ROUTLEDGE RESEARCH IN MUSIC

Current Directions in Ecomusicology

Music, Nature, Environment

Edited by
Aaron S. Allen and Kevin Dawe

Current Directions in Ecomusicology

This volume is the first sustained examination of the complex perspectives that comprise ecomusicology—the study of the intersections of music/sound, culture/society, and nature/environment. Twenty-two authors provide a range of theoretical, methodological, and empirical chapters representing disciplines such as anthropology, biology, ecology, environmental studies, ethnomusicology, history, literature, musicology, performance studies, and psychology. They bring their specialized training to bear on interdisciplinary topics, both individually and in collaboration. Emerging from the whole is a view of ecomusicology as a *field*, a place where many disciplines come together. The topics addressed in this volume—contemporary composers and traditional musics, acoustic ecology and politicized soundscapes, material sustainability and environmental crisis, familiar and unfamiliar sounds, local places and global warming, birds and mice, hearing and listening, biomusic and soundscape ecology, and more—engage with conversations in the various realms of music study as well as in environmental studies and cultural studies. As with any healthy ecosystem, the field of ecomusicology is dynamic, but this edited collection provides a snapshot of it in a formative period. Each chapter is short, designed to be accessible to the nonspecialist, and includes extensive bibliographies; some chapters also provide further materials on a companion website. An introduction and interspersed editorial summaries help guide readers through four current directions—ecological, fieldwork, critical, and textual—in the field of ecomusicology.

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1 Ecomusicologies

Aaron S. Allen and Kevin Dawe

WHAT IS ECOMUSICOLOGY?

The question deserves a succinct answer, such as: Environmental studies plus music/sound studies equal ecomusicology. Our conceit, however, is that one plus one equal more than two: There is no one ecomusicology but many ecomusicologies constituting a dynamic field. One may wander this field leisurely to explore its interesting and relevant areas, or one might prefer to head in a particular direction. Twenty-two authors provide nineteen brief essays, some of which continue with further resources in an online supplement (http://www.ecomusicology.info/cde). As your "field guides," the editors of *Current Directions in Ecomusicology* (*CDE)* provide a volume introduction, which continues throughout the book in four directions (fieldwork, ecological, critical, and textual), plus a glossary, all of which provide a map of the territory as we find it circa 2015. However, the observer effect is surely valid here: Our collective commentaries of the field will change the lay of the land.

Rather than just a collection of separate vignettes that provide exemplary content, this volume provides a map to navigate this complex field. Four basic points cohere *CDE:* 1) We emphasize making *connections* between the authors and essays in this volume and between the topics of ecomusicology and other fields and disciplines. 2) As in any healthy ecosystem, *diversity* provides strength and resiliency, and we have endeavored to include various perspectives and divergent views. 3) The *environment* (nature)—its study via the science of ecology and/or the interdiscipline of environmental studies—is central to ecomusicology as a branch of music/sound studies, the disciplines of which are usually in the arts and humanities. 4) And rather than a discipline or an interdiscipline (as are musicology and environmental studies, respectively), ecomusicology is best understood as a multi-perspectival *field*.

This introductory essay elaborates on those four points. But before doing so, we should provide a brief attempt at answering the question: What is ecomusicology?

Allen (2014) defines ecomusicology as, "the study of music, culture, and nature in all the complexities of those terms. Ecomusicology considers musical and sonic issues, both textual and performative, related to ecology and the natural environment." Titon (2013) elaborated on that definition (which had been available years before its publication date, including in Allen et al. 2011)

by explaining ecomusicology as, "the study of music, culture, sound and nature in a period of environmental crisis." Consider this brief etymology of ecomusicology: The suffix "-ology" means "study of," and indeed ecomusicology is a field of study (rather than, say, of performance); the central "-music-" provides the object of our study, but we must acknowledge that this complex term relating to sound has many contested meanings due, perhaps, to its English roots (originally from Greek via Latin and French) meaning products of the nine Muses; and the prefix "eco-" is equally complex, with meanings ranging from the popular "green," "sustainable," "environmentally friendly," or "natural" to the more scholarly economics or ecology, both of which share the Greek root *oikos*, meaning household. But here an important clarification is necessary: Rather than as "ecological," the "eco-" prefix is better understood as "ecocritical," referring to ecological criticism, which is the critical study of literary and other artistic products in relation to the environment (and such cultural criticism typically takes ethical and/or political approaches). Furthermore, the study of music is often split into subfields, including historical musicology and ethnomusicology; the former is sometimes referred to simply as musicology, but the "musicology" of our ecocritical musicology is neither one nor the other (although ethnomusicology's critical, fieldwork, and process-oriented perspectives have a particularly strong resonance throughout *CDE*). Ecomusicology is not musicological or ethnomusicological; rather, it is both and more. Being more than the sum of its parts is possible because of the great complexity of the keywords involved in ecomusicology: music and sound, culture and society, nature and environment.

This terminological complexity is not intended to create a specialized, compartmentalized discipline that keeps out newcomers, nor does it entail some singular monolithic definition that disciplines ecomusicology. Rather, this complexity is intended to demonstrate the multifarious meanings that can be denoted and connoted by ecomusicology—and it does entail an understanding of many ecomusicologies existing simultaneously in dynamic relationships. Because the terms are complex we must keep talking about them. With an understanding of terminological complexity in mind, and accepting for the moment a need for concision to aid in understanding, we can build on the etymology provided in the previous paragraph: Ecomusicology is the critical study of music/sound and environment. Or we can return to the first sentence above: Ecomusicology is the coming together of music/sound studies with environmental/ecological studies and sciences. Given the diversity of meanings for those disciplines and interdisciplines, a useful and productive way to conceptualize the field of ecomusicology is as *ecomusicologies*.

ECOMUSICOLOGY: A BRIEF HISTORY

We are not the first to use the plural ecomusicologies to map out a place for the related work of the authors here and elsewhere. This volume grew out of

the first international ecomusicology gathering, Ecomusicologies 2012, held in New Orleans on October 29–30, 2012 (while Hurricane Sandy devastated the east coast of the United States), prior to the joint meeting of the American Musicological Society, Society for Ethnomusicology, and Society for Music Theory (see http://www.ecomusicologies.org). But *CDE* is not a conference proceedings, for there are many excellent scholars who could neither attend that meeting nor participate in this collection; their names and thinking, however, are found throughout the many useful bibliographies in this book. Nevertheless, the conference was an opportunity for conversations that improved the essays and provided connections among the authors in *CDE*. This situation also illustrates an important element of the nascent field of ecomusicology: Conversation, dialogue, collaboration, and community are central aspects of this field, more so than in typical, solitary humanistic inquiry.

Few collections of articles on ecomusicology exist side by side in one place as they do here. Three journals published short collections: Allen et al. (2011), Ingram (2011), and Kinnear (2014). Three significant monographs—by Ingram (2010), Von Glahn (2013), and especially Pedelty (2012)—have addressed ecomusicology, as have the articles by Rehding (2002), Toliver (2004), Guy (2009), and Allen (2012c). Furthermore, there are studies that could be considered ecomusicological but that do not use the term (e.g., Von Glahn 2003, Grimley 2006, Titon 2009, and the books reviewed in Allen 2012b). From these citations, one could assume that ecomusicology is a twenty-first-century phenomenon. Yet there are precedents: Morris (1998) engaged early on with the environmental work and thinking of John Luther Adams (see also Feisst 2012); Feld (1993) talked of an "echo-muse-ecology," and his research from the 1970s may be considered a classic ecomusicological study (Feld 2012); Schafer (1969, 1994) is a pioneer in soundscapes and acoustic ecology (see also Järviluoma et al. 2009), and in relation to his work Troup (1972) published what is likely the first use in print of the term ecomusicology. Earlier still, Gardiner (1832) is perhaps the first book explicitly on music and nature. Nevertheless, related concepts are found widely in global history: The Ancient Greek "Harmony of the Spheres" describes the harmonious musical proportions of the planets and how they order the universe, the Hindu Vedas have a creation story in which sound is fundamental, and there are various acoustemologies (sonic ways of knowing the world, Feld 1993) that are neither Western nor Eastern. Although music and sound studies may be late in the "greening" of the humanities (Allen et al. 2011), we are neither the first nor are we alone in identifying the topics and themes that reflect this recent flourishing of ecomusicology. But we do intend to elaborate on and deepen the conversation.

The term ecomusicology has had currency, albeit with ambiguity, since the late-twentieth century. But *CDE* provides more than just a working definition for ecomusicology by showing how scholars of sound and music are responding to current crises and challenges of the modern world. Ecomusicology has interdisciplinary relevance to the related fields of literary

ecocriticism and environmental history, the sciences of ecology and psychology, the interdiscipline of environmental studies, and other academic areas that include the study of ethics in relation to people and planet.

The relevance of ecomusicology comes from its attendant possibilities for adjusting cultural and environmental norms, particularly via teaching. Music and sound can be further media to communicate important ecological ideas and encourage action regarding environmental and sustainability issues. Our contributors have commented frequently on the importance of *CDE* as a pedagogical resource. Although we maintain a high level of scholarly discourse throughout, we do believe that individual essays and even the volume as a whole will be useful in ecomusicology or "music and environment" courses. *CDE* can be both the seasoned scholar's and the new student's field guide. We hope it will inspire further such collections and textbooks, which will continue the dynamic shifting of the field.

CDE is not the first or last word on ecomusicology, for there still remains much to be done. Consider that there is still a need for basic research: from lists of environmentally themed works for concert programming and types of sonic practices that can be deployed in everyday experiential and communicative contexts, to more advanced explorations of emerging issues and topics to in-depth examinations of particular genres, places, and periods. The multi-disciplinary medium of film is a particularly rich realm for ecomusicological study (see Pedelty 2012, 187ff.; Mark 2014). And of the many topics and areas missing from this collection, consider that there is no discussion of Western music prior to the nineteenth century (but see Leach 2007) and that many geographical areas are not included here. Much remains to be done, and many connections remain potentially fruitful.

MAKING CONNECTIONS

The essays in this volume reflect a growing interest among scholars to question the boundaries of established areas of inquiry into sound and music. Rather than heading off in separate directions, however, there are many connections between the issues and essays in *CDE* and between this volume and scholarship elsewhere. We have divided *CDE* into four groups of essays that reflect the key directions identified within these (and other) ecomusicological studies: ecological, fieldwork, critical, and textual. These four sections provide a convenient framework to highlight general topological features in the field of ecomusicology. The sections are in no way mutually exclusive; in fact, many essays could belong a different section, demonstrating further the connectivity of the field but also the artificiality of drawing this intellectual map for it.

This opening essay continues in four short introductions preceding the four parts of the volume. In those, we provide an overview of the part,

summaries of each essay, and a selected bibliography. In the summaries of the essays, we also describe connections between the essays of the volume and between individual essays and broader scholarly currents. In some cases, these connections come from our engaging with all the essays in *CDE*, while in other cases it is the result of connections the authors crafted themselves either by happenstance or through active collaboration. (Individual essays also provide cross-referencing.) We could be accused of being somewhat excessive regarding how frequently and redundantly we draw these connections, but we believe that identifying them (however concisely) is of central importance to illustrating the contributions of the authors and of the field of ecomusicology. Two connections that we likely under-emphasize, however, are those that are prominent and ubiquitous, if often implicit, throughout the volume: the prevalence of engagements with place and the critique of the nature-culture binary.

Despite origins in literary and music studies, ecomusicology is more than just artistic inquiry. Ecomusicology is part of the movement to champion a more connected place for humanistic and posthumanistic scholarship, as the environmental humanities are doing. A bigger and more ideal goal is the fusion of disciplines—not just the collaboration or mutual citation, but the amalgamation of scientific, artistic, and humanistic disciplines—that can be understood as breaking out of the rigid binary of C. P. Snow's "two cultures" (1959). Snow believed that the intellectual life and practical aspects of Western society were split into literary intellectuals and physical scientists: "Between the two [is] a gulf of mutual incomprehension—sometimes (particularly among the young) hostility and dislike, but most of all lack of understanding" (Snow 1965, 39). Various fields of environmental, sustainability, gender, cultural, justice, and racial studies have long argued to break down such rigid disciplinary barriers and instead build bridges. Ecomusicology continues that trend and could be considered part of the "third culture" movement that stems from Brockman's (1996) efforts to improve scientific communication. Music and sound, however, are now being incorporated in new ways that make communication less monological and more dialogical, both between and beyond humans. *CDE* provides a snapshot of the current phase of this exciting conversation.

Although Allen (2012a, and in Allen et al. 2011) has addressed the issue of the "two cultures" and "three cultures" in the context of ecomusicology, he has not suggested ways in which they might work together. That is, how might we—ecologists and anthropologists, environmentalists and musicologists, scholars and communities—become co-investigators? Garrard (2004) summarized this problem as, "the difficulty of developing constructive relations between the green humanities and the environmental sciences" (178). The essays in this volume begin to clear paths for such work. Unlike early and more recent pioneering publications (Troup 1972, Rehding 2002, Allen et al. 2011, Feld 2012), the essays in this volume show the potential for ecomusicology to provide an intellectual and ethical umbrella for new and

innovative areas of scholarship (Pedelty 2012 does consider ethical issues). In *CDE* these include: ecoethnographic justice (Mark); the retention of biodiversity for future generations via sustainable musical instrument making (Dawe, Ryan); the impacts of protest in, by, and/or on song (Sonevytsky and Ivakhiv, Pedelty); the co-survival of indigenous cultures and ecologies (Guyette and Post, Simonett); the reinterpretation of canonical (Titon) and non-canonical figures (Feisst, Von Glahn); the mutual interests of music psychology and ecological psychology (Windsor); the contributions of non-Western cultures to ecomusicological (and broader Western) thought (Seeger); unethical exploitation of music and natural resources (Stimeling); critical theory, ecocritical, and postcolonial approaches (Edwards, Ingram, Drott); the acoustic commons (Hui); and our ecological imaginations (Allen). Furthermore, two particularly bold scientist-humanist pairings show that qualitative and quantitative research methods are not mutually exclusive (Boyle and Waterman) and that scholars of ecology and music can work together (Guyette and Post).

STRENGTH IN DIVERSITY

The numerous authors, their many disciplines and research areas, and the many (relatively short) contributions they provide for *CDE* are a result of the ecological metaphor that inspires this field guide: strength in diversity. The premise that biodiversity is good "cannot be tested or proven," according to Soulé (1985, 730). Soulé is a founder of the field of conservation biology, which has some parallels with ecomusicology in its melding of the objective (science) with the subjective/normative (ethics and aesthetics). The idea that biodiversity is good—that an ecosystem with a great variety of living organisms is resilient and sustainable even as it is dynamic and not static—is a guiding metaphor for ecomusicology (although most authors in *CDE* move well beyond metaphor). A significant value of *CDE* is its motley collection of viewpoints regarding disciplinary backgrounds, terminological meanings, and sonic materials.

The contributors to *CDE* are scholars working in a range of academic disciplines: ethnomusicology, environmental studies, and musicology, primarily, but also anthropology, communication studies, ecology, film and television studies, geography, history, and psychology. And while we find a relatively good balance of gender and professional rank among our contributors, we are overwhelmingly white Euro-Americans; such a problem reflects our disciplines and academia more generally, yet providing greater cultural diversity in our field is a problem our community must address to achieve the ideals that ecomusicology promotes.

The terminology of ecomusicology is diverse. Of the three sets of terms music/sound, culture/society, and nature/environment, any two sets could suffice in some contexts (e.g., "music and nature"), but the trio increases, and thus diversifies, the possibilities. As such, ecomusicology helps erode those

curious and problematic binaries—or, at the least, it helps reveal the values that defend and/or challenge such binaries. Furthermore, the meanings of those individual terms are diverse and contested (more on which below).

The essays in *CDE* engage with a wide variety of sonic phenomena made by humans and non-human animals as well as inanimate objects and events. These include: pastoral soundscapes in the English countryside, Mongolian steppes, and the pages of Italian periodicals; indigenous ceremonies in Brazil and Mexico, and processes native to the human mind; forests and musical instrument workshops in Australia, Uganda, and Scotland; performance in pubs, calendrical songs in radioactive exclusion zones in Ukraine, and a reggae band on a countercultural Canadian island; radio on buses in Washington, D.C., and electronic compositions based on NASA data; art music from Minnesota and France, and global pop from Mexico; television commercials and telegraph harps; and birds and mice in Mexico, Italy, and the Amazon, and crickets in Japan. Such diversity is representative of ecomusicology because soundscape artists, music-based scholars of literary criticism, media and cultural studies scholars, historical musicologists, musical anthropologists, and bioacousticians all have wide-ranging interests regarding sounds of inanimate objects (from tectonic plates to foghorns to the aurora borealis) and animate beings (from birds to insects to humans).

