touching back—to encounter ecological subjectivity. My adaptation of Turino's four-field model presented in this chapter serves as a tool for understanding how the conception or rendering of environmental sound figures into these choices and perceptions. In this regard, it makes a difference whether environmental sound is rendered as (resource for) a sonic art object, a high-fidelity data point, a presentational display, or a medium of eco-social participation.

Conclusion: Toward a Grotesque Study of Music

Throughout this dissertation, my intention has been to weave together several distinct lines of inquiry: the challenge of developing ecocentric approaches to the study of music, the inquiry into listening as a mode of more-than-human, eco-social participation, and the inquiry into the ecological subjectivity of landforms. The first and second of these, concerning ecocentric conceptions of music, musicality, and listening, are pertinent primarily to music and sound studies discourses, while the third, regarding ecological subjectivity, has mainly been addressed in the context of environmental humanities and ecofeminist discourses. The interdisciplinary task that this dissertation leans into, then, entails developing an ecocentric approach to music and musicality that accounts for the liveliness and being-ness of ecological subjectivity, and that takes seriously the implications of ecological subjectivities as musical subjectivities or as emergent sites of musicality. My analytical and practical focus on permaculture's particular conception of listening as a mode of eco-social participation grounds this somewhat expansive interdisciplinary task in a specific embodied practice and allows for an exploration of the metaphorical, phenomenological, and affective dimensions of how ecological subjectivity might be imagined and encountered as musical within the experiential context of listening. Permaculture is of course not the only cultural formation that engages ecological subjectivities, nor is it the only cultural formation that assigns musicality to more-than-human beings, and in this sense studies of ecocentric musicality can of course be situated in a variety of contexts aside from permaculture. With this said, I chose to situate my study in the context of permaculture specifically as a salient framework that prioritizes ecological subjectivity and eco-social participation through its own rhetorical and methodological emphases on composing-with and befriending places or

landforms, its embodied practice of listening for patterns in ecosystem expression, and its intentions toward developing the capacity to perceive musical expression in and within landforms.

The overarching structure of my dissertation reflects the demands specific to my project and its interdisciplinary contours. Namely, I found it necessary to introduce my inquiry into concepts of music and musicality gradually and only after establishing a thorough understanding of permaculture itself as a globalized social movement, agricultural method, and natureculture worldview. Thus, I began this dissertation with a focused account of permaculture, honing in on its particular ethical and ontological commitments, its entanglements with traditional ecological knowledges, and, relatedly, its privileging of listening to the land as a key principle and practice that constitutes the foundation of permaculture work. Having established permaculture's worldview and its historical and cultural contexts, I moved, in the second chapter, into a discussion of how permaculture pedagogy orients practitioners toward immersive encounters with and within the places or landforms they tend, and I set this orientation in dialogue with academic discourses on grotesque ecology and ecological subjectivity. In this dialogue I presented my situated analysis of how the sit spot exercise, as a central component of permaculture pedagogy, mobilizes concepts of observation and listening, and their correlates of sound, noise, and expression. I then proceeded in the third chapter to describe how immersive encounters with the grotesque ecological subjectivity of landforms are framed as musical in specific permaculture texts and discourses—how listening to and within grotesque ecological subjectivities can become a musical experience in permaculture contexts. I presented the concept of grotesque musicality—defined as an intention and capacity to listen for, perceive,

and engage with grotesque ecological subjectivities—in order to describe this particular kind of musical experience. In the fourth chapter I outlined a comparative framework, in direct dialogue with Thomas Turino's four fields of music, of four distinct conceptualizations of environmental sound: (1) studio audio art or soundscape composition, (2) high fidelity soundscape recording, (3) presentational, and (4) participatory. I positioned the concept of grotesque musicality within this framework as distinctly characterized by an orientation toward eco-social participation. The idea of eco-social participation operates in two crucial ways in the fourth chapter: first, as an application of permaculture's natureculture ontology, and second, as a theoretical corollary to Turino's focus on social participation and his concept of music as social life. From this approach, I articulate grotesque musicality as one way in which permaculture practitioners experience and participate in eco-social life.