Breaking down disciplinary and terminological barriers and expanding the realm of sounds have been relevant to the interests of many ecomusicological pioneers, to whom we owe so much. R. Murray Schafer (1969, 1994) is both composer and musicologist. Steven Feld (1993, 2012) is an anthropologist, musician, and composer. Bernie Krause (1998, 2000, 2002) is a recording artist with a Ph.D. in bioacoustics. David Rothenberg (2002, Rothenberg and Ulvaeus 2001) is a philosopher and musician who worked closely with deep ecologist Arne Naess (Naess and Rothenberg 1989). Denise Von Glahn (2003, 2013, Allen et al. 2011, Allen et al. 2014) combines musicology with American history and women's studies. Jeff Titon (2009, 2013, Allen et al. 2014) is an ethnomusicologist, musician, folklorist, and fiction writer. David Ingram (2010, 2011) works in film, television, and literary studies. Mark Pedelty (2012) is an anthropologist, journalist, musician, and historian.

It should not be surprising, then, that an enclosure for ecomusicology is difficult to construct. With connections between music/sound, culture/society, and nature/environment, the field straddles the arts, humanities, social sciences, and sciences. Scholars interested in ecomusicology continue to develop the critical and interdisciplinary perspectives ignited by "the new musicology" of the last quarter of the twentieth century; they explore the significance of sound and music in human cultures and societies worldwide while also focusing attention on the wider soundscape of and impacts on the planet we call home. In considering how Earth's landscapes, environments, and acoustic ecologies are recognized, engaged, captured, and portrayed through sound and music, these scholars inevitably connect their work with environmental

studies, which itself is an amalgamation of many connected disciplines that has been growing since the 1970s. Scholars of music and sound also have the power to make contributions to current research paradigms and global issues affecting humans and the environment. After focusing too long on the supposedly "unique" human trait of musicking, and after some necessary and appropriate hand-wringing (Guy 2009), planet Earth and its many complex systems and problems have begun to take center stage in music and sound research (Allen et al. 2014). Doing so helps humans understand more clearly how we are part of and how our survival depends upon the Earth.

ENVIRONMENT/NATURE

Ecomusicology does not yield well to attempts at a simple definition, notwithstanding our attempt at the beginning of this essay. A starting point is that it is a scholarly field at the intersections of sound/music, society/culture, and environment/nature. But these are extraordinarily difficult terms to tie down, as Williams (1985) and Worcester (1993) remind us. We cannot reify the key terms of ecomusicology, for to do so would be to channel a freely meandering stream: That unencumbered stream is an important aspect of ecosystem health. But we can provide a little more clarity (or confusion, as the case may be) by considering the terms music, culture, and nature. What is particularly important for ecomusicology, however, is this last term—considerations of music and culture, or sound and society, are already standard in music/sound studies, but adding a robust understanding of environment/nature is central for ecomusicology.

Work in ecomusicology is on a music-sound continuum: the ecomusicological objects and/or subjects of study are parts of complex systems involving a wide range of sonic phenomena. The difference between "music" and "sound" here has more to do with taste and cultural value than acoustic facts. Ethnomusicologists have long problematized "music" (Nettl 1983, 2005); it remains a difficult word to apply universally because some cultures do not have a word for what we in the West would describe as "music" in its more restricted sense. In fact, the root of the word, the Greek *mousikē*, did not mean what is commonly meant today but was, instead, a union of song, dance, and word with social, religious, and educational significance (Murray and Wilson 2004). As such, we can understand its Ancient Greek origins as a referent to the works of the Muses. Even in modern-day Greece many communities would talk of *glendi* or communal celebrations involving musicians, dancers, and poetic recitation (Herzfeld 1985, Cowan 1990, Dawe 2007). Popular music studies regularly connect poetry and dance with music as well as the festivals and contexts for so much modern entertainment. Referring to "sound" provides a more encompassing perspective, but we also must be cognizant of moving away from a clarity that some might expect (however problematically) with "music."

The problems of definition continue, particularly because the keywords in play here are some of the most complex in the English language. Williams (1985, 87ff. and 219ff.) said as much for "culture" and "nature." Culture is conceived differently depending on linguistic and disciplinary backgrounds; early in the English language, what was a process (the tending of natural growth, as in cultivation) became a metaphor (for that very cultivation) and then developed to the more abstract concept we have today. Nature has at least three areas of meaning: an essential quality, the inherent forces directing the world and/or humans, and the material world (with, or sometimes more problematically, without humans).

Clarification of ecomusicology's keywords is important (for *CDE* in particular and ecomusicology in general). This would not seem a strange preoccupation for Sebeok (1977), for example, whose pioneering work in human and (other) animal communication synthesized research across a wide range of disciplines, moving from biological to literary semiotics and involving the work of bioacousticians and linguists. This and other perspectives are helpful to understand the background of the essays in *CDE*, most of which deal only briefly with complex terms that have extensive and contested histories; the appended glossary of keywords helps in some respects, but we also must resist the temptation of terminological distraction at every turn. Most important presently, however, is some further explication of the environment/nature component of ecomusicology. In essence, doing so aids in understanding the "eco-" prefix, and so we mention here several of our own guides to this complex field of study.

Soper (1998) distinguished nature from scare-quoted "nature" to tease apart the referents to the reality of the natural word in the former and the referents to the postmodern construction of the latter. Coates (1998) explored the great variety of uses of the term throughout history. Furthermore, Nature (capital "N") can be used in a rhetorical way to associate the term with an apparently supra-human concept of the term, as distinct from the mere stuff of life. For example, the transcendental Nature of Ralph Waldo Emerson or of John Muir is distinct from the utilitarian natural resources extracted from nature of John Stuart Mill or Gifford Pinchot (see Callicott 1994; a similar distinction is made in an ecomusicological context between preservation and conservation in Toliver 2004). Hinchliffe (2007) clarifies this as well: "'Nature' with a capital N [… is] the idea of a fixed and single world, totally outside systems of understanding and acting" (3). Ecology is an academic, scientific discipline that conducts objective research into real-world nature (sans scare-quotes); but ecology is also used popularly to refer to sustainability issues or, just simply, nature. And sustainability is a concept that has become slipperier as it is co-opted and bandied about in various politically correct and greenwashing ways, despite many demonstrably noble attempts to do good by it. Furthermore, "environment" 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." (An example of this problematic perspective is the "built environment," i.e., architecture, which is made by and for humans of both humanly produced and naturally provided materials such as plastics and stone.) There is, to paraphrase Schama (1995), a necessary union between nature and culture, between environment and human. It is not productive to construct binaries—unless they are used heuristically, then complicated, and ultimately torn down. Bateson (1972) presaged this call, calling for "rigor and imagination" in the study of these concepts (1979, 239). Ecomusicology, its components and influences, its practitioners and adherents, should be subject to both rigor and stretches of the imagination, for if established definitions (however recent and however tenuous) become set in stone, then the field will stagnate. (See Titon 2013 for an excellent further unpacking of the term nature for ecomusicology.)

Literary ecocriticism has spent the past few decades problematizing binaries such as nature-culture and taking seriously figures such as Bateson (1972, 1979) and Eisley (1969). Both Bateson and Eisley ranged widely across the sciences, social sciences, and humanities—as does ecomusicology. We are not alone in the humanities in taking this approach. Ecocritics have examined the mediating influence of film, literature, poetry, advertising, and other cultural products on our understanding of nature (Glotfelty 1996, Garrard 2004). Historical and ethnographic disciplines of musicology have a history of borrowing methods and approaches from literary studies—and a history of somehow always arriving late (as with gender, race, and politics). This influence from literary studies and ecocriticism on ecomusicology is part of that trend.

FIELD, NOT DISCIPLINE

The essays in *CDE* are a diverse collection of connected approaches to this nexus of music/sound studies and environmental studies. As such, ecomusicology is best understood as a multi-perspectival field rather than a defined discipline with a prescribed and rigid method. On the one hand, such a claim is descriptive of ecomusicology as we find it in the wider literature, not just as exhibited in this volume. But on the other hand, the claim for ecomusicology as a field is prescriptive because it relates to a broader gesture we hope this collection can make.

Consider the following proposition: How do humanists contribute to confronting some of the gravest threats to humanity, and how, in particular, can music scholars contribute to the study of the environmental crisis? (For related questions, see Allen et al. 2011, 392.) As Worster (1993) has argued, "Natural science cannot by itself fathom the sources of the crisis it has identified, for the sources lie not in the nature that scientists study but in

the *human nature* and, especially, in the *human culture* that historians and other humanists have made their study" (27). Echoing Worster are Conway, Keniston, and Marx (1999), who reflect on the fact that, "many, perhaps most, of our most pressing current environmental problems come from systemic socioeconomic and cultural causes and for this reason their solutions lie far beyond the reach of scientific or technical knowledge" (3).

Do scholars of music and sound have a role to play in that endeavor? Rehding (2002) argued that studies of music and nature opened up a "cornucopia" of issues: musical aesthetics, the decentering of the musical work and the authority of the composer, aspects of legitimation, etc. "Ultimately," he concluded, "the study of nature urges us to pose anew the old question: what is this stuff called music?" (319–320). While ecomusicology seems poised to contribute to music studies in general, can ecomusicology be a rigorous endeavor that engages with serious questions that go beyond such disciplinary issues? As the recent *Grove* definition concluded, "ecomusicology can offer fresh approaches to confronting old problems in music and culture via a socially engaged scholarship that connects them with environmental concerns" (Allen 2014). The contributors to *CDE* demonstrate that ecomusicology can contribute to larger cultural and scholarly dialogues that bridge traditional disciplinary boundaries.

The distinctions between "field" and "discipline" are important here. A field is a place where many disciplines come together, cross-pollinate, provide mutually beneficial services, and stimulate further growth and change. Thus, the inter-, cross- and/or trans-disciplinary approach we take to a subject area—namely, studies of culture and nature relations through the critical analysis of music and sound production and products—should be distinguished from the creation of a new discipline, which would be distinguished by a paradigm that coheres on a particular set of related questions or problems and a generally agreed-upon methodology. Ecomusicology does not yet, and perhaps should not ever, have such disciplined agreement. Furthermore, this idea of the field is central to scholars in both ecology and ethnomusicology as that place where they conduct their research. *CDE* is targeted both to those seeking to understand the literal/physical field they are entering and to those scholars desiring an armchair view of the whole. In other words, and to reference two of the competing notions of nature we discussed above, this volume provides an overview and in-depth, multiperspectival examination of ecomusicology both for those who work in, on behalf of, and with nature as well as for those who want to understand further the nature of ecomusicology.

Disciplines are "language-using communities" that connect writers, texts, and readers and that have "particular ways of doing things" (Hyland 2011, 179). Related to this understanding is a hallmark study in music scholarship that sought to bridge internal disciplinary splits (Bergeron and Bohlman 1992). Musicology, ethnomusicology, and music theory are different disciplines with separate professional societies joined by a common interest

(music), but they approach it with different practices. Bergeron invokes Foucault's (1977) understanding of "discipline" as the ordering of bodies, but she also employs the term "field" rather loosely, sometimes referring to those music disciplines as fields: "The scholarly 'fields' represented by authors in this book [i.e., Bergeron and Bohlman 1992] are, of course, enclosures in very much the same sense, distinguished from one another principally by the nature of the conduct they foster. A field is, in other words, a site of surveillance, a metaphorical space whose boundaries, conceived 'panoptically,' are determined by the canon that stands at its center" (Bergeron and Bohlman 1992, 4). We differ in our use of field, and so we must distinguish "field" and "discipline" to clarify their use. We maintain the meaning of "discipline" as a community that shares ways of doing things—and in this sense referring to those common disciplines as departmentalized (for better or worse) into faculty groupings in institutions of higher education. But a "field" is not a discipline; rather, a field is a place (if it is an enclosure, then it is a porous one) for diverse disciplines to enter into dialogue.

Working in diverse ways with established fields, disciplines, and interdisciplines, ecomusicology seeks an integrative approach that is less constrained or convinced by boundaries that discipline or by attempts to turn peaks of excellence into ideological mountains. Currently ecomusicology's position in subgroups of two professional societies[1] belies its potential as widely integrative, or even radical. The various disciplines and fields of scholarship mentioned above have their own struggles with definition, and they also share constraints on outreach. Within this intellectual landscape, ecomusicology provides paths to move more freely among the plains and valleys that form the fields that run between these disciplinary mountains; we might understand ecomusicology as providing an infrastructure of viaducts and aqueducts that transect the valleys and peaks of current sonic and musical scholarship, mobilizing and transporting revitalizing forces at a time when they are urgently needed. Ecomusicology contextualizes and champions the significance of sound and music studies to all life. As we seek to emphasize people and planet connections and understandings made sonically in a time of crisis, such an endeavor is timely. We must remain attentive, however, because due to its dynamic nature, ecomusicology will (and should) change in time and space, resulting in the need for new perspectives, new guides, new maps, and new directions.

NOTE

1. The American Musicological Society's Ecocriticism Study Group was established in 2007, and the Society for Ethnomusicology's Ecomusicology Special Interest Group was established in 2011. The groups collaborate on the series of ecomusicologies conferences (http://www.ecomusicologies.org) and on a joint publication, the *Ecomusicology Newsletter* (http://www.ecomusicology.info/EN). See also the Ecomusicology Bibliography for further resources (http://www.ecomusicology.info/bib).

WORKS CITED

Allen, Aaron S. 2012a. "Ecomusicology: Bridging the Sciences, Arts, and Humanities." In *Environmental Leadership: A Reference Handbook*, edited by Deborah Rigling Gallagher, 373–381. Thousand Oaks, CA: Sage Publications.

———. 2012b. "Ecomusicology: Music, Culture, Nature … and Change in Environmental Studies?" *Journal of Environmental Studies and Sciences* 2 (2): 192–201.

———. 2012c. "'Fatto Di Fiemme': Stradivari's Violins and the Musical Trees of the Paneveggio." In *Invaluable Trees: Cultures of Nature, 1660–1830*, edited by Laura Auricchio, Elizabeth Heckendorn Cook, and Giulia Pacini, 301–315. Oxford: Voltaire Foundation.

———. 2014. "Ecomusicology." *The Grove Dictionary of American Music*. New York: Oxford University Press.

Allen, Aaron S., Daniel M. Grimley, Alexander Rehding, Denise Von Glahn, and Holly Watkins. 2011. "Colloquy: Ecomusicology." *Journal of the American Musicological Society* 64 (2): 391–424.

Allen, Aaron S., Jeff Todd Titon, and Denise Von Glahn. 2014. "Sustainability and Sound: Ecomusicology Inside and Outside the University." *Music and Politics* 8 (2): http://dx.doi.org/10.3998/mp.9460447.0008.205.

Bateson, Gregory. 1972. *Steps to an Ecology of Mind*. New York: Ballantine Books.

———. 1979. *Mind and Nature: A Necessary Unity*. New York: Dutton.

Bergeron, Katherine, and Philip Vilas Bohlman, ed. 1992. *Disciplining Music: Musicology and Its Canons*. Chicago: University of Chicago Press.

Brockman, John, ed. 1996. *The Third Culture*. New York: Simon and Schuster.

Callicott, J. Baird. 1994. "The Wilderness Idea Revisited: A Sustainable Development Alternative." In *Ecological Prospects: Scientific, Religious, and Aesthetic Perspectives*, edited by Christopher K. Chapple, 37–63. Albany: SUNY Press.

Coates, Peter A. 1998. *Nature: Western Attitudes Since Ancient Times*. Berkeley: University of California Press.

Conway, Jill K., Kenneth Keniston, and Leo Marx. 1999. *Earth, Air, Fire, Water: Humanistic Studies of the Environment*. Amherst: University of Massachusetts Press.

Cowan, Jane K. 1990. *Dance and the Body Politic in Northern Greece*. Princeton: Princeton University Press.

Dawe, Kevin. 2007. *Music and Musicians in Crete: Performance and Ethnography in a Mediterranean Island Society*. Lanham, MD: Scarecrow Press.

Eisley, Loren. 1969. *The Unexpected Universe*. New York: Harcourt, Brace and World.

Feisst, Sabine. 2012. "Music as Place, Place as Music: The Sonic Geography of John Luther Adams." In *The Farthest Place: The Music of John Luther Adams*, edited by Bernd Herzogenrath, 23–47. Lebanon, NH: University Press of New England.

Feld, Steven. 1993. "From Ethnomusicology to Echo-Muse-Ecology: Reading R. Murray Schafer in the Papua New Guinea Rainforest." *The Soundscape Newsletter* 8: 9–13.

———. 2012. *Sound and Sentiment: Birds, Weeping, Poetics, and Song in Kaluli Expression*. Durham: Duke University Press. Original edition, 1982.

Foucault, Michel. 1977. *Discipline and Punish: The Birth of the Prison*. New York: Pantheon Books.

Gardiner, William. 1832. *The Music of Nature*. Boston: O. Ditson. Reprint, Cambridge: Cambridge University Press, 2009.

Garrard, Greg. 2004. *Ecocriticism*. New York: Routledge.

Glotfelty, Cheryll, and Harold Fromm, ed. 1996. *The Ecocriticism Reader: Landmarks in Literary Ecology*. Athens: University of Georgia Press.

Grimley, Daniel M. 2006. *Grieg: Music, Landscape and Norwegian Identity*. Woodbridge: Boydell Press.

Guy, Nancy. 2009. "Flowing Down Taiwan's Tamsui River: Towards an Ecomusicology of the Environmental Imagination." *Ethnomusicology* 53 (2): 218–248.

Herzfeld, Michael. 1985. *The Poetics of Manhood: Contest and Identity in a Cretan Mountain Village*. Princeton: Princeton University Press.

Hinchliffe, Steve. 2007. *Geographies of Nature: Societies, Environments, Ecologies*. London: Sage Publications.

Hyland, Ken. 2011. "Academic Discourse." In *Continuum Companion to Discourse Analysis*, edited by Ken Hyland and Brian Paltridge, 171–184. London: Continuum.

Ingram, David. 2010. *The Jukebox in the Garden: Ecocriticism and American Popular Music Since 1960*. Amsterdam: Rodopi.

———, ed. 2011. "Eco-Musicology." Special issue, *Green Letters: Studies in Ecocriticism* 15.

Järviluoma, Helmi, Kytö Meri, Barry Truax, Heikki Uimonen, Noora Vikman, and R. Murray Schafer, eds. 2009. *Acoustic Environments in Change & Five Village Soundscapes*. Joensuu, Finland: Tampereen ammattikorkeakoulu.

Kinnear, Tyler, ed. 2014. "Sound, Environment, and Action." Special issue, *Music and Politics* 8 (2).

Krause, Bernard. 1998. *Into a Wild Sanctuary: A Life in Music & Natural Sound*. Berkeley, CA: Heyday Books.

———. 2000. *Wild Soundscapes in the National Parks: An Educational Program Guide to Listening and Recording*. Washington, D.C.: U.S. Deptartment of the Interior, National Park Service.

———. 2002. *Wild Soundscapes: Discovering the Voice of the Natural World*. Berkeley, CA: Wilderness Press.

Leach, Elizabeth Eva. 2007. *Sung Birds: Music, Nature, and Poetry in the Later Middle Ages*. Ithaca: Cornell University Press.

Mark, Andrew. 2014. "Refining Uranium: Bob Wiseman's Ecomusicological Puppetry." *Environmental Humanities* 4: 69–93.

Morris, Mitchell. 1998. "Ecotopian Sounds; Or, The Music of John Luther Adams and Strong Environmentalism." In *Crosscurrents and Counterpoints: Offerings in Honor of Berngt Hambraeus at 70*, edited by P. F. Broman, N. A. Engebretnen, and B. Alphonce, 129–41. Goetenberg: University of Sweden Press.

Murray, Penelope, and Peter Wilson, eds. 2004. *Music and the Muses: The Culture of "Mousike" in the Classical Athenian City*. New York: Oxford University Press.

Naess, Arne, and David Rothenberg. 1989. *Ecology, Community, and Lifestyle: Outline of an Ecosophy*. New York: Cambridge University Press.

Nettl, Bruno. 1983. *The Study of Ethnomusicology: Twenty-Nine Issues and Concepts*. Urbana: University of Illinois Press.

———. 2005. *The Study of Ethnomusicology: Thirty-One Issues and Concepts*. Urbana: University of Illinois Press.

Pedelty, Mark. 2012. *Ecomusicology: Rock, Folk, and the Environment*. Philadelphia: Temple University Press.

Rehding, Alexander. 2002. "Eco-musicology." *Journal of the Royal Musical Association* 127 (2): 305–320.

Rothenberg, David. 2002. *Sudden Music: Improvisation, Sound, Nature*. Athens: University of Georgia Press.

Rothenberg, David, and Marta Ulvaeus, ed. 2001. *The Book of Music and Nature: An Anthology of Sounds, Words, Thoughts*. Middletown: Wesleyan University Press.

Schafer, R. Murray. 1969. *The New Soundscape: A Handbook for the Modern Music Teacher*. Toronto: Clark and Cruickshank.

———. 1994. *The Soundscape: Our Sonic Environment and the Tuning of the World*. Rochester, VT: Destiny Books. Original edition, 1977.

Schama, Simon. 1995. *Landscape and Memory*. New York: Knopf.

Sebeok, Thomas A. 1977. *How Animals Communicate*. Bloomington: Indiana University Press.

Snow, C. P. 1959. *The Two Cultures and the Scientific Revolution*. New York: Cambridge University Press.

———. 1965. "The Two Cultures." In *The Open Form: Essays for Our Time*, edited by Alfred Kazin, 2nd ed., 36–49. New York: Harcourt, Brace and World.

Soper, Kate. 1998. *What Is Nature?: Culture, Politics, and the Non-Human*. Oxford: Blackwell.

Soulé, Michael E. 1985. "What Is Conservation Biology?" *Bioscience* 35 (11): 727–34.

Titon, Jeff Todd, ed. 2009. "Music and Sustainability." Special issue, *the world of music* 51 (1).

———. 2013. "The Nature of Ecomusicology." *Música e Cultura* 8 (1): 8–18.

Toliver, Brooks. 2004. "Eco-ing in the Canyon: Ferde Grofé's Grand Canyon Suite and the Transformation of Wilderness." *Journal of the American Musicological Society* 57 (2): 325–367.

Troup, Malcolm, ed. 1972. *Guildhall School of Music and Drama Review*. London.

Von Glahn, Denise. 2003. *The Sounds of Place: Music and the American Cultural Landscape*. Boston: Northeastern University Press.

———. 2013. *Music and the Skillful Listener: American Women Compose the Natural World*. Bloomington: Indiana University Press.

Williams, Raymond. 1985. *Keywords: A Vocabulary of Culture and Society*. New York: Oxford University Press. Original edition, 1976.

Worcester, Donald. 1993. *The Wealth of Nature: Environmental History and the Ecological Imagination*. New York: Oxford University Press.

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Part I

Ecological Directions

Aaron S. Allen and Kevin Dawe

The essays in this section are connected through a shared grounding in the science of ecology and its related fields: climatology, natural history, landscape ecology, resilience theory, and soundscape ecology. All four essays take different approaches to this discipline: from a strict division between environmentalism and science that contributes to a method of analyzing performance (Boyle and Waterman) to arguments for a synthesis of landscape ecology and soundscape studies and for greater collaboration among scientists and humanists (Guyette and Post), and from the impacts of climate change on resilient tree species that provide musical instruments (Ryan) to the (re)interpretation of a canonical literary figure as a proto-ecologist who anticipated ecological and ecomusicological ideas (Titon). As seen throughout this volume, ecology—the science and the related social movement known also as environmentalism—informs and inspires ecomusicology. Nevertheless, ecology does not govern or dictate ecomusicology: instead of ecological musicology, it is more useful to understand ecomusicology as ecocritical musicology, with ecology connected to music/sound study via cultural criticism. The four essays here show that the influence of ecology is mostly indirect or collaborative rather than direct, although the essays by Boyle and Waterman and by Guyette and Post work toward a synthesis. All six authors are well informed by particular places and their fieldwork, an approach that ecologists and ethnomusicologists share—so much so, in fact, that Guyette and Post coin the term "ethno-ecomusicologist."

Boyle and Waterman, ecologist and ethnomusicologist respectively, provide a methodology for an ecology of musical performance: an ecological ecomusicology based in the ethnomusicological study of performance that is distinct both from an environmental ecomusicology based in critical scholarship in the arts and humanities and from the social and political realm of environmentalism. Beginning from the premises that ecology informs ecomusicology and that ecology is a rigorous science distinct from environmentalism, Boyle and Waterman compare methodologies from animal behavioral ecology and ethnomusicology in order to develop potential approaches. Based on the ecological study of birdsong and the scientific method, they offer three methodological approaches—observational correlative studies, comparative studies, and controlled experiments—with hypothetical examples of each. Through their contrast of ecological and ethnomusicological method, they identify methodological differences as well as particular constraints and advantages. Their work here is in direct dialogue with two major areas of scholarly inquiry: avian bioacoustics (Kroodsma and Miller 1996, Marler and Slabbekoorn 2004) and ethnographic fieldwork (Barz and Cooley 2008), two areas that Feld (2012) connected but with more focus on ethnography and critical theory. Currier (2014) has also called for an ecomusicology that is more solidly based in ecology, although his reliance on Gaia Theory rather than ethology/animal behavior results in a proposal that is quite distinct from Boyle and Waterman's approach. Boyle and Waterman's ideas connect with the long-established field of biomusic (Wallin 1991, Gray et al. 2001,

Fitch 2006), the new science of soundscape ecology (Pijanowski et al. 2011, Farina 2014), and the discussion of ecomusicology that began prominently with Rehding (2002) and continued thereafter elsewhere (in Toliver 2004, Allen et al. 2011, Perlman 2012, Keogh 2013) and, of course, throughout this volume. In their distinction of the prefix eco- in ecomusicology, every essay in the volume is in dialogue with Boyle and Waterman implicitly or explicitly: the essays of Part I regarding the science of ecology, the essays of Part II regarding fieldwork, and the essays of Part III and Part IV regarding the distinction of ecology and environmentalism. In contrast to Boyle and Waterman (and most scientists), the essays by Feisst and by Pedelty use ecology in the popular sense of environmentalism (see also Rehding 2002); the essays by Sonevytsky and Ivakhiv and by Windsor employ still more varied uses of ecology. Guyette and Post, Ryan, Seeger, and Titon also provide contrasting understandings of relations between humanists and scientists (and for Seeger, between scientists and shamans). Regarding Boyle and Waterman's discussion of birds, issues related to animals also are relevant to Allen, Feisst, Guyette and Post, Ingram, Seeger, Simonett, and Titon; and regarding improvisation, see the essays by Titon (regarding Thoreau's "unpremeditated music") and by Windsor (who also engages with the empirical study of music and performance).

Guyette and Post are also a partnership of ecologist and ethnomusicologist, respectively. They represent two entangled realms of sound study, one from the sciences and the other from the humanities, and both with similarities and differences in their goals studying sound in the environment. After outlining their respective fields' typical approaches to sound- and music-related studies that interface with ecology, they provide two cases to illustrate how greater collaboration between soundscape ecology and ethnomusicology could result in better research that is more effective in managing landscapes, enhancing knowledge, and working toward sustainability. The first case is of western Mongolia's pastoral nomadic herders, who have understandings of sound that can contribute ecological studies and whose music making is influenced by ecological factors. The second case is about efforts in southern New Zealand that aim to remove invasive predators to allow native bird populations, and the resulting soundscapes, to return; areas near human settlements have had more success than areas of wilderness, emphasizing the role humans play in rebalancing ecosystems. In essence, Guyette and Post propose ecomusicological approaches that ask ethnographers and sound studies scholars to draw more on ecological understandings of the natural world, and that ask soundscape ecologists to consider humans as important agents in the landscape who provide important ways of understanding connections between sound and land. Thus, they call for both fields to collaborate more in order to provide ecological knowledge about sound and land that values and benefits humans and non-humans alike. Guyette and Post seek to bridge the problematic "two cultures" that separates humanistic and scientific endeavors (Snow 1959, Allen 2012a): criticizing both soundscape

ecology for minimizing humans (Farina 2014) and ethnomusicology for minimizing abiotic and non-human biotic elements (Blacking 1973), they ultimately promote an approach that considers all sound (Schafer 1994, Sorce Keller 2012, Titon 2013). Cultural and physical geography have also come together with sound study in Grimley's work on art music (Grimley 2006, 2011) and through his Hearing Landscape Critically network (2015). Elsewhere in this volume, Guyette and Post's essay resonates especially with Boyle and Waterman regarding ecological and ethnomusicological collaboration, although the results are different. The concept of the soundscape is a common area of interest to Allen, Hui, Simonett, and Titon. Traditional ecological knowledge is particularly relevant in the essays by Simonet and Seeger, the latter of whom is also concerned with the roles of scientists and humanists. With Dawe (regarding small guitar-making businesses) and Ryan (regarding landscape management), Guyette and Post share a concern for using ecological science for improvements toward sustainability. Animal studies are also a link with the essays by Allen, Boyle and Waterman, Feisst, Ingram, Seeger, Simonett, and Titon.

Ryan examines the impacts of climate change, human land use impacts, and natural environmental processes on the iconic indigenous music cultures of Australia: the didjeridus (didgeridoos) made from eucalyptus trees' termite-hollowed trunks and the musical gumleaves that come from their foliage. Eucalypts (gum trees) are naturally resilient species; that is, they tend to endure despite ecological change and to return after significant environmental impacts. The music cultures that rely on eucalypts have also exhibited resilience: didjeridus have spread to the Western world, and leaf playing has made some surprising comebacks. But given the complex changes that lie ahead under climate change and the increasingly consumptive human exploitation of nature, can these social-ecological systems remain resilient? And furthermore, how will the highly prized eucalypts—the "didj tree" (Darwin stringybark) and "Stradileaf" (yellow box)—fare? As resilient species and cultures, these social-ecological systems are subject to a matrix of confounding factors; we can expect altered sonic worlds to emerge. Ryan's work is in dialogue with ecological science, understandings of climate change both scientific (based on findings from Australia's national research organization) and social (Urry 2011), theories of resilience (Holling 1973, Zolli and Healy 2012) and sustainability (Titon 2009, Allen et al. 2014), didjeridu music cultures (Lindner 2004), and a variety of ecomusicological lines of inquiry (Ingram 2010, Allen 2012b, forthcoming). In relation to essays in this volume, Ryan takes a middle ground between the distinction set up by Boyle and Waterman, basing her work on the scientific ecology yet also adopting environmentalist positions that advocate for action with regard to ecosystems (as do Guyette and Post). Seeger provides another example of the importance of forests to music cultures, and Dawe also shows how wood is used to construct musical instrument cultures both physically and symbolically.

Titon offers an understanding of Henry David Thoreau as ecomusicologist: as someone who connected sound, music, cultural criticism, natural history,

ecology, and environmentalism. Sound was a major influence on Thoreau and an important motivator for his goals of preserving nature. Titon asks the question, "Why Thoreau?"—i.e., why is Thoreau now relevant for ecomusicology? In response, he has three interwoven reasons for thinking with Thoreau, which he does via Thoreau's journals. First, Thoreau thinks about music and place, i.e., about sound in a local ecosystem. Second, Thoreau thinks about connections between music, sound, presence, and co-presence. Third, Thoreau thinks about a nature worth wanting. Titon provides an understanding of ecomusicology as if from Thoreau; this is an understanding that avoids making human music and culture primary and instead finds sound and music as indicators of healthy ecosystems. Thoreau understood himself in relation to nature not as an individual but rather in a relational ontology and epistemology acknowledging the importance of community and the role of sound as communication in all living systems. Titon's understanding of Thoreau as a proto-ecologist and environmentalist is in dialogue with the fields of literary ecocriticism (Buell 2005, Rozelle 2006) and soundscape ecology (Pijanowski et al. 2011, Farina 2014). Thoreau combined the science of ecology with the ethical mission of environmentalism as in the field of conservation biology (Soulé 1985). Titon has written on the importance of Thoreau for ecomusicology elsewhere in the context of ethnomusicolgy and sound studies (Titon 2013, forthcoming). In this volume, Titon's interpretation of Thoreau as ecologist relates to the distinction of ecology and environmentalism in Boyle and Waterman: Thoreau brought these fields together without confusing them. With regard to Titon's interpretation of Thoreau as an ecomusicologist, see also Allen's historiographical observations (which are also relevant to Edwards and to Sonevytsky and Ivakhiv). Other shared topics in this volume include soundscapes, which the essays by Allen, Hui, Guyette and Post, and Simonett also discuss; the sound commons, an idea Titon developed in an earlier essay (2012) and that is also of interest to Hui; improvisation, or as Thoreau put it "unpremeditated music," which is the upshot of Windsor's essay (and of interest to Boyle and Waterman); ideas of place (bioregionalism, dwelling, topophilia), which are important to the essays by Edwards, Ingram, Simonett, and Von Glahn in particular (and to many others in general); and ecocriticism and the pastoral, which are important to Ingram and Drott. Animal studies are also relevant in the essays by Allen, Boyle and Waterman, Feisst, Guyette and Post, Ingram, Seeger, and Simonett. Titon shares an interest in epistemological and ontological issues with Edwards, Seeger, and Simonett, and his discussion of co-presence is central to Edwards.

Ecomusicology has been informed most prominently by the approach of ecocriticism, i.e., ecological criticism (Part IV). It is criticism (Part III) that bridges ecology and musicology in ecomusicology; via this grounding in humanistic/posthumanistic approaches, we might understand ecomusicology as being one small step removed from, yet still connected to, science. In this way, ecomusicology participates in the bridging of the so-called two cultures (Snow 1959, Allen 2012a) and, through the incorporation of the social-science-informed field of ethnography, even the "three cultures" (Kagan 2009). One

upshot of this bridging, and a further unifying element of the essays in this section, is that of an applied ethical element: Boyle and Waterman provide a model to analyze performance with an ultimate goal of applying that ethically; Guyette and Post aim for responsible landscape management that includes equally humans, non-human life, and abiotic features; Ryan advocates ethical and sustainable arboreal resource management for iconic musical instruments; and Titon's understandings of Thoreau contribute to engendering in us a nature worth wanting. This collaboration of science and ethics is not new; the field of conservation biology, developed in the 1980s, is a related example (Soulé 1985). One prominent direction in ecomusicology pursues understanding sonic and musical issues via a closer application of ecology in particular places. That science of ecology is as important as ethical criticism.

WORKS CITED

Allen, Aaron S. 2012a. "Ecomusicology: Bridging the Sciences, Arts, and Humanities." In *Environmental Leadership: A Reference Handbook*, edited by Deborah Rigling Gallagher, 2:373–81. Thousand Oaks, CA: Sage Publications.