Reflections on Sit Spot Listening

My theoretical articulation of grotesque musicality emerges in significant part from my reflexive engagement with the practice of sit spot listening. Over the course of my study, my daily sit spot exercises became a central aspect of my methodology and, relatedly, a crucial setting for developing my own experiential understanding of ecological subjectivity. One of the most significant challenges I encountered in these exercises was that of sustaining my mental focus on the garden's collective subjectivity and not latching onto the actions of specific organisms, such as birds, squirrels, insects, or plants. I found myself inclined to let my awareness settle on the bodies and actions of individual animals, plants, or fungi, and found it difficult to keep my awareness focused on the between-nesses that constitute the ecological subjectivity, the collective, holoent being-ness, of the garden. This inclination

would become particularly strong after about twenty minutes into the exercise as animals (mostly songbirds, jays, and squirrels) became more comfortable with, or unaware of, my presence and thus more active, making forays into the garden and into the foliage around me. In this sense, somewhat counterintuitively, I found it easier to take in the collective subjectivity of the garden in the moments of relative disturbance that followed my arrival, when animals were still mostly hiding from me, peering out from invisible perches and waiting for a collective sense of safety to reemerge. During this time—roughly the first half of my average sit spot exercise—I could perceive the presence of songbirds or squirrels only as rustles and shimmers in the foliage of the larger trees at the garden's edge. They were otherwise invisible, and this lent a quality of collective embodiment to my perception of the garden—the trees were physically vibrating with the hidden bodies of birds, bodies that would only individuate themselves from the trees in spells of calm, and who would merge again with the trees at the first sign of potential trouble.

Earlier in my fieldwork, however, I often found myself spending this first period of the sit spot in somewhat anxious anticipation—waiting for songbirds, squirrels, deer, dragonflies, and gophers to return, and to grace me with their presence. When they did, I would track their movements and expressions carefully, letting the rest of the garden fade into the background of my awareness. I experienced a habitual tendency, in other words, to perceive the garden as a place occupied and traversed by discrete, individual organisms—what Bakhtin would call classical bodies or what Deborah Kapchan would call legal bodies (returning to Kapchan 2015: 39)—as opposed to an animated and animating web of collective subjectivity emerging and merging across nodes of relationship. The exercise of the sit spot consisted (and still consists) then, for me, in repeated efforts to shift my

awareness from individual to collective subjectivities, from classical to grotesque bodies. Through iterative practice over the course of my fieldwork period, I noticed this shift become increasingly easier to make and to sustain. For example, in reflecting on my fieldnote description of hearing a hummingbird's flight as the sound of coyote mint flowering on the land (described in the second chapter's discussion of permaculture strategies for listening differently) I realized that, at that point in my practice, I had become decidedly more habituated to a grotesque mode of perception. My listening had become increasingly oriented toward the garden's sympoietic processes of becoming-with; what in permaculture parlance would be called composing-with, or what Anna Tsing would call contamination, the principle of transformation through encounter (returning to Tsing 2015: 28). In the context of permaculture intentions to perceive music in and within landforms, strengthening my capacity to sustain a grotesque mode of perception also became a practice of cultivating grotesque musicianship—of learning to discern patterns of expression and activity as they would emerge from grotesque bodies within the ecological subjectivity of the garden.

I will reiterate here that my articulation of grotesque musicality emerges from my own particular positioning as an interdisciplinary music scholar and permaculture student, and from my situated interpretation of permaculture texts, conversations, and practices. I recognize that it is my own tendency to seek musical being-in-the-world that fundamentally motivates my research and orients me toward the consideration of landforms as sites of musical expression and experience in the first place. In addition, my longstanding commitments to grassroots efforts toward ecological regeneration and eco-social justice compel me to stay with the trouble that is permaculture, and to situate my investigation of grotesque musicality in permaculture as a "timely intervention at the heart of contemporary

consciousness that we live in a naturecultural world" (returning to Puig de la Bellacasa 2018: 128). Just as not all music scholars share my fixation on issues of ecological subjectivity and eco-social justice, not all permaculturists share my fixation on musical being-in-the-world. As such, my argument regarding grotesque musicality is not that permaculturists, as a rule, consider either themselves or the landforms they tend to be grotesque musicians, but rather that a grotesque model of musicality is identifiable in permaculture discourse and that this particular musicality is enacted in permaculture listening practices. This kind of musicality can be engaged by scholars in a variety of ways, of which my research is just one. In the following closing section I will discuss some further directions and implications for grotesque studies of music.