———. 2012b. "'Fatto di Fiemme': Stradivari and the Musical Trees of the Paneveggio." In *Invaluable Trees: Cultures of Nature, 1660–1830*, edited by Laura Auricchio, Elizabeth Heckendorn Cook and Giulia Pacini, 301–315. Oxford: Voltaire Foundation.

———. Forthcoming. "'A Stubbornly Persistent Illusion'? Climate Change and the North, Ecomusicology and Academic Discourse." In *Climate Change, Music, and Nature*, edited by Annette Kreutziger-Herr and Britta Sweers. Bloomington: Indiana University Press.

Allen, Aaron S., Daniel M. Grimley, Alexander Rehding, Denise Von Glahn, and Holly Watkins. 2011. "Colloquy: Ecomusicology." *Journal of the American Musicological Society* 64 (2): 391–424.

Allen, Aaron S., Jeff Todd Titon, and Denise Von Glahn. 2014. "Sustainability and Sound: Ecomusicology Inside and Outside the University." *Music and Politics* 8. http://dx.doi.org/10.3998/mp.9460447.0008.205.

Barz, Gregory F., and Timothy J. Cooley, eds. 2008. *Shadows in the Field: New Perspectives for Fieldwork in Ethnomusicology*, Second Edition. New York: Oxford University Press.

Blacking, John. 1973. *How Musical is Man?* Seattle: University of Washington Press.

Buell, Lawrence. 2005. *The Future of Environmental Criticism*. Oxford: Blackwell.

Currier, Nathan. 2014. "Classical Music in the Anthropocene." *Ecomusicology Newsletter* 3 (1): 8–12, 30–51.

Farina, Almo. 2014. *Soundscape Ecology: Principles, Patterns, Methods, and Applications*. Dordrecht, The Netherlands: Springer.

Feld, Steven. 2012. *Sound and Sentiment: Birds, Weeping, Poetics, and Song in Kaluli Expression*. Durham: Duke University Press. Original edition, 1982.

Fitch, W. Tecumseh. 2006. "The Biology and Evolution of Music: A Comparative Perspective." *Cognition* 100 (1): 173–215.

Gray, Patricia M., Bernie Krause, Jelle Atema, Roger Payne, Carol Krumhansl, and Luis Baptista. 2001. "The Music of Nature and the Nature of Music." *Science* 291 (5501): 52–54.

Grimley, Daniel M. 2006. *Grieg: Music, Landscape and Norwegian Identity*. Woodbridge: Boydell Press.

———. 2011. "Music, Landscape, Attunement: Listening to Sibelius's Tapiola." *Journal of the American Musicological Society* 64 (2): 394–98.

———. 2015. *Hearing Landscape Critically*. Accessed February 26, 2015. http://hearinglandscapecritically.net/.

Holling, Crawford S. 1973. "Resilience and Stability of Ecological Systems." *Annual Review of Ecology and Systematics* 4: 1–23.

Ingram, David. 2010. *The Jukebox in the Garden: Ecocriticism and American Popular Music Since 1960*. Amsterdam: Rodopi.

Kagan, Jerome. 2009. *The Three Cultures: Natural Sciences, Social Sciences, and the Humanities in the 21st Century*. New York: Cambridge University Press.

Keogh, Brent. 2013. "On the Limitations of Music Ecology." *Journal of Music Research Online* 4: 1–10.

Kroodsma, D. E., and E. H. Miller, eds. 1996. *Ecology and Evolution of Acoustic Communication in Birds*. Ithaca, NY: Comstock Books.

Lindner, David, ed. 2004. *The Didgeridoo Phenomenon from Ancient Times to the Modern Age*. Schönau, Germany: Traumzeit Verlag.

Marler, Peter, and Hans Willem Slabbekoorn, eds. 2004. *Nature's Music: The Science of Birdsong*. Boston: Elsevier Academic.

Perlman, Marc. 2012. "Ecology and Ethno/musicology: The Metaphorical, the Representational, and the Literal." *Ecomusicology Newsletter* 1 (2): 1, 15–21.

Pijanowski, Bryan C., Luis J. Villanueva-Rivera, Sarah L. Dumyahn, Almo Farina, Bernie L. Krause, Brian M. Napoletano, Stuart H. Gage, and Nadia Pieretti. 2011. "Soundscape Ecology: The Science of Sound in the Landscape." *Bioscience* 61 (March): 203–16.

Rehding, Alexander. 2002. "Eco-musicology." *Journal of the Royal Musical Association* 127 (2): 305–320.

Rozelle, Leo. 2006. *Ecosublime*. Tuscaloosa: University of Alabama Press.

Schafer, R. Murray. 1994. *The Soundscape: Our Sonic Environment and the Tuning of the World*. Rochester, VT: Destiny Books. Original edition, 1977.

Snow, C. P. 1959. *The Two Cultures and the Scientific Revolution*. New York: Cambridge University Press.

Sorce Keller, Marcello. 2012. "Zoomusicology and Ethnomusicology: A Marriage to Celebrate in Heaven." *Yearbook for Traditional Music* 44: 166–183.

Soulé, Michael E. 1985. "What Is Conservation Biology?" *Bioscience* 35 (11): 727–34.

Titon, Jeff Todd. 2009. "Economy, Ecology, and Music: An Introduction." *the world of music* 51 (1): 5–15.

———. 2012. "A Sound Commons for All Living Creatures." *Smithsonian Folkways Magazine* Fall/Winter.

———. 2013. "The Nature of Ecomusicology." *Música e Cultura* 8: 8–18.

———. Forthcoming. "Thoreau's Ear." *Sound Studies* 1 (1).

Toliver, Brooks. 2004. "Eco-Ing in the Canyon: Ferde Grofé's Grand Canyon Suite and the Transformation of Wilderness." *Journal of the American Musicological Society* 57 (2): 325–67.

Urry, John. 2011. *Climate Change and Society*. Cambridge: Polity Press.
Wallin, Nils L. 1991. *Biomusicology: Neurophysiological, Neuropsychological and Evolutionary Perspectives on the Origins and Purposes of Music*. Stuyvesant, NY: Pendragon Press.
Zolli, Andrew, and Ann Marie Healy. 2012. *Resilience: Why Things Bounce Back*. New York: Free Press.

2 The Ecology of Musical Performance

Towards a Robust Methodology

W. Alice Boyle[1] and Ellen Waterman

INTRODUCTION

Today it seems that there is an almost unlimited variety of "eco" philosophies. From deep ecology to social ecology, from ecofeminism to spiritual ecology, with implications for environmental justice and postmodern science, the word "ecology" in these contexts signifies both anxiety at the dire state of the world and a yearning for better relations within it (Merchant 2008). Ecomusicology participates in this ever-widening use of the term "ecology" as both metaphor and ideology. Just how far can we stretch a metaphor drawn from perceptions of a scientific discipline into essentially artistic areas of inquiry? How do we prevent this application of the word ecology from losing its "explanatory and adhesive power" (Bechtal 2008, 613)?

In this essay we argue that if ecomusicology is to be an intellectually robust field of inquiry, it must define the extent to which it engages methodologically with relevant areas of ecology. We do not propose an overarching framework for ecomusicology, a field with a wide range of concerns, many of which are addressed elsewhere in this volume. Instead, we pose the following questions about adapting ecological frameworks to ethnomusicological studies of performance. Is there a correspondence between the scientific method used in ecology and qualitative methods used in ethnomusicology? If so, what would constitute a responsible methodology for studying the ecology of musical performance? We focus on performance, drawing from our respective expertise as an animal behavioral ecologist and an ethnomusicologist, who are also practicing musicians.

An ecology of musical performance would seem to be closely aligned with ethnomusicology, defined by the Society for Ethnomusicology as "the study of music in its cultural context." Similarly, Allen defined ecomusicology as "the study of music, culture, and nature in all the complexities of those terms" (Allen 2014). Performance is identified as one of the major concerns of ecomusicology (along with musical works/materials and soundscapes). Being central to ethnomusicology, performance research in this field consequently has well-defined methodologies. Comparing methodologies used in ethnomusicology and in animal behavioral ecology highlights some of the possibilities and limitations of applying the scientific method to ecomusicology.

ECOLOGY AND ENVIRONMENTALISM

Allen maintains that one of ecomusicology's central questions must be "Is the environmental crisis relevant to music—and more important, is musicology relevant to solving it" (Allen 2011, 392)?[2] Titon argues, in part, for "an interdependent, relational ontology and epistemology characteristic of living systems" that will help us to find solutions "in a time of environmental crisis" and that "directs us toward a construction of nature worth wanting" (chapter 5, 69–70). Although not all ecomusicology is concerned with environmentalism, the trope is prevalent enough that it is important to clarify the distinction between environmentalism and ecology before we discuss methodology. Environmentalism is a political and social movement—efforts of people to change and reduce our negative impact on other creatures, landscapes, and the Earth's biogeochemical processes. Ecology is the field of study that can help us to understand the behavior, distribution, and interactions among those creatures, the structure of communities and landscapes, and the dynamics of living systems. Although inevitably ecologists study systems influenced by human activities (because no part of the globe is now unaltered by anthropogenic, i.e., human-related, influences), the field focuses largely on the workings of "nature" as it functions at arm's length from human disturbance to the extent possible.[3] Conflating ecology with environmentalism is problematic because it erodes the core scientific meaning of the word ecology. For example, the use of "eco" to refer to products and services that are marketed in such a way implies that they minimize the negative environmental consequences of production, use, and disposal (see also Stimeling chapter 14). Eco-marketing extends to virtually every type of consumer product—from hair styling gel and garage doors to cleaning products and wedding dresses—with little interrogation of manufacturers' environmental claims. Eco-marketing works because the moral and ethical sentiments of a growing sector of society are influenced by environmentalism. Environmentalism, however, is not science.

SCIENTIFIC AND QUALITATIVE METHODOLOGIES

In order to clarify the difference between environmentalism and ecology, we briefly describe the scientific methodologies commonly employed in ecology. Ecological studies vary in focus at the level of biological organization (individuals, populations, communities, and ecosystems), and methodological approaches are also strongly influenced by taxonomy (for example, birds, plants, and microbes). The lenses specific to different levels of biological organization or taxonomic group usually go on first because even the simplest systems are complex; to initiate analysis often requires narrowing the scope of inquiry. Taxonomic lenses are especially prevalent in establishing the basic patterns of the system—determining simply what lives there and

what it does, where, and when. For ecologists whose lenses focus at the ecosystem level, this stage involves determining where the major flows of energy and nutrients are in the system and the temporal dynamics of those flows. For animal behavioral ecologists, this step involves describing how individuals interact with one another, what, where, when, and how they eat, reproduce, and communicate, etc. Subsequent steps involve determining what explains the differences among entities (be they individuals, populations, communities, and/or ecosystems). Ecologists share the basic methodological approach of all scientists: They rely on the collection and analysis of quantitative data to falsify hypotheses and to formulate new hypotheses that explain the causes of patterns observed in nature. This is an ecologist's primary, if not sole, means of creating knowledge.

Inevitably, the parallels between ecology and ecomusicology will be strained by the fact that most branches of musicology do not, as a matter of course, employ the scientific method.[4] To identify the similarities and differences, we compare the two most closely related specialties in our fields: animal behavioral ecology and ethnomusicology. Ethnomusicologists bear a resemblance to animal behavioral ecologists in that they go into "the field" to observe and report on phenomena related to the interactions of individuals.[5] Fieldwork involves focusing on a specific element of a sociomusical system, by, for example, learning appropriate languages, musical techniques, and cultural rules. Ethnomusicologists seek to understand the operations, materials, and contexts of musical activities within situations as diverse as kinship and work rituals, religious ceremonies, cultural festivals, or systems of musical circulation.[6] Researchers' field notes often chronicle not only the activities involved in music making, but also minute details about place and space, time and weather. Audio and video recording also capture empirical data for analysis. Both animal behavioral ecologists and ethnomusicologists define a field and spend significant time in it collecting empirical data. In addition, ethnomusicologists rely heavily on informants—local experts who provide qualitative data, most often through interviews. The crucial word here is, of course, "qualitative." Where animal behavioral ecologists collect and analyze quantitative data, ethnomusicologists rely on systematic collection of qualitative data that is subsequently subject to necessarily contextual and interpretive analysis. Significantly, their informants are often considered to be co-researchers, and an ethical approach to the field demands a reciprocal exchange—hence the methodological term "participant-observation."[7] Both disciplines, however, are centrally concerned with performance broadly defined; that is, the study of how individuals act and interact within a particular place/space/time. We can find further parallels by comparing methodologies used in the study of non-human and human acoustic communication.

The study of non-human acoustic communication is directly concerned with performance. For example, ecologists studying birdsong have found that singing rates, repertoires, and underlying neural activity depend on the size and composition of the audience (Kroodsma and Miller 1996), and are

shaped by the past experiences of the songster (Nordby et al. 1999, Kiefer et al. 2010). In three major avian lineages (the avian sub-order oscine passerines commonly known as song birds, parrots, and hummingbirds), song repertoires are learned (Jarvis et al. 2000). The template for acceptable species-specific songs is passed genetically from parent to offspring, but only by listening to mastersingers of their own species and by practicing can young birds learn to perform acceptable songs (Marler 1997). The characteristics of songs and performances are influenced by environmental factors. Birds now living in noisy urban environments sing louder and higher-pitched songs than do their relatives in rural areas (Cardoso and Atwell 2011, Dowling and Marra 2012). Over evolutionary time scales, the acoustic properties of the environment have shaped the general types of songs that birds sing in different environments. For instance, birds living in the understory of rainforests sing relatively simple, low-frequency tones that travel well through dense vegetation (Weir et al. 2012). Timing of song is likewise affected by the acoustic environment; one of the most plausible of the proposed reasons for the dawn chorus is that air tends to be most still and sound waves travel furthest at this time of day (Brown and Handford 2003). Birds also rate each other on the quality of their singing abilities, including their ability to imitate and match songs of neighbors (Price and Yuan 2011). Imitating other birds' songs—both birds of their own species and those of other species—greatly influences song repertoires in mimicking species (Kroodsma and Miller 1996, Price and Yuan 2011, Dalziell and Magrath 2012). The individual songs sung by males help others recognize their close neighbors and avoid competitive interactions when territorial boundaries have already been established, and those songs convey information to females regarding the probability that a potential mate is related to her and therefore unsuitable due to inbreeding avoidance (Brumm et al. 2009, Gil and Gahr 2009). This is but a partial list of the types of information conveyed by song and the factors that influence how, what, and when birds sing. The "music" that birds make is dependent upon the environmental context and the nature of their audience. Intrinsic and extrinsic factors affect both how and what sounds are produced (or "performed" in the language of musicology), and how and what their audience experiences—findings that parallel musical performance.

The most direct comparison with ethnomusicology would be studies of relationships between humans and birds, such as Steven Feld's classic study *Sound and Sentiment: Birds, Weeping, Poetics, and Song in Kaluli Expression* (2012). Since we want to consider an ecology of musical performance that is not environmentalist, however, it will be more useful to draw a comparison with a musical performance that does not evoke nature. Smith and Waterman (2013) studied a musical quartet consisting of George Lewis (trombone), Miya Masaoka (koto), Marilyn Crispell (piano), and Hamid Drake (drums). They attended a performance at the Vancouver International Jazz Festival, took careful field notes, made a video recording of the performance, and interviewed the musicians. The performance was entirely

improvised. The researchers were interested in examining the ways in which the musicians interacted spontaneously during the performance and in probing the reasons why. They found that factors such as the length of the pieces and the rate and style of musicians' on-stage banter were directly affected by audience responsiveness (including the spontaneous comments of audience members close enough to the stage to be heard by the musicians) in a relatively intimate performance environment. Within a large international festival with mainstream jazz headliners, this evening concert attracted specialized fans that were drawn to a performance of avant-garde jazz. All four musicians participated in code switching, exhibiting their mastery of several different styles of music and their ability to listen and respond instantaneously to another musician's sonic gestures. Performance techniques included call and response, imitation, continuous variation, and mimicry of another player's timbre, pitch, or rhythm. Drake pointed out that he enjoyed playing with the Japanese koto because it is a quiet instrument that forced him to eschew the kind of rhythmic fireworks he is so well known for on the drum kit in order to match Masaoka's quieter amplitude and intricate textures (70). The musicians all displayed circular swaying body motions when listening, often with their eyes closed, and engaged in non-sonic cues just prior to playing (such as swishing the drumsticks above the head of the snare drum, or sliding the trombone valve up and down) (68–69). Although the researchers had a different agenda, it would be quite possible to analyze the interactions of these musicians, audience, venue, time, and festival context through the lens of an ecosystem in which all these factors depend upon and influence one another.[8]

The birdsong patterns discussed above were signifiers of avian social relationships and environmental factors. Similarly, the humans' musical interactions resulted from a combination of pre-existing social and cultural factors and from the immediate context of the performance. Interviews revealed a deep empathy among the musicians based on shared educational experiences, prior musical relationships, and in some cases, similar cultural backgrounds (Smith and Waterman 2013, 65–66). When invited to say with whom he most wished to perform, George Lewis had in fact put together his "dream team" (62) of musicians who would model the type of sociomusical interactions that he considers to be most desirable, including ethnic, gender, and musical diversity in a non-hierarchical and improvisational context. The music signified this politics in that it consisted of a constant give and take of duos, trios, and quartets with only a few short solos in each piece. The individual virtuosity privileged in much jazz music was sublimated in favour of social cooperation. Like the bird examples given above, these human performers were influenced both by their immediate environment (an intimate space filled with aficionados) and by extenuating factors (the musicians' prior relationships, their aesthetics, and their values). These two examples suggest that we might map out some comparative factors analogous to performance in both behavioral animal ecology and ethnomusicology.