Further Directions and (Inter)disciplinary Implications

My decision to use the concepts of music and musicality in my theorizing responds to and corresponds with permaculture practice, wherein approaches to listening to the land are informed partly by an aspiration to perceive a 'true music' in the patterns of growth and decay that shape landforms and constitute ecosystem relationships. As fraught as the concept of true music may be, it nonetheless merits serious inquiry and analysis as a formative aspect of permaculture philosophy and practice. It would be easy to dismiss or deconstruct the permacultural appeal to the musicality of landforms and ecosystem patterns as a romantic, anthropomorphizing metaphor (this being the almost inevitable charge put to any study that engages more-than-human agency, as discussed by Bastian et al. 2017: 7-9). Indeed, due to permaculture's proximity and entanglement with hegemonic Western cultural formations, slippage into romantic metaphor can be hard to avoid: familiar anthropomorphizing tropes

are more legible to most audiences, popular and academic alike, and discussions of more-than-human subjectivity quickly activate anthropocentric expectations. This is certainly the case when engaging the concept of music, wherein more-than-human or nonhuman musicalities are inevitably measured for their compatibility with normative Western concepts of music as a human art form, and other species are granted musical capacity only to the extent that ostensibly human attributes can be projected onto them (such as the capacity for rhythmic entrainment, relative pitch, or production of ordered phrases, see Taylor 2017: 212-215). Interestingly, however, I have found that permaculture articulations of the musicality of ecosystems do not often demonstrate this particular anthropomorphic tendency—the axiomatic expression of *listening to the land* does not, in the scope of my research, seem to assign to landforms a capacity to do things that human musicians do. Individual species, such as birds or crickets, may be identified as contributing recognizably melodic or rhythmic expressions within ecosystem patterns, but the collective ecological subjectivity of the landform operates on a different (more grotesque) order of musicality.

Moving beyond the critique of anthropomorphism, then, I advocate for a nuanced analysis of permaculture practice and discourse that remains open to the musicality of participatory immersion in ecosystem patterns and expressions without mapping familiar concepts of music onto those patterns and expressions. This analysis must, of course, recognize the influence of hegemonic forms of Western thought (i.e. anthropomorphism, anthropocentrism, the Nature/Culture binary) as a part of permaculture's historical and cultural context. Permaculture's particular natureculture ontology is intimately marked by its proximity to, and emergence within, globalized regimes of hegemonic perception (returning to Ochoa Gautier 2015: 189); the strategic reproduction of Western-Indigenous binaries (as

discussed in the first chapter) and the awkward, generative friction (in the sense theorized by Tsing 2005: 4) of Indigenous-settler collaborations toward eco-social justice, for instance, emerge in agonistic relationship to the persistent and pervasive logics of Western imperialism. In this sense, the permaculture aspirations to perceive music in landforms can be understood, in part, as an embodied practice of resistance against the perceptual imperatives of Western imperialism and its ecocidal, genocidal outcomes.

This cultural analysis is limited, however, to the extent that it ignores the lived experience of human engagements with ecological subjectivities and the cumulative effect of eco-social encounter. The corporeal intimacy of copresence with more-than-human entities reaffirms permacultural commitments to befriending and composing with land, as well as permacultural aspirations to perceive land as musical. Taking seriously the experiential reality of this kind of more-than-human musicality enables not just a fuller and more collaborative description of permaculture listening practice, but also a more fruitful dialogue with ethnomusicology and music and sound studies more broadly. As stated in the introduction to this dissertation, the intended practice, on the part of permaculturists, of encountering musicality in ecosystem interactions is directly relevant to disciplinary efforts not just to document ecocentric music cultures in the contested terrain of sustainability discourse, but also to efforts to build theoretical and methodological tools for more robustly ecocentric studies of music (Allen 2018).

The dichotomy between grotesque and classical or bourgeois ecologies, as described by Michael Bell (1996) and developed by Mary Hufford (2019), is helpful in thinking through this disciplinary relevance. In my introduction, I posed the question of how the concept of the grotesque helps to ground, or re-ground, permaculture concepts of a ‘music of

nature' in a counter-normative concept of nature or ecology. Throughout this dissertation I have moved from the conviction that, to the extent that permaculture operates within a grotesque conception of ecology, references to the musicality of ecosystems and the more-than-human world ought then to be understood and studied as references to a specifically grotesque musicality. But disciplinary definitions and understandings of musicality do not normally operate within a grotesque conception of ecology: the bulk of ethnomusicological theory, I contend, takes for granted a comparatively classical or bourgeois conception of ecology (following the dichotomy theorized by Bell 1994 and Hufford 2019) and, in this sense, of music, which can only be conceived and theorized within the anthropological order as a "cultural category" (Wong 2014: 348-350). Aaron Allen's frustration with the dearth of ecocentric approaches, in both musicology and ethnomusicology, can be attributed in significant part to this commitment to bourgeois ecology. Holly Watkin's critique of musicology's enduring tacit support of human exceptionalism (2018: 3) is also relevant here, and further demonstrates that this is an issue concerning not just ethnomusicology or the interdisciplinary terrain of ecomusicology, but music studies more broadly. In light of this cross-disciplinary concern regarding ecocentrism and anthropocentrism, the concept of grotesque musicality, as articulated in this dissertation in relationship to permaculture discourse and practice, offers a productive intervention and suggests a model for theorizing and engaging more-than-human worlds that includes, or allows for, the possibility of musical expression and experience. It is in this sense a concept that can help ethnomusicologists do the work of building more robust ecocentric theories and models.