MAPPING AN ECOLOGY OF MUSICAL PERFORMANCE

Any comparison of fieldwork in animal behavioral ecology and in ethnomusicology must necessarily be highly contextual. Animating both of our examples is a common question: What factors affect (musicians', birds') choices of sonic gestures in performance? In this context, we adopt the terminology of ethnomusicology, referring to "sonic gesture" rather than "song," and the word "performance" to encompass all vocal communication of animals. This question allows us to identify several parallel factors that can be hypothesized to influence sonic gesture in our examples (Table 2.1). These factors are arrayed from highly proximate factors immediately affecting choices of sonic gesture (at the top) to factors more removed from the performance context (at the bottom).

Table 2.1 Factors affecting choice of sonic gesture.

Ethnomusicology	*Behavioral Animal Ecology*
acoustics of performance hall and sound system	vegetation characteristics affecting acoustics
size/shape of room	vegetation characteristics affecting acoustics
lighting, humidity, altitude	weather
time of day	time of day
performers' emotional and psychological states	hormone levels: e.g., corticosterone and testosterone
size and makeup of audience	identity and proximity of other birds of same/other species
behavior during performances by audience members	behavior of intended receiver
time of day the performance occurs	time during the breeding season
type and quality of instrument	physiology and morphology of species
condition/health of individual	condition/health of individual
age/experience of performer	age/experience of performer
motivations of performer	mating status
composition/diversity of whole performer base	song repertoires of neighboring individuals
genre and style as influenced by musicians' backgrounds and experience	regional variation in song repertoires, species-specific neural/physical constraints

The recognition that studying human and non-human music making may be informed by one another is not new. The term biomusicology has been described as encompassing three major branches: evolutionary musicology, neuromusicology, and comparative musicology (Wallin 1991). These three branches all provide fine examples of the successful application of

the relevant branches of science to the study of human musical expression. Interestingly, while these topics cover the origin, development, cognitive processes, functions, and unifying features of musical expression, the application of ecological methods to the study of musical performance is largely lacking from previous writings on this topic (Wallin et al. 2001). Just what would an ecomusicological study of musical performance look like?

Our first concern is to understand how a given musical performance is ecologically performative; in other words, how it affects, and is affected by, the cultural, social, and physical environment in which it is manifest. Such a project may usefully be informed by adopting the ecologist's systematic approach as far as possible. An ecological approach to the study of musical performance would first entail the formulation of a series of potential alternative explanations (hypotheses) about what factors are the most important in shaping the choice of sonic gesture. A series of predictions (e.g., repertoire will depend on factor x) would stem from those explanations and would directly shape the type of data worth collecting. The collection of empirical data might include measurement of factors such as the size of the stage, the sound levels in the room, the type of lighting, the temperature, the presence or absence of an amplification system, the size and demographics of the audience, and the moment-to-moment behavior of the musicians and of the audience members (to name just a few elements). To ensure integrity of the study, the same types of data would have to be collected on a range of different performances where the response variable (i.e., choice of sonic gesture) is measurably distinct.[9]

The ecomusicological approach outlined above differs from ethnomusicology in that it begins with a prediction, entails extremely detailed documentation of the environment in which the performance occurs, and depends on comparative data for analysis.[10] Drilling farther down, an ecology of musical performance might adopt more nuanced approaches to research design. Consider the following examples of birdsong studies that illustrate three core ecological methodologies: observational correlative studies, comparative studies, and experimental studies.

(1) *Observational, correlative studies*. Observational, correlative studies often focus on a fairly small region (e.g., a single study site), and data are collected on both variation in response variables (e.g., number of song types) and one or more predictor variables (e.g., age of the individual, time of day, weather). Analyses consist of correlations between predictor and response variables. While this approach is very common and often a cost-effective way to gain information about a system, one cannot infer causal relationships between variables because it is possible that some other variable not measured in the study jointly affects both the predictor and the response.

An example of such a study relating to birdsong repertoires is Reid et al. (2004), a study of Song Sparrows in British Columbia. Some individuals of this species sing many song types while others sing few. A suite of hypotheses to explain why birds might sing many song types relies upon females

preferring such males because large repertoires reflect a high-quality male, and mating with a good singer will on average result in the female raising more, or higher-quality, young who will then go on to raise more young in subsequent generations. A key prediction is that females should indeed prefer males that sing more song types in the wild. Using more than 210 songs recorded from 78 male sparrows, the authors found that song repertoire size was positively associated with the likelihood of acquiring a mate but not related to the likelihood of gaining control of a good territory, thus providing support for the idea that repertoire size is likely shaped by sexual selection.

(2) *Comparative studies*. A comparative study also involves correlative associations between variables, but instead of comparing variation among individuals, comparative studies relate variation among species in two or more traits. By analytically controlling for the fact that some species share traits because they are closely related, researchers can make powerful inferences about the underlying ecological causes that have led to the evolution of particular traits repeatedly over evolutionary time in different contexts. Ecologists correlate current sets of traits over broad taxonomic scales and statistically ask how likely it is that the same pairs of traits would occur together repeatedly over the course of evolution if they had not influenced each other in some way.

An example of a comparative approach to the study of bird repertoires is Weir et al. (2012), in which the researchers ask whether physical features of the environment have shaped the evolutionary trajectories of frequency and amplitude in birdsong. By assembling data on song characteristics (frequency and bandwidth measurements), habitat, and body size for 116 closely-related pairs of species in which one species inhabits temperate and the other inhabits tropical regions, the researchers found that, on average, birds living in those tropical forests sing at frequencies falling within a relatively narrow frequency range where background noise and attenuation is low. Because this frequency range is lower and narrower than the frequencies at which grassland and temperate birds sing, the authors provide evidence that the evolution of song is constrained by the acoustic environment.

(3) *Experimental studies*. A third methodological approach commonly used by ecologists is experimental. By controlling as many potentially confounding factors as possible, and by randomly assigning individuals to treatments and controls, one can make inferences about causal relationships between variables.

One example of how experimental methods are used to address questions about the factors that shape avian repertoires investigates the function of vocal mimicry in tropical birds that forage in mixed-species flocks (Goodale and Kotagama 2006). The focal species, the Drongo (*Dicrurus pardiseus*), is known for its ability to mimic other species' vocalizations. Drongos feed on insects flushed from vegetation by other birds during flock foraging. One hypothesized function of mimicry in this species is to attract other birds whose foraging activities will increase the foraging success of the Drongos

themselves. Using replicated playbacks of Drongo vocalizations, Goodale and Kotagama compared the responses of other birds to Drongo vocalizations that did or did not employ mimicry. Mimicking recordings elicited responses from twice the number of species as did the non-mimicking recordings. The authors concluded that the function of mimicry in this case served to manipulate the listeners to the benefit of the "performer."

To what extent, and how, might these three methodologies (*observational*, *correlative studies*; *comparative studies*; and *experimental studies*) be applied to an ecology of musical performance? By adapting these methodologies to musical situations, we can offer a speculative example for each type. Table 2.2 provides a summary of these approaches and suggests ways in which they might be applied to an ecology of musical performance. Clearly, some approaches will be more suitable than others, as we discuss below.

Table 2.2 Adaptation of ecological methods for the study of musical performance.

METHODOLOGY	*Observational, Correlative*	*Comparative*	*Experimental*
SITE	Specific and situated performance	Compare performances of similar musical styles or genres in different geographic or cultural contexts	Manipulate and control performance environment
DATA COLLECTION	Select one response variable and several predictor variables Analyze correlations between predictor and response variables.	Control for shared traits in closely related styles or genres Infer underlying ecological causes leading to changes in particular performance practices over time	Control as many potentially confounding factors as possible Randomly assign individuals to treatments and controls
USES & LIMITATIONS	Efficient way to gain information about a system Cannot infer causal relationships because not all possible variables factored in	Study of musical changes over history Understand underlying ecological factors shaping performance practice	Possible to make stronger inferences about causation than in other methods

SPECULATIVE EXAMPLE ONE: OBSERVATIONAL, CORRELATIVE STUDY OF MUSICAL PERFORMANCE

The public house environment influences musicians performing in a traditional Irish music session. One possible response variable might be the number of tunes played in a session. Predictor variables might include the number of musicians present, the number of pints of beer each consumes, the variety of instruments represented, the experience levels of the performers, their musical backgrounds, the size and composition of the audience, the time of day or night, and the length of the session. Careful attention to all this data would contribute to a rich description of the musical performance; collecting such data at numerous sessions would provide a useful comparison. Without interviewing the participants, however, crucial contextual data would be lost; for example, the antipathy between two performers might limit the length of the session or cause competition about which tunes to play. It may be impossible to predict which variables will be the most important in shaping the number of tunes played in an evening. An ecological approach to studying a specific musical performance would ensure a rigorous approach to data collection and analysis that would permit the researcher to draw conclusions that are unaffected by biases introduced by the perceptions of the performers themselves. Seen from another point of view, however, failure to factor in individual performers' perceptions may create gaps in understanding the ways performance creates meaning.

SPECULATIVE EXAMPLE TWO: CROSS-CULTURAL COMPARATIVE STUDY OF PERFORMANCE PRACTICE

Consider a comparative ecological approach to the study of current performance practice in Dixieland jazz players in different regional contexts (for example, New Orleans, Chicago, New York, San Francisco, Sacramento, Amsterdam, Brussels, and Tarragona). By isolating a pair of traits, such as soloing styles and preferred instrumentation, we might ask how factors related to development of distinct pathways for the performance of Dixieland jazz have emerged as a consequence of cultural differences between these regions. Such a study might indeed be useful in pointing to regional influences on specific musical traits, but it would be difficult to account for the individualism of performers' musical adaptations of a genre. Genre studies of performance practice involve both ethnographic and historical methodologies. In order to examine the development of a genre over time, ethnomusicologists interview elderly culture-bearers and their musical descendants, examine archival recordings and documents, and document contemporary performances. Further, such studies must account for the diverse ways in which music travels, for example, through broadcasts, recordings, and immigration. It seems to us that comparative studies involving such large concepts as musical genre and style require a highly

contextual and historically situated approach.[11] Comparative studies are useful in animal behavioral ecology because typically only contemporary data are available to researchers; ecologists use large comparative data sets to infer the most likely history of evolutionary change. An ecology of musical performance would logically adopt all the historiographic tools available. While the historical tools available to ethnomusicologists allow them to ask questions about the past directly, these tools introduce a degree of subjectivity (stemming from the perceptual biases of informants) that is impossible to control for analytically.

SPECULATIVE EXAMPLE THREE: EXPERIMENTAL APPROACH TO STUDYING MUSICAL PERFORMANCE

In order to study audience reception of a particular musical work, it would be possible to construct an artificial performance situation that controlled for many variables. Suppose that we wished to determine how audiences of different demographics respond to a performance of a Beethoven string quartet. An artificial performance environment could easily be constructed by, say, having replicated sets of the same musicians perform the work at three o'clock on successive Saturday afternoons in the same recital hall. The musicians would be asked to keep their performances as similar as possible: using the same stage set-up, wearing the same clothes, employing the same performance protocols (such as not talking on stage, leaving the stage between pieces, and bowing formally in response to applause). To each performance a specific audience would be invited: children or senior citizens or a mixed group of the two. A responsible study would need to factor in the musicians' responses to each audience and to use a suitable survey or interview technique to capture individual responses among the audience members. One overriding concern in experimental studies is that ethics protocols require that participants will be made aware at some point of the fact that they are being studied, even if this occurs after the performance. Since human subjects are self-aware this very knowledge would potentially affect their responses. Researchers who wish to take an experimental approach to the ecology of musical performance will need to adopt imaginative and strategic approaches to designing their experiments. This is a skill that is not well developed among ethnomusicologists, who are used to taking the field as we find it. Developing and refining research design principles is a necessary goal for an ecology of musical performance.

CONCLUSION

In our view, there is much potential in adapting scientific ecological methodologies to the study of musical performance. The advantages include a systematic approach to identifying and isolating particular issues, structuring

detailed comparative studies, and developing strong research design principles. At some point, however, the analogy to ecology must break down if only for the simple reason that the participants are self-reflective humans who may have a high degree of interactivity with the researchers. If birds could speak, scientists' methods might change dramatically. Ecomusicologists studying musical performance seek to provide an enriched understanding of human musical interactions and their broader social/cultural resonances. The collection and analysis of empirical data can be enormously helpful in codifying performance rituals, gestures, contexts, and environmental factors. The collection and analysis of qualitative data adds another, necessarily interpretive, layer of analysis that must be factored into the construction of appropriate methodologies for an ecology of musical performance.

Mark Pedelty (2012) argues passionately that "music should be able to play some role in fostering environmental sustainability, biodiversity and human well-being" (202). That value, he states, "is shared by most ecomusicologists" (202). In this essay, however, we have shown that a robust methodology for studying the ecology of musical performance is distinct from any particular set of values about music's social and cultural effects. At the risk of proliferating terminology then, we offer the qualifier "environmental ecomusicology" to describe approaches to research that are fundamentally environmentalist rather than ecological in approach. Environmental ecomusicology would apply, for example, to studies of musical works that employ nature sounds in order to call attention to the degradation of particular habitats or the endangerment of animal species, and to the analysis of activist songs with environmentalist lyrics. An ecology of musical performance need not necessarily serve environmentalist goals.

Freed from a political focus on environmentalism, an ecology of musical performance would entail the systematic exploration of music in the context of space/place/time with a view to mapping its relations, causes, and effects as carefully and completely as possible. Many ecomusicologists are highly motivated by a laudable desire to improve the environment and we have huge respect for this motivation. Ecomusicology, however, is a holistic approach to the study of music that may benefit our understanding of any number of sociomusical phenomena from the acoustics of performing environments to complex interactions of race, ethnicity, class, sexuality, and ability with music. Like ecology, a robust ecomusicology will contribute a great deal to our understanding of the interactions of musical and other systems whether or not the goal is environmentalism.

NOTES

1. Contribution no. 14-156-B of the Kansas Agricultural Experimental Station.
2. Allen's parsing of the term ecomusicology is explicitly a combination of ecocriticism and musicology (not ecology and musicology). Ecology is, unsurprisingly, a

central trope in ecocriticism. For example, Hannes Bergthaller states that "The common ground on which all strands of ecocriticism stand is the assumption that the ideas and structures of desire which govern the interactions between humans and their natural environment (including, perhaps most crucially, the very distinction between the human and the non-human) are of central importance if we are to get a handle on our ecological predicament" (Bergthaller 2014).

3. See Guyette and Post (chapter 3) for an excellent literature review on soundscape ecology, landscape ecology, and ecomusicology. Like us, they grapple with the question of how to deal with the relationship between sound, space, and anthropogenic influences.
4. While musical analysis may use mathematics and organology may use classification systems based in biological systematics, they do not employ the scientific method.
5. Ethologists would not distinguish between studying human animals and nonhuman animals as in this example of ethnomusicologists and animal behavioral ecologists.
6. This is, of course, but a partial list of concerns related to performance; ethnomusicology also encompasses diverse areas such as applied ethnomusicology, medical ethnomusicology, and the study of recording archives.
7. For recent approaches to ethnomusicological fieldwork see Barz and Cooley (2008).
8. In fact, the authors used feminist theories of performativity (Judith Butler) and psychoanalysis (Julia Kristeva) to analyze the data they collected. The example is pertinent here because the methodology for collecting that data was empirical.
9. For similar approaches to empirical research in ecomusicology see Clarke (2005) and Windsor (chapter 12).
10. We use the idea of comparative data here in the general sense of comparing information about a number of performances, rather than in the strict sense found in animal behavioral ecology of an analysis involving multiple species.
11. It is rare for music research to be funded on a scale that would allow for rigorous cross-regional comparison; the size of available grants is one factor that influences the methodological approaches that ethnomusicologists and animal behavioral ecologists adopt. Another difference lies in the research culture that privileges teams in scientific research and single authors in humanities scholarship. To a degree this culture is changing. Large-scale music research is currently being carried out by Georgina Born, whose project "Music, Digitization, Mediation: Towards Interdisciplinary Music Studies" is funded by the European Research Council's Advanced Investigator Grants program. This project is a comparative examination of the transformation of music and musical practices by digitization through ethnographies in seven countries.

WORKS CITED

Allen, Aaron S. 2011. "Ecomusicology: Ecocriticism and Musicology." *Journal of the American Musicological Society* 64 (2): 391–394.

———. 2014. "Ecomusicology." *The Grove Dictionary of American Music*. New York: Oxford University Press.

Barz, Gregory F., and Timothy J. Cooley, eds. 2008. *Shadows in the Field: New Perspectives for Fieldwork in Ethnomusicology*. Second Edition. New York: Oxford University Press.