The articulation of an ecocentric concept of music that is specifically grounded in a grotesque ecology also pushes against the pervasive epistemological commitment to

environmental sound as a resource for human musical creativity. Tacit commitment to environment-as-resource narratives, I suggest, informs much of the existing literature on music and environmental and cultural sustainability and can be understood as an aspect or outcome of the "continued insistence on the centrality of human practice and agency" (returning to Feld 2017: 84) that characterizes music studies. The concept that the natural world inspires human musical creativity is a captivating and productive one, but it also constitutes one of the more widely circulated and commonly accepted aspects of a more fundamental ideology that often re-inscribes a hierarchical anthropocentric Nature-Culture binary. This concept also tends to operationalize or take for granted a universal, undifferentiated, and ahistorical concept of the human; what Feld describes as the "anthropocentric belief in an essential human nature" that undergirds the foundational assumptions of Renaissance and Enlightenment humanism. This belief has real ethical and political consequences, and is directly implicated in the "the domination of people, species, and places" (Feld 2017: 94).

In confronting these consequences, both for the study of music and sound specifically and for the production of knowledge more broadly, it is crucial to acknowledge that the human, as a historically situated liberal humanist construct, "comes into formation through Black and Indigenous death in the Western hemisphere" (King 2019: 11), and that the boundaries of the human are continuously maintained through racialized violence. The interrelatedness of ecological, social, and racial hierarchies and the binary logics of dominance and subordinance, while more squarely in the wheelhouse of Black diaspora studies (King 2019: 79-80; Smith 2020: 118), Indigenous Studies (Smith 2008: 25-26, 55-56; Harjo 2019: 10-11; Robinson 2020), posthuman geology (Yusoff 2017: 53-54), and critical environmental justice

(Pellow 2016: 3, 2018:79, 97), quickly become relevant to music and sound studies once concepts of ecology and more-than-humanness are engaged. Reciprocally, questions regarding the ecological and social boundaries of music and musicality quickly become relevant to interrogations of the racialized construction of the human subject. Musicality is often taken for granted in popular discourse as a fundamental aspect of the universalized human subject, as one of the few things that makes a human a human. As a pillar of human exceptionalism, music is then implicated in structures of (de)humanization and racialization, particularly in colonial contexts where "the question of how to distinguish between human and nonhuman sounds [has] troubled, in different ways and for different reasons, the many people that originally populated, willingly came, or were forcefully brought" (Ochoa Gautier 2014: 5, also see Ochoa Gautier 2014: 167).

One of the questions that the concept of grotesque musicality has to answer to, from this discursive vantage point, is how it might contribute to interdisciplinary efforts to challenge the undifferentiated concept of the human being. This is an inquiry that warrants further dedicated study beyond the scope of this dissertation: my provisional suggestion, however, is that the concept of the grotesque has potential to act as an unmooring force on music, first by prompting a recognition of the ways in which music is normally operationalized in tacit support of human exceptionalism (returning to Watkins 2018: 3; Feld 2017: 94) and then by offering a model for boundary refusal or transgression. Perceiving and experiencing the grotesque entails a radical reorientation toward the ways in which bodies and beings become one another, and toward the ways in which death and life coincide in and collectively co-constitute bodies and places. When music is theorized in this context, its functionality as a definitive and disciplining aspect of the discrete, bounded human subject becomes troubled.

Theorized as grotesque, the music concept becomes less available as a tool for determining or reinforcing boundaries between human and nonhuman, and between dominant and subordinate.

Locating music within grotesque ecologies also confounds normative expectations attached to music as an object of study and experience: basic terms of engagement like pitch, melody, harmonic relationship, and rhythm, seem to be missing entirely or warped beyond use. The polyphony of the garden holoent resists melodic analysis—even to refer to the many sounds of the garden as polyphonic or polyrhythmic imposes an analytical expectation that holoent expressions disappoint or subvert. Following and expanding on Mary Hufford's assessment of the grotesque as resisting meaning, I suggest that the musicality of holoent interactions resists the application of analytical tools that take for granted a classical or bourgeois conception of music: grotesque musicality is hidden (returning to the etymology of the word) from normative musical analytical approaches to the extent that these approaches seek to isolate and derive meaning from sonic structures abstracted from the holoent subjectivities that produce them. While this presents certain practical challenges for scholarly research, these challenges are by no means new to ethnomusicology, and are even somewhat compatible with the discipline's general orientation away from formal musical structures and relative distrust of traditional musical analysis (Wong 2019: 30, Rice 2017: 167, though see Solis 2012: 533 for a rebuttal). Deborah Wong's articulate refusal of traditional musical structures and her reframing of music as "part of a range of expressive behaviors that are beautifully and exuberantly difficult to contain" (Wong 2019: 30), for instance, aligns with and allows discursive space for the subversive qualities of the grotesque. Her reflections on the problems and limitations of traditional musical analysis, while grounded in her study of

Asian American taiko, speak well to the context of permaculture listening practices and the more-than-human, grotesque musicality that they intend toward.