Bechtel, Roger. 2008. "Review of *Small Acts of Repair: Performance, Ecology and Goat Island*." *Modern Drama* 51 (4): 613–615.

Bergthaller, Hannes. 2014. "What is Ecocriticism?" Accessed December 15, 2014. http://www.easlce.eu/about-us/what-is-ecocriticism.

Brown, Timothy J., and Paul Handford. 2003. "Why Birds Sing at Dawn: The Role of Consistent Song Transmission." *Ibis* 145: 120–129.

Brumm, Henrik, Robert F. Lachlan, Katharina Riebel, and Peter J. B. Slater. 2009. "On the Function of Song Type Repertoires: Testing the 'Antiexhaustion Hypothesis' in Chaffinches." *Animal Behaviour* 77: 37–42.

Cardoso, Goncalo C., and Jonathan W. Atwell. 2011. "On the Relation Between Loudness and the Increased Song Frequency of Urban Birds." *Animal Behaviour* 82: 831–836.

Clarke, Eric. 2005. *Ways of Listening: An Ecological Approach to the Perception of Musical Meaning*. Oxford: Oxford University Press.

Dalziell, Anastasia H., and Robert D. Magrath. 2012. "Fooling the Experts: Accurate Vocal Mimicry in the Song of the Superb Lyrebird, *Menura Novaehollandiae*." *Animal Behaviour* 83: 1401–1410.

Dowling, J. L., David A. Luther, and Peter P. Marra. 2012. "Comparative Effects of Urban Development and Anthropogenic Noise on Bird Songs." *Behavioral Ecology* 23: 201–209.

Feld, Steven. 2012. *Sound and Sentiment: Birds, Weeping, Poetics, and Song in Kaluli Expression*. Durham: Duke University Press. Original edition, 1982.

Gil, Diego, and Manfred Gahr. 2009. "The Honesty of Bird Song: Multiple Constraints for Multiple Traits." *Trends in Ecology & Evolution* 17: 133–141.

Goodale, Eben, and Sarath W. Kotagama. 2006. "Vocal Mimicry by a Passerine Bird Attracts other Species Involved in Mixed-species Flocks." *Animal Behaviour* 72: 471–477.

Jarvis, Erich D., Sidarta Ribeiro, Maria Luisa da Silva, Dora Ventura, Jacques Vielliard, and Claudio V. Mello. 2000. "Behaviorally Driven Gene Expression Reveals Song Nuclei in Hummingbird Brain." *Nature* 406: 628–632.

Kiefer, Sarah, Christina Sommer, Constance Scharff, and Silke Kipper. 2010. "Singing the Popular Songs? Nightingales Share More Song Types with Their Breeding Population in Their Second Season than in Their First." *Ethology* 116: 619–626.

Kroodsma, Donald E., and Edward H. Miller, eds. 1996. *Ecology and Evolution of Acoustic Communication in Birds*. Ithaca, NY: Comstock Books.

Marler, Peter. 1997. "Three Models of Song Learning: Evidence from Behavior." *Journal of Neurobiology* 33: 501–516.

Merchant, Carolyn. 2008. "Introduction." In *Ecology*, edited by Carolyn Merchant, 27–32. Amherst, NY: Humanity Books.

Nordby, J. Cully, S. Elizabeth Campbell, and Michael D. Beecher. 1999. "Ecological Correlates of Song Learning in Song Sparrows." *Behavioral Ecology* 10: 287–297.

Pedelty, Mark. 2012. *Ecomusicology: Rock, Folk, and the Environment*. Philadelphia: Temple University Press.

Price, J. Jordan, and David H. Yuan. 2011. "Song-type Sharing and Matching in a Bird with Very Large Song Repertoires, the Tropical Mockingbird." *Behaviour* 148: 673–689.

Reid, Jane M., Peter Arcese, Alice L. E. V. Cassidy, Sara M. Hiebert, James N. M. Smith, Philip K. Stoddard, Amy B. Marr, and Lukas F. Keller. 2004. "Song Repertoire Size Predicts Initial Mating Success in Male Song Sparrows, *Melospiza melodia*." *Animal Behaviour* 68: 1055–1063.

Smith, Julie Dawn, and Ellen Waterman. 2013. "Listening Trust: The Everyday Politics of George Lewis's 'Dream Team.'" In *People Get Ready, The Future of Jazz is Now*, edited by Ajay Heble and Rob Wallace, 59–87. Durham: Duke University Press.

Wallin, Nils L. 1991. *Biomusicology: Neurophysiological, Neuropsychological and Evolutionary Perspectives on the Origins and Purposes of Music*. Stuyvesant, NY: Pendragon Press.

Wallin, Nils L., Björn Merker, and Steven Brown. 2001. *The Origins of Music*. Cambridge: The MIT Press.

Weir, Jason T., David J. Wheatcroft, and Trevor D. Price. 2012. "The Role of Ecological Constrain in Driving the Evolution of Avian Song Frequency Across a Latitudinal Gradient." *Evolution* 66: 2773–2783.

3 Ecomusicology, Ethnomusicology, and Soundscape Ecology

Scientific and Musical Responses to Sound Study

Margaret Q. Guyette and Jennifer C. Post

During the last sixty years sound study has evolved to become a complex field with actors representing many different disciplines. Although not all sound-related research and events can be traced to environmental change, during recent decades many studies and performances have occurred in response to issues such as habitat and biodiversity loss, environmental degradation, and climate change. Research on sound has engaged historians, cultural geographers, urban and rural studies scholars, anthropologists, musicians, acousticians and other scientists from biologists to landscape ecologists. In music, the soundscape movement that is often traced to the work of R. Murray Schafer in the late 1960s has grown to be a multifaceted field that engages composers, sound artists, musicologists, and ethnomusicologists.[1] In contrast, sound study connected to ecology and land change science, especially when concerned with the significance of sound in determining the health of an ecosystem, has only been identified as a distinct scholarly field since 2009 (Farina 2014).[2] One might say that relationships between humanistic and scientific approaches to ecological change in sound studies are entangled; they offer similarities and differences in their approaches and goals. In this period of disciplinary development in the humanities and sciences some potentially significant areas for shared inquiry are made more difficult due to varying definitions of sound-related terms and ways of applying concepts. Establishing clearer relationships among scientific, social scientific, and humanistic approaches to sound studies will benefit research in all our fields.

In this essay we address sound- and music-related events using a dual landscape ecology and ecomusicological approach in order to identify ways that we each might engage in the study of sound more effectively. As ecologist (Guyette) and ethnomusicologist (Post), we embrace the scholarly discourse that reflects a growing interest in documenting acoustic events in order to understand human and non-human behaviors. We are especially interested in how behaviors, entities, and actions of humans and non-humans can be understood within scientific, social scientific, and cultural realms within the context of two new fields: soundscape ecology and ecomusicology. Scientists, social scientists, and humanists have all expressed interest in topics connected to natural and built environments,

opening new possibilities for working together to reframe multidisciplinary relationships to sound. Some of the obstacles to collaborative work are revealed in the ways researchers approach their studies of sound. Two key examples include: 1) a tendency for ecomusicologists to take a broad view of ecology without a full understanding of the scientific principles behind that discipline (see Boyle and Waterman chapter 2), and 2) a tendency for soundscape ecologists to conduct research and produce designs and diagrams that revolve around biological components of a landscape while limiting human factors. We believe these weaknesses in each discipline can be addressed jointly to rebalance research and relationships in collaborative work that will encourage more comprehensive representation of acoustic events.

We begin with a brief overview of sound studies through a landscape ecologist's lens and ecological sound studies through an ethnomusicologist's lens. In the two following case studies, we illustrate the value of both perspectives for ecological and ethnomusicological research, and we suggest ways to integrate these approaches to enhance ecological knowledge and work toward sustainability. We conclude by discussing how representatives of each discipline can work to improve their approaches to sound research.

SOUND STUDIES THROUGH A LANDSCAPE ECOLOGIST'S LENS

Ecological work involving sound has historically focused on acoustic studies of the natural world, including research on birdsong, whale song, insect, and bat bioacoustics. The recent emergence of the field of soundscape ecology (Farina 2014), described as a synthesis of acoustic ecology and landscape ecology (Truax and Barrett 2011), has shifted the focus of ecological work involving sound. Scientists involved with soundscape ecology research have studied the diversity of biological and geophysical components of a landscape that contribute to the acoustic environment, and they have worked toward answering ecological questions involving biodiversity (Pekin et al. 2012), species distributions (Liu et al. 2013), animal behavior (Farina et al. 2011, Bennett and Zurcher 2013), and land and resource management (Lynch et al. 2011, Dumyahn and Pijanowski 2011). The primary means for acoustic data collection in soundscape ecology is passive monitoring, which involves deploying sound recording devices or sound level meters in the environment to record sound that can be analyzed and interpreted in a laboratory. Recent landscape ecology sound studies have used omnidirectional microphones interfaced with a recording device in terrestrial environments (Pekin et al. 2012, Joo et al. 2011), and hydrophones interfaced with recording devices have also been used in marine (Staaterman et al. 2013) and freshwater (Kuehne et al. 2013) environments.

When active monitoring is employed, researchers rely on direct aural detection, which may involve developing thematic sound maps from direct sensory surveys (Mazaris et al. 2009) or recording sound classifications and rankings (Matsinos et al. 2008, Liu et al. 2013). Researchers may also combine passive and active methods (Bennett and Zurcher 2013). The spatiotemporal processes that are digitally recorded become archival records of landscapes for scientists to use to make predictions and plans for management action.

The role of humans in soundscape ecology and other ecological studies involving sound is dependent upon each set of research questions. In many bioacoustical studies, humans are considered external to the system because the goal is to learn about non-human sound production, communication, or patterns. In other studies, the focus may be on addressing how humans have affected landscape-scale patterns and processes (Kuehne et al. 2013, Joo et al. 2011). Among ecologists and environmental scientists, a common perception of the human role in the sonic landscape is as a source of anthropogenic noise, which implies that humans have a detrimental effect on the natural world (Maffi 2007). In some spheres, such as those considering biocultural diversity and sustainability, there is growing interest in utilizing indigenous knowledge (IK) or traditional ecological knowledge (TEK) as critical sources for assessment and management (Berkes et al. 2000). To date, sound studies in conjunction with landscape ecology have not yet demonstrated a method for incorporating IK or TEK into this type of ecological research.

ECOLOGICAL SOUND STUDIES THROUGH AN ETHNOMUSICOLOGIST'S LENS

Ecomusicological research engages with ecological events and issues and their relationships with musical expression. Among several different trajectories being explored by scholars in this emerging field, ecomusicological studies using an ethnomusicological or anthropological lens engage directly with human social and cultural behaviors. The primary data sought is typically performance- and event-based, with a focus on musical production. Ethno-ecomusicologists note patterns of human behavior especially in relation to landforms and biological entities to reveal the significance of both sound and materiality (to local communities) and to demonstrate their in-depth knowledge of the land around them (expressed in time and space). This body of information—comprised of local knowledge, social relationships, ecological events, and expressive forms—offers data on biological systems and cultural scenes. In the 1980s and 1990s ethnomusicologists who had conducted fieldwork in diverse locations offered descriptive and analytical material on human sound-related behaviors in connection with geophysical and biological

landscapes. The most widely cited work from this period is Steven Feld's study of sound and social systems of the Kaluli in Papua New Guinea (2012). Other widely referenced sources include studies on Suyá rituals in the Brazilian Amazon (Seeger 1987), Temiar music and medicine in Malaysia (Roseman 1991), and music and ecology among Aymara and Quechua speaking peoples in Bolivia (Solomon 2000, Stobart 2008). Resonating with other ethnographers during subsequent decades, their approaches generated new research on sound, music, and landscape that addresses physical space and place in the natural world and engagements with sound landscapes. Scholars explored sound and music—of Tuvan and Kyrgyz herders (Levin 2006), Australian indigenous soundscapes (Richards 2007), ecology, memory, and music in South Africa (Impey 2006), Saami landscape and music (Ramnarine 2009), and landscapes and song in Taiwan (Guy 2009)—to offer ethnographic products in which they engaged with and reported on direct connections to the natural world expressed by local residents. Increasingly, relationships to the lands and landscape have been reimagined, and most recently the non-human is playing a significant role in new conceptualizations that align with similar movements in other disciplines. Studies in Ecuador (Uzendoski et al. 2005), Papua New Guinea (Amman et al. 2013), and Lowland South America (Brabec de Mori and Seeger 2013, Seeger chapter 6) consider relationships between sound and music in conjunction with human and non-human agency. Brabec de Mori and Seeger ask whether music is human, reflecting the often-cited work by ethnomusicologist Blacking, *How Musical is Man?* (1973). Their discussion engages the question both philosophically and pragmatically, as do Rothenberg when he asks "why birds sing" (Rothenberg 2005) and Sorce Keller (2012) when he argues for consideration of non-human animals in research; Sorce Keller even seeks to reframe ethnomusicological inquiry to consider "meaningful sound everywhere in the universe" (170).

In the case studies that follow we look at various ways that science and music intersect to demonstrate that human and non-human sounds and sound-making play equally important roles in providing ecological knowledge about a sound landscape. Passively and actively gathered sound data from animals and geophysical entities inform scientific research. Human values, beliefs, and practical knowledge about (human and non-human) sound environments, patterns, and histories, all offer ways to evaluate environmental and ecological conditions for the improvement of landscape management. Drawing on research in western Mongolia among pastoral nomadic herders, and referencing community sound and other environmental abatement projects identified with scientific research and community (and national) quality of life values in New Zealand, we consider key areas that challenge some of the new and developing themes in sound(scape) studies for both ecomusicologists and soundscape ecologists.

SOUND STUDIES AND MOBILE PASTORALISM IN MONGOLIA

In Bayan Ölgii province in western Mongolia, the steppes and mountain-steppes in the Altai Mountains bordering Russia and China are inhabited by mobile pastoralists who have been caretakers of these lands for generations (see Figure 3.1 for an image of a typical Kazakh summer family settlement).[3] Today they are struggling in the midst of social, political, and environmental changes occurring around them. Ecological research reveals that during the last two decades environmental change has been devastating to the many species that share the land in this and other provinces (Lkhagvadorj et al. 2012, Fernández-Giménez 2000).[4] The pastoralists' soundscapes are comprised of biophonic, geophonic, and anthrophonic elements, and these sounds in the environment are perceived and utilized by local residents, including biogenic and anthropogenic entities. Mobile pastoralists express multiple relationships to the sounds that are part of the lived experience of all inhabitants. The dominant Kazakh herders, along with Urianghais and Tuvans, monitor the health of the landscape, often using all their senses. They reference landscapes in their songs and describe them in lyrical instrumental tunes, noting and mimicking the sounds. Their products are evidence of herders' acknowledgment of their partnership with the land and of the agency of its non-human entities. The animist values that are maintained (to varying degrees) in this region can be characterized by frequent references to animals and portions of the landscape that have been identified with spiritual power (Levin and Edgerton 1999, Levin 2006). As with the Lowland Amazon indigenous peoples, some Mongolian residents "listen to animals (and other non-human beings), study their behaviour and potentials, translate this knowledge and bring this agency into the realm of their own musical community life" (Brabec de Mori and Seeger 2013, 271). Some Mongolian herders listen to sounds both "audible" (Feld 2012) and "apparently inaudible" (Brabec de Mori and Seeger 2013). Western Mongolian herders' sustainable rangeland management is not unlike Evenki herders' relationship to their environment in nearby Siberia, where there are "solidarities and obligations between people and certain places and animals" and a "mutual interrelation of person and place" (Anderson 2000, 116). Reindeer management in northern Mongolia and Siberian Russia "depends on movement within a landscape that includes animals, weather, rivers, plants, and other geographical features, any of which may be animated or personified" (Cassidy 2012, 27). Species and habitat diversity are key to survival in the harsh Mongolian climate, and indicators of a healthy ecosystem for herders in Bayan Ölgii include: the presence of specific birds' songs or calls; the sound of water in streams and rivers; soundscapes and visual scapes identified with horses, sheep, goats, yaks, and camels; and other landscape sounds such as the wind. Sound signals identified with pastoral life referenced in song and represented in melodies communicate the biodiversity in the steppe both historically and in their current circumstances.

Figure 3.1 Saghsai summer settlement, 2013 (Photo: J. Post).

The acoustic interaction of herders with their sound environment plays a significant role in their contributions to maintaining landscape health. Sound is a key means for their discourse with the land and about the land, and these sounds and references to sound offer support for their way of life; their engagement in the promotion of a lifestyle contributes to sustainability of ecosystems in the steppe. For scholarly communities interested in sound, then, the herders are a source for information about acoustic events, which for landscape ecologists and ecomusicologists can be understood spatially and temporally. Kazakh herders sing songs in which they reference biological and geophysical elements in the world around them, including soundscapes. To illustrate, we include brief excerpts from a few local songs. Qaban maintains an older song, naming valued seasonal birds, whereas Erkinbek, in his popular local song, reminds his listeners of the integration of sound in a healthy and productive landscape in the Saghsai region at harvest time.[5]

When summer comes
Goose, duck and swallow
They sing different songs
Nightingale, sparrow and warbler
Qaban—Akhit Qazhi's terme

Fish play in the lakes
Foals whinny in the *zhel*[6]
Swaying wide steppe, full of harvest
All the work we have done
Has been given to us
Erkinbek—Saghsai song

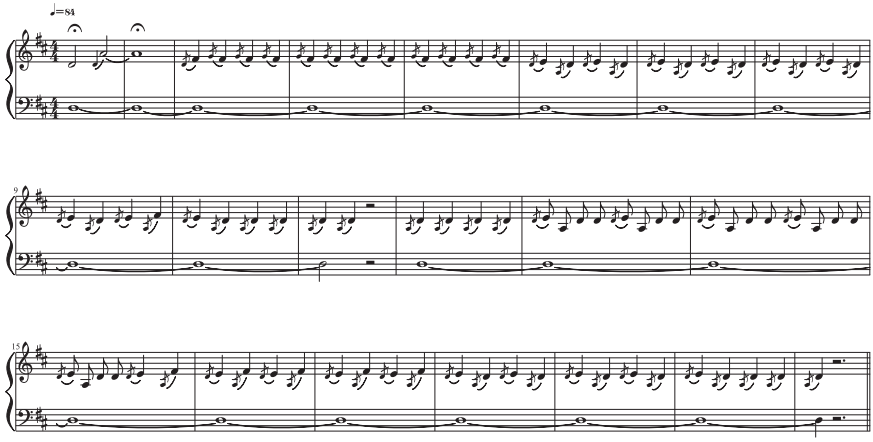
Songs sung publicly integrate sounds and images of place to provide social commentary on the health of the lands as well. Zhangabyl sings about the grazing lands he used for years at Tövshin köl in a song he wrote himself, referencing the specific valleys (*sai*) that he frequents:

> My Urten sai, Qurgaq sai and Suly sai
> I heard lambs on your skirt and hollow
> You don't turn green and sway as you did before
> You are getting worse year by year
> Zhangabyl—Tövshin köl terme

Similarly, instrumental tunes played by Tuvan, Urianghai, and Kazakh musicians who engage in or identify with herding are performed on flutes and long necked plucked and bowed lutes. Some tunes mimetically reproduce the sound of brooks and streams, bird songs, and animal calls (Pegg 2001, Levin 2006, Post 2007).[7] Levin describes some of these sounds as "sonic images" or "sound portraits" among Tuvan performers (Levin 2006, 83, 93).

Figure 3.2 Enbek plays *sybyzghy* in Olgii, 2011 (Photo: J. Post).

Kazakh performer Enbek Abdollauly offers narrative melodies (*küi*) on the end-blown flute *sybyzgy* (with vocal drone) to describe images and sounds of landscapes he has experienced (see Figure 3.2). Enbek, creating a single phrase in one breath, simultaneously references the sounds, image, and character of the valued type of horse that is known as *zhorgha* (ambler). (See Example 1.)



Example 1 Zhorgha (Enbek, Olgii, Mongolia, July 1, 2014).

Levin also notes that Tuvan melodies rhythmically tied to the gait of a horse, "convey the rhythm of physical movements and the appearance and psychological character of animals and humans" (Levin 2006, 83).

Sounds, songs, and instrumental tunes that reference landscapes serve multiple purposes in a human community, but they also impact non-humans. Mongolian herders express relationships between human and non-human entities in their communication with animals, especially during milking (see Figure 3.3). Sounds (sung or using heightened speech) to encourage the flow of milk have practical, aesthetic, and community-based roles. When a Kazakh herder calls to calm mares while milking to make the popular drink *qymyz*, the carefully expressed sound (stylistically learned and transmitted in families) communicates biophonically, signaling the mare (and colt) to be calm; the community of people identify this specific sound with season, time of day, and milk production.[8]

Traditional ecological knowledge in Mongolia is reflected in herding practices that include variability in land use. Historically, shared ecological knowledge "was the foundation for biosocially sustainable resource management institutions," and despite lifestyle changes it remains a basis for current practice (Fernández-Giménez 2000, 1324). Constraints identified with social, economic, and political change have impacted herders' behaviors, including their ability to manage the land, and this has generated

Figure 3.3 Milking mares at a summer settlement in Tolbo sum, 2013 (Photo: J. Post).

some grazing patterns that today are unsustainable (Lkhagvadorj 2013).[9] Fernández-Giménez (2000), arguing for increased involvement of herders in establishing land use patterns, states that scientific research should continue "in concert with ethnoecological research on herders' knowledge and perceptions" (1325). Whereas ecological studies, including soundscape ecology, typically point to anthropogenic factors as a primary cause for environmental degradation (of soils, vegetation, and other elements), rangeland ecologists increasingly offer evidence that mobile pastoralism plays a key role in maintaining ecosystem balance. For example, Kiage (2013) argues that identifying human resource use with soil erosion (and other forms of rangeland degradation) in Sub-Saharan Africa demonstrates a lack of understanding of the causes of soil erosion and other land changes, and of how highly structured systems for sharing common property among local pastoralists actually support ecosystem sustainability. Considering the similarly highly structured social systems among pastoralists in Mongolia, this suggests that an analysis of ecosystem health involving soundscapes would need to include humans and their communities (including domestic animals) as an integral, rather than external, component of the ecosystem.

An ecomusicological study examining soundscapes and ecological changes in this region would benefit from the expertise of both ecologists and ethnomusicologists. Independently, soundscape ecologists studying the

Bayan Ölgii landscape could collect data on species distributions or acoustic diversity through sound sampling to establish patterns with respect to observed changes in the landscape or across gradients of environmental impact. Research must integrate the interactions between humans and animals, the role that herders' lives play in a geophysical space, and their daily interactions with both wild and domesticated animals; lacking such integration, the resulting product would be an incomplete acoustical image of western Mongolia. Herders' acoustic perception of species and soundscapes can provide unique perspectives and be a source of data to inform ecological research focusing on environmental change. Ultimately, an integrated approach—involving a combination of passive or active acoustic monitoring of human and non-human inhabitants of the region together with ethnographic engagement that considers herders and their geophysical environment—will provide a more complete assessment of ecological conditions. In turn, such approaches will help guide management decisions to support sustainable practices to benefit ecological communities and the mobile pastoralists that are integral to this environment.

SOUND STUDIES, ADAPTIVE MANAGEMENT, AND COMMUNITY ACTION IN NEW ZEALAND

In settled rural and urban areas of New Zealand, concerns about vulnerable and endangered plants and animals (including diminished or masked bird songs and other acoustic markers of a landscape) have generated responses from conservation organizations and local community members. Since the seventeenth century, introduced mammals have devastated bird populations and impacted plant life throughout New Zealand (Towns and Ballantine 1993, Pryde and Cocklin 1998).[10] Landscape ecologists and other scientists have responded with biodiversity studies and adaptive management efforts,[11] and local conservation organizations and community members have joined together for single species and ecosystem restoration projects that are contributing to regenerating soundscapes and landscapes (Moller et al. 2004). The valuing of specific species and their sounds throughout the country is also expressed in conjunction with acknowledging and honoring the Maori people (New Zealand's earliest inhabitants) and their cultural and social values. This includes their relationship to sound, place, and elements in the natural world.

On New Zealand's southernmost residential island, Stewart Island/Rakiura, and nearby Ulva Island (a conservation site used for renewing/reintroducing endemic species, see Figure 3.4), both part of Rakiura National Park, the soundscape is marked with the songs of ecologically and socially valued birds, many of them endemic: bellbird (korimako), shining cuckoo (pipiwharauroa), fantail (piwakawaka), tomtit (miromiro), grey warbler (rironiro), tui, kaka, Stewart Island robin (see Figure 3.5), and

Figure 3.4 The regenerating Ulva Island forest, 2012 (Photo: J. Post).

others. Conservation efforts to reestablish native birds by eradicating rats, possums, and feral cats from the islands, using government and local community-based programs, have been in place since the 1980s (Towns 2013).[12] For example, the primary focus of the Stewart Island/Rakiura Community and Environment Trust (SIRCET), established in 2002, is the Halfmoon Bay Habitat Restoration Project (SIRCET 2007). Dependent on community involvement and volunteerism, participants work to control invasive pests, and they monitor and improve habitat quality for native species.[13] For the nearly 300 permanent residents, all of whom live in the town of Oban on Halfmoon Bay, interest in this project is connected to conservation as well as to tourism and quality of life. One key marker for success of the program is the soundscape of an island, identified especially with bird populations that have been maintained or reintroduced (Towns 2013, Quin 2002).[14] The soundscape on the islands today indicates that bird song is more prevalent in regions in and around the small settlement of Oban and on Ulva Island than in the wilderness areas that make up the bulk of the island. The success of the project is directly related to ongoing actions of local residents who work to check animal traps daily for pest control, engage in seasonal bird counts, and take part in ongoing species-specific native bird and plant monitoring. Landscape ecologists engaged in passive acoustic monitoring of space on the island would reveal that the acoustic diversity index is higher in the populated areas than in the regions with lower human population. Their studies would note that anthropogenic activities have played a positive role in managing and reintroducing

endemic populations. Outside of the spaces dominated by human settlement there is less interest in funding support for monitoring invasive species and engaging in abatement projects.[15]

Figure 3.5 Banded Stewart Island robin on Ulva Island, 2012 (Photo: J. Post).

A dual landscape-soundscape ecology and ethno-ecomusicological approach to a study of human and non-human soundscapes of Stewart Island/Rakiura, including the town of Oban, might investigate the intentionally interacting sound communities and the ways they have been adjusted in conjunction with local (human) community values. Acoustic data collected as part of the SIRCET monitoring program cover a large spatial area and have been gathered over more than a decade, providing a strong spatial and temporal dataset for soundscape analysis. Assessing community efforts to mediate sound in specific locations provides opportunities for researchers to document human aesthetic and cognitive responses to human and non-human sound and, then, to integrate these results with existing acoustic data. This work would highlight the integral role humans have played in restoring the ecology of Stewart Island/Rakiura by combining and synthesizing analyses of human and non-human biological responses to change. Research questions might also consider products that incorporate responses of local and non-resident peoples to each soundscape, including media products such as soundscape recordings that express musical and other acoustic interests in the natural world in connection with this unique location.[16]

DISCUSSION AND CONCLUSION: COMMUNICATING AND COLLABORATING

Soundscape ecologists and ecomusicologists will benefit from interdisciplinary collaborations to synergistically address questions identified with sound and environment. As researchers embrace different disciplinary values to engage in sound research together, their more comprehensive studies will reveal data that can be used more broadly across the disciplines. Ethno-ecomusicological approaches rely on ethnographic data to document musical or sound performances and events produced by human actors in relation to ecological events in their environment. Although concerned with acoustic integrity and spatial and temporal data, all ecomusicological approaches demonstrate greater focus on anthropogenic activities than those of soundscape ecologists, and their recordings of audio events are seldom passive. Missing in music studies today are comprehensive understandings of local ecosystems and how they relate to various human and non-human interactions resulting in different forms of cultural expression. Human-centered ecomusicological research focuses on social and cultural activities, sometimes losing sight of critical concerns related to specific ecological issues such as the names of local materials and their histories, specific information on climate change, or species distribution data and its relationship to space, time, and change. The focus in ethno-ecomusicological studies on human elements fails to fully represent ecosystems. Furthermore, ethno-ecomusicological studies are both context driven and frequently reflexive, whereas soundscape ecological studies tend to look at broad sets of behaviors that are less contextual and more ostensibly objective; scientists more often remain external observers of the environment they are studying. Soundscape ecologists' stated interests in biogenic activity and sound as a natural part of the landscape contrasts with their views of anthropogenic roles in sound production (typically defined as all human-related activities, regardless of intent). Soundscape ecology work does not yet demonstrate in-depth understanding and delineation of anthrophony and anthropogenic activities in relation to different roles that humans play in a sound landscape, both integrative and destructive; human activities are primarily identified as disruptive to the endemic biogenic and biophonic land- and soundscapes. We have illustrated cases where humans are integrated into and essential to the environment such that soundscape analysis would be ineffective if the anthrophonic and anthropogenic components were ignored or examined only as destructive.

While on the surface it appears that ecomusicologists and sound ecologists have different research goals, their shared focus on understanding spatial and temporal events in social or community contexts provides an opportunity to seek collaborative actions. Their purpose is to yield a broader view of the sound landscape and to provide opportunities to understand relationships and, in some cases, to effect changes that benefit both

source and research communities, especially in the face of environmental degradation and loss. From studies of rural and urban, settled and nomadic peoples, we learn that sound-makers and song-makers, and their supporting communities, share ecological and cultural knowledge. Mobile pastoral herders and community activists offer knowledge about both scientific and humanistic acoustic elements that contribute to their everyday lives. Most ecologists and musicologists, equipped with specific disciplinary skills, do not have the background to fully analyze and report on these relationships. For topics identified with ecological issues, whether as part of daily life or the result of recent environmental change, three areas will impact the interpretation and analysis of all our acoustic data: understanding both human and non-human behaviors and patterns, recognizing biodiversity (including biological analysis of acoustic diversity), and assessing the impact of natural resource distribution and management. This can best be achieved through cooperative research efforts between ecomusicologists and ecologists that make use of their respective strengths in order to gain a more complete understanding of our shared sound environment.

NOTES

1. See online supplement (http://www.ecomusicology.info/cde), bibliography entries 8, 13, 33, 36, 37, and 40 for histories and approaches to sound studies and music.
2. See online supplement (http://www.ecomusicology.info/cde), bibliography entries 30 and 31 as well as Farina 2014 for histories and approaches to soundscape ecology.
3. Pastoralism refers to the raising of domesticated animals for food, clothing, and other materials, and as a symbol of wealth. Mobile (or nomadic) pastoralism is an economic strategy in which livestock is moved seasonally, from pasture to pasture, to support the health and production of their livestock and to maintain their families.
4. See online supplement (http://www.ecomusicology.info/cde), bibliography entries 39 and 42.
5. These brief excerpts from songs in the *terme* genre were recorded by Post in Bayan Ölgii in 2005 (Erkinbek), 2007 (Qaban), and 2011 (Zhangabyl).
6. A *zhel* is a tethering place for livestock.
7. Mimesis and other acoustic interactions involve relationships with both wild and domesticated animals.
8. For example, the season for producing *qymyz*, or fermented mare's milk, by Kazakh herders in Mongolia is marked by the milking schedule of the mares, as well as the social exchange that occurs around sharing the milk. Levin (2006) also includes discussions of human-animal acoustic relationships in Tuva.
9. Land use and grazing patterns established during the Soviet era altered family-based strategies for sharing and maintaining land. In the post-Soviet period, Mongolian government intervention made reinstatement of local practices difficult.
10. The best estimate for the earliest rat introductions was around 1600 AD. Feral cats were introduced in the early 1800s, possums in 1890. See online supplement (http://www.ecomusicology.info/cde), bibliography entries 18, 20, and 34.

11. Adaptive management is a structured decision-making process that considers uncertainty and change to adjust operations in order to achieve reduced uncertainty and improved management of resources and conditions.
12. The government has also engaged the Maori to take part in stewardship projects on nearby Muttonbird Island. They have been working with scientists on adaptive management in relation to the *titi* (muttonbird or sooty shearwater), a near threatened bird highly valued by the Maori (Moller et al. 2004).
13. Towns notes, "One outcome of the eradications of mammals from islands has been a proliferation of community-based projects that control or eradicate invasive species from sites on the mainland. The total area managed almost doubles that so far achieved by eradications on islands" (Towns et al. 2013, 100).
14. Reintroduced birds include the New Zealand bellbird (korimako), rifleman (tïtipounamu), New Zealand fernbird (matata), South Island saddleback (tieke), kaka, Stewart Island brown kiwi (tokoeka), Stewart Island robin (toutouwai), yellowhead (mohua), and weka.
15. There is also greater interest in supporting hunting in some of the outlying regions of Stewart Island/Rakiura, especially white-tailed deer, introduced as game species.
16. Soundscape documents identified with the island to date have been focused on passive sound monitoring, largely by soundscape artists and recordists, not scientists (Quin 2002). See online supplement (http://www.ecomusicology.info/cde), bibliography entries 15 and 41.

WORKS CITED

Amman, Raymond, Verena Keck, and Jürg Wassmann. 2013. "The Sound of a Person: A Music Cognitive Study in the Finisterre Range in Papua New Guinea." *Oceania* 83 (2): 63–87.

Anderson, David G. 2000. *Identity and Ecology in Arctic Siberia: The Number One Reindeer Brigade*. New York: Oxford University Press.

Bennett, Victoria J., and Arthur A. Zurcher. 2013. "When Corridors Collide: Road-related Disturbance in Commuting Bats." *Journal of Wildlife Management* 77 (1): 93–101.

Berkes, Fikret, Johan Colding, and Carl Folke. 2000. "Rediscovery of Traditional Ecological Knowledge as Adaptive Management." *Ecological Applications* 10 (5): 1251–1262.

Blacking, John. 1973. *How Musical is Man?* Seattle: University of Washington Press.

Brabec de Mori, Bernd, and Anthony Seeger. 2013. "Introduction: Considering Music, Humans, and Non-humans." *Ethnomusicology Forum* 22 (3): 269–286.