Grotesque musicality is revealed or experienced in moments of copresence with holoent subjectivities, and in this way can be understood as an affective state that human listeners achieve through specific forms of enculturation or training in eco-social participation and in the perception of ecological subjectivities. The sit spot exercise, for instance, and the rhetoric that surrounds it, can function as a key pedagogical device for cultivating grotesque musicality amongst permaculture students and practitioners, as I have endeavored to demonstrate through reflexive analyses of my own sit spot listening experiences. In keeping with Wong's critical discourse, these practices of participatory eco-social listening, and the expressive behaviors that they attend to, "are fundamentally at odds with the principles and ideologies of music analysis" (ibid.). Their study necessarily entails a more committedly experiential or phenomenological approach that focuses on corporeal co-presence and on eco-social participation as a learned and learnable skill (returning to chapter four's closing discussion). Ecosystem patterns are indeed beautifully and exuberantly difficult to contain—they are lively and deathly in the same pulse and their subtle unfoldings demand an intensity of attention and sustained whole-body awareness from the aspiring listener, as well as an ontological reorientation toward grotesque bodies and ecologies.

Perceptual (and analytical) reorientation toward, and embodied participation in, grotesque ecologies disrupts "the ontological reliance on music as a cultural category" (Wong 2014: 348) by repositioning music as a thoroughly naturecultural or eco-social category of experience and expression. Whereas construing music as a cultural category places the "mantle of command" (returning to Hemenway 2009: 134-135) and responsibility on the

(undifferentiated) Human to create and control, construing music as a naturecultural category invites a shedding of this mantle of command and a sharing of the responsibilities concerning musicality with and within ecological subjectivities. Riffing on Donna Haraway, it matters what muses muse music. Positioning music within holoent forms, and positioning holoents as muses (as musical, musicking subjectivities and emergent sites of musical expression), changes the eco-social stakes of music and music scholarship. Put simply, music scholarship becomes directly concerned with place-specific ecosystem patterns and the holoent assemblages that express them, as well as the humans who listen and participate within these assemblages. My own descriptions and reflexive analyses of ethographic engagement with my garden as a site of ecological subjectivity and musicality offers one example of this kind of research; further studies might develop or interrogate the implications presented above in this concluding section, such as the question of how the concept of grotesque musicality might contribute to interdisciplinary efforts to challenge the undifferentiated concept of the human being and its racializing logics, or the problem of musical analysis in relationship to grotesque musical experience and expression. To this end, rather than abandoning or rejecting music as a powerless and unproductive cultural category (as advocated in Wong 2014: 349), I suggest once more that the development of grotesque modes of perception and study can allow for a generative re-inhabiting of music as a concept and as a relational, eco-social experience.

I will clarify, in conclusion, that while I understand the concept of the grotesque to hold generative potential for ethnomusicological research and discourse (including the related subfield frameworks of ecomusicology, acoustemology, acoustic multinaturalism, and sound ecology), I am not proposing or conceiving of grotesque musicality as the object of a separate

subdiscipline, but rather as a conceptual tool that can dialogue with and expand the already rich constellation of ecologically-oriented scholarship in these disciplinary orbits. The concept of the grotesque fits nicely under the rubric of acoustemology, for instance, which "asks us [music and sound scholars] to consider the human as but one life form, one organic possibility among many" (Feld 201: 94), as well as under the rubric of ecomusicology, which, as Jeff Todd Titon describes in relation to his concept of sound ecology, prompts scholars "to think not narrowly of music but of the flow of all sound in the environment" (Titon 2020: 235). In agreement with Michael Silvers' assessment of the discipline, "I believe ethnomusicologists have long been doing this sort of [more-than-human, ecologically-oriented] work," and that "we should continue to do so in a concerted manner" (Silvers 2020: 217). My articulation of grotesque musicality is offered toward continued and expanded disciplinary engagement with the question of more-than-human musicalities, and with the question of what more-than-human entanglements mean for the study of music.

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