Cassidy, Rebecca. 2012. "Lives with Others: Climate Change and Human-Animal Relations." *Annual Review of Anthropology* 41: 21–36.

Dumyahn, S. L., and B. C. Pijanowski. 2011. "Beyond Noise Mitigation: Managing Soundscapes as Common-pool Resources." *Landscape Ecology* 26 (9): 1311–1326.

Farina, Almo. 2014. *Soundscape Ecology: Principles, Patterns, Methods, and Applications.* Dordrecht, The Netherlands: Springer.

Farina, Almo, Emanuele Lattanzi, Rachele Malavasi, Nadia Pieretti, and Luigi Piccioli. 2011. "Avian Soundscapes and Cognitive Landscapes: Theory, Application, and Ecological Perspectives." *Landscape Ecology* 26 (9): 1257–1267.

Feld, Steven. 2012. *Sound and Sentiment: Birds, Weeping, Poetics, and Song in Kaluli Expression*. Durham: Duke University Press. Original edition, 1982.

Fernández-Giménez, María E. B. 2000. "The Role of Nomadic Pastoralists' Ecological Knowledge in Rangeland Management." *Ecological Applications* 10 (5): 1318–1326.

Guy, Nancy. 2009. "Flowing down Taiwan's Tamsui River: Towards an Ecomusicology of the Environmental Imagination." *Ethnomusicology* 53 (2): 218–48.

Impey, Angela. 2006. "Sounding Place in the Western Maputaland Borderlands." *Journal of the Musical Arts in Africa* 3: 55–79.

Joo, Wooyeong, Stuart H. Gage, and Eric P. Kasten. 2011. "Analysis and Interpretation of Variability in Soundscapes along an Urban–Rural Gradient." *Landscape and Urban Planning* 103 (3–4): 259–276.

Kiage, Lawrence M. 2013. "Perspectives on the Assumed Causes of Land Degradation in the Rangelands of Sub-Saharan Africa." *Progress in Physical Geography* 27 (5): 664–684.

Kuehne, Lauren M., Britta L. Padgham, and Julian D. Olden. 2013. "The Soundscapes of Lakes across an Urbanization Gradient." *PLoS One* 8 (2): e55661.

Levin, Theodore C., and Michael E. Edgerton. 1999. "The Throat Singers of Tuva." *Scientific American* 281 (3): 80–87.

Levin, Theodore. 2006. *Where Rivers and Mountains Sing*. Bloomington: Indiana University Press.

Liu, Jiang, Jian Kang, Tao Luo, Holger Behm, and Timothy Coppack. 2013. "Spatiotemporal Variability of Soundscapes in a Multiple Functional Urban Area." *Landscape and Urban Planning* 115: 1–9.

Lkhagvadorj, D., M. Hauck, Ch. Dulamsuren, and J. Tsogtbaatar. 2013. "Pastoral Nomadism in the Forest Steppe of the Mongolian Altai under a Changing Economy and Warming Climate." *Journal of Arid Environments* 88: 82–89.

Lynch, Emma, Damon Joyce, and Kurt Fristrup. 2011. "An Assessment of Noise Audibility and Sound Levels in U.S. National Parks." *Landscape Ecology* 26 (9): 1297–1309.

Maffi, Luisa. 2007. "Biocultural Diversity and Sustainability." In *Sage Handbook on Environment and Society*, edited by Jules Pretty, Andy Ball, Ted Benton, Julia Guivant, David R. Lee, David Orr, Max Pfeffer, and Hugh Ward, 267–278. London: SAGE Publications.

Matsinos, Yiannis G., Antonis D. Mazaris, Kimon D. Papadimitriou, Andreas Mniestris, George Hatzigiannidis, Dimitris Maioglou, and John D. Pantis. 2008. "Spatio-Temporal Variability in Human and Natural Sounds in a Rural Landscape." *Landscape Ecology* 23 (8): 945–959.

Mazaris, Antonios D., Athanasios S. Kallimanis, George Chatzigianidis, Kimonas Papadimitriou, and John D. Pantis. 2009. "Spatiotemporal Analysis of an Acoustic Environment: Interactions between Landscape Features and Sounds." *Landscape Ecology* 24 (6): 817–831.

Moller, Henrik, Fikret Berkes, Philip O'Brian Lyver, and Mina Kislalioglu. 2004. "Combining Science and Traditional Ecological Knowledge: Monitoring Populations for Co-Management." *Ecology and Society* 9 (3): 2. Accessed December 5, 2014. http://www.ecologyandsociety.org/vol9/iss3/art2.

Pegg, Carol. 2001. *Mongolian Music, Dance, & Oral Narrative: Performing Diverse Identities*. Seattle: University of Washington Press.

Pekin, Burak K., Jinha Jung, Luis J. Villanueva-Rivera, Bryan C. Pijanowski, and Jorge A. Ahumada. 2012. "Modeling Acoustic Diversity using Soundscape Recordings

and LIDAR-derived Metrics of Vertical Forest Structure in a Neotropical Rainforest." *Landscape Ecology* 27 (10): 1513–1522.

Post, Jennifer. 2007. "'I Take my Dombra and Sing to Remember my Homeland': Identity, Landscape and Music in Kazakh Communities of Western Mongolia." *Ethnomusicology Forum* 16 (1): 45–69.

Pryde, Philip R., and Chris Cocklin. 1998. "Habitat Islands and the Preservation of New Zealand's Avifauna." *The Geographical Review* 88 (1): 86–113.

Quin, Douglas. 2002. "Profile: Audio Postcard of the Soundscape from Ulva Island, New Zealand." Interview with Douglas Quin on National Public Radio. Melissa Block, interviewer. Accessed December 5, 2014. http://www.npr.org/templates/story/story.php?storyId=1136031.

Ramnarine, Tina. 2009. "Acoustemology, Indigeneity and Joik in Valkeapää's Symphonic Activism: Views from Europe's Arctic Fringes for Environmental Ethnomusicology." *Ethnomusicology* 53 (2): 187–217.

Richards, Fiona. 2007. *The Soundscapes of Australia: Music, Place and Spirituality.* Burlington, VT: Ashgate.

Roseman, Marina. 1991. *Healing Sounds from the Rainforest: Temiar Music and Medicine.* Berkeley: University of California Press.

Rothenberg, David. 2005. *Why Birds Sing: A Journey into the Mystery of Birdsong.* New York: Basic Books.

Seeger, Anthony. 1987. *Why Suya Sing: A Musical Anthropology of an Amazonian People*. Cambridge: Cambridge University Press.

SIRCET (Stewart Island/Rakiura Community and Environment Trust). 2007. "Halfmoon Bay Habitat Restoration Project Strategy for achievement (draft)." Accessed December 5, 2014. http://www.sircet.org.nz/reports_and_resources.htm.

Solomon, Thomas. 2000. "Dueling Landscapes: Singing Places and Identities in Highland Bolivia." *Ethnomusicology* 44 (2): 257–280.

Sorce Keller, Marcello. 2012. "Zoomusicology and Ethnomusicology: A Marriage to Celebrate in Heaven." *Yearbook for Traditional Music* 44: 166–183.

Staaterman, E., A. N. Rice, D. A. Mann, and C. B. Paris. 2013. "Soundscapes from a Tropical Eastern Pacific Reef and a Caribbean Sea Reef." *Coral Reefs* 32 (2): 553–557.

Stobart, Henry. 2008. "In Touch with the Earth? Musical Instruments, Gender and Fertility in the Bolivian Andes." *Ethnomusicology Forum* 17 (1): 67–94.

Towns, D. R., C. J. West, and K. G. Broome. 2013. "Purposes, Outcomes and Challenges of Eradicating Invasive Mammals from New Zealand Islands: An Historical Perspective." *Wildlife Research* 40: 94–107.

Towns, David R., and W. J. Ballantine. 1993. "Conservation and Restoration of New Zealand Island Ecosystems." *Trends in Ecology and Evolution* 8 (12): 452–457.

Truax, Barry, and Gary W Barrett. 2011. "Soundscape in a Context of Acoustic and Landscape Ecology." *Landscape Ecology* 26 (9): 1201–1207.

Uzendoski, Michael A., Mark Hertica, and Edith Calapucha Tapuy. 2005. "The Phenomenology of Perspectivism: Aesthetics, Sound and Power in Women's Songs from Amazonian Ecuador." *Current Anthropology* 46 (4): 656–662.

4 "No Tree—No Leaf"

Applying Resilience Theory to Eucalypt-Derived Musical Traditions

Robin Ryan[1]

INTRODUCTION

A close and creative relationship between *Eucalyptus* and the indigenous peoples of Australia is etched into the island-continent's cultural and physical history. To the modern botanist, eucalypts are plants in three closely related genera—*Eucalyptus*, *Corymbia*, and *Angophora*—all of which are studded with oil glands, but to the average Australian they are simply "gum trees" (Wrigley and Fagg 2010, vi). The musicalization of eucalypts—via the aerophones made from termite-hollowed trunks (didjeridus/didjeridoos) and carefully chosen gumleaves—sets up a unique sonic arena contingent upon an audience's capacity to invest nature with meaning.[2] Performances *in situ* can evoke a sense of proportion: the sights and sounds of didjeridus (end-blown drone-pipes) and fragile leaf matter relate to vast ecological systems that are subject to long-term climate change and short-term vicissitudes. The supply of eucalypts for gumleaf playing and didjeridu production has always been subject to the richness or harshness of local habitats,[3] and—since European contact—to anthropogenic (human-induced) damage to the fabric of the landscape.

Ecomusicology benefits from rigorous theoretical underpinnings. As Boyle and Waterman observe (chapter 2), ecomusicology participates in an ever-widening use of the term ecology as metaphor and ideology. I contribute to this process by subsuming the case studies presented here under the ecological principle of resilience: the capacity of a system to absorb threshold disturbance while undergoing change. Or as Zolli and Healy (2012) summarized it: why things bounce back. The Canadian ecologist C. S. Holling devised resilience theory in 1973 to describe the persistence of natural systems in the face of changes in ecosystem variables due to natural or anthropogenic causes. Some important aspects of resilience in social-ecological systems may not be directly observable (Carpenter et al. 2005, 941). In this essay I conceptualize two distinct systems as inextricably intertwined within a social-ecological system, i.e., in a complex assembly of nature and people: eucalypt vegetation structures that supply musical instruments, and the music-culture traditions that rely on these structures. This connection raises the questions: If the former is resilient, is the latter as well? And what happens to the resilience of the social-ecological system when the two are so complexly linked?

APPLYING RESILIENCE THEORY TO EUCALYPT MUSIC

Resilience is a question of response or uptake (something that has multiple interpretants) (Munro 2013). The ephemeral gumleaf and durable didjeridu project differing histories in terms of their cultural dynamics, economic worth, ecological requirements, and musical production. Nevertheless, they share a common harmonious engagement with local environments. The trees that provide material for didjeridus, however, are over-harvested; this diminishing natural resources requires, but does not always receive, sustainable techniques of collection and manufacture. The sounds and agents of gumleaves and didjeridus remain dependent on sustainable forestry, but the resources exist in a nation in which a maladaptive frontier mentality has prevailed.

European acculturation and the Australian Aboriginal response to it are demonstrated in the histories of gumleaf and didjeridu music-cultures and in their capacity to absorb considerable thresholds of cultural and material stress (Ryan 2005, 2011), especially vis-à-vis the eucalypts' natural capacity to maintain viable populations. Hay (2002) describes the eucalypts as "adaptable, diverse, tenacious, interactive, opportunistic, and unique" (239). Yet as I indicate, the use of the genus in music-making is under increasing threat from the vagaries of extreme atmospheric conditions.

I suggest that the eucalypt music-cultures will remain resilient until human ingenuity—inspired by the Muses and prompted by collective needs—invents new eucalypt-based musical instruments and traditions in response to a climate-induced timber shortfall. The high-carbon industrial systems that are increasing Earth's average surface temperatures have significant consequences for the future of global musical practices, especially those based on instruments derived directly from trees. This thesis is backed by the findings of Australia's peak scientific body, the Commonwealth Scientific and Industrial Research Organisation (CSIRO), regarding environmental changes that are real, various, and complex. In sum, part of this resilience equation means that the social system and the ecological system will have to change in different ways and at different times.

NATURAL AND ANTHROPOGENIC CONSTRAINTS ON GUMLEAF MUSIC

Hay (2002) recounts how Australian scientists, explorers, foresters, and conservationists, artists or writers "all become eucalyptographers, caught up with work that is inextricably eucalyptic" (3). This obsession characterizes the work of a small cadre of gumleaf musicians who connect nature and culture in their musical behavior, thinking, and sound. The innocuous sounds of blown gumleaves were transculturated in advance of the didjeridu because of their physical and economic accessibility on Christian mission stations (Ryan 1999). Indeed the first half of the twentieth century saw leaf

sounds so woven into the cultural fabric of indigenous community life that by midcentury Vroland (1951) commented: "What the didgeridoo is to the people of the north, the gumleaf is to the people of the south" (33).

There are natural and social constraints on leaf playing, and—like the leaves themselves—cultures of leaf playing evolve, develop, and decay (Ryan 2013, 232). The measure of resilience is how far a system has moved from equilibrium (in time) and how quickly it recovers; any loss of resilience is likely to lead to a "regime shift" (fundamental change) between key variables in an ecosystem (Gunderson 2000, 426). From the 1920s through the 1940s, gumleaf playing peaked in Australia's populous southeastern crescent—the nation's first "species factory" for introduced plants, and, coincidentally, the eucalypt woodland region with the highest continental concentration of bioregions under high environmental stress (Commonwealth of Australia National Land and Water Resources Audit 2001).

The gradual availability of television and the arrival of rock 'n' roll in the late 1950s both led to diminished practices and audiences for gumleaf music. The activity recovered in 1977, when local government officials in Maryborough, Victoria, founded the Australian Gumleaf Playing Championship. Over twenty-one years the annual contest furnished a basin of attraction for half a dozen indigenous performers. For example, former Dainggatti forest ranger James Goorie Dungay arrived from Kempsey, New South Wales (NSW), with a supply of *yili*, robust leaves of the forest red gum (*E. tereticornis*) that produce a saxophone-like timbre (Ryan 1999, 31).

Gumleaves have been mistaken for violins, various wind instruments, the female voice, human whistling, and the chirping of insects (Ryan 1999, 215). As unique sound characters and pitch ranges are produced by different species, the essence and complexity of what might appear to be the simplest of instruments is comparable to that of a Stradivarius violin. Thus, not all of the 800 eucalypt species that constitute 95% of Australia's forest trees furnish suitable music leaves. The sanctioned "Stradileaf" of the national contestants was the sweet-sounding yellow box (*E. melliodora*), a species extending from southeastern Queensland to South Australia. Poorly conserved in central western NSW and elsewhere due to grazing (Goldney and Bowie 1990, 433), and severely degraded in the southern tablelands by dieback associated with defoliating insects (Landsberg et al. 1990, 156), the now critically endangered yellow box is protected under Commonwealth and State legislation (Williams 2013). Lindroth and Dearing (2005, 481) established that for leaf-chewing insects, high CO_2 environments generally lead to increased consumption rates. Thus, in temperate eastern Australia, a high-CO_2 climate and a drier, warmer environment will arguably impact the survival and distribution of the eucalypt species.

The Gunai-Kurnai Elder "Uncle Herb" Patten is Australia's leading leafist. He is an experienced tree spotter who chooses leaves from the shaded part of a branch but makes sure to avoid leaves with ants, ladybirds, spiders, fungi, and pesticides. Leafists, those in urban areas in particular, must

protect their lungs. When the quirky busker Philip Elwood climbs a red ironbark (*E. sideroxylon*) tree in Melbourne's City Mall to play carols, he carries a handkerchief to clear leaves of soot caused by diesel exhaust (prevalent before trucks and buses had to meet Euro 4 Emission Standards) and/or by fine particulate dust from construction activity. The health of eucalypts planted in holes cut in concrete is affected by introduced soils, acidity, mass travel, possum damage, and reduced water retention, rendering their leaves inferior to those plucked from canopy-covered bush.[4]

As instruments in, of, and for local ecologies, both the gumleaf and the didjeridu foreground Australia as an Aboriginal landscape; the eucalypt—if only in the popular imagination—provides a sense of continuity. But neither music nor nature can make a bid for permanence. Ironically, the realization of eucalypt music is as much about meals as it is about music: As numerous insects relentlessly impair leaf instruments, ravenous termites of the order *Isoptera* zealously support the didjeridu industry. Australian termites exert the greatest ecological role in tropical eucalypt savannas hosting the associated hardwoods Darwin stringybark (*E. tetrodonta*) and Darwin woollybutt (*E. miniata*). It is the rippling overtones heard when sound waves react with the irregular surfaces of a termite-hollowed didjeridu that create an impression of sonic resilience as the listener experiences resonance and reverberation.

DISCERNING RESILIENCE IN THE DIDJERIDU TRADITION

The social-ecological resilience of the didjeridu tradition has come at a cost. According to Kinzig et al. (2006), cascading thresholds (the tendency of the crossing of one threshold to induce the crossing of other thresholds) often lead to very resilient but often less desirable alternative states. Whereas indigenous harvesters remove small hollow trees that are likely to die before reaching maturity, non-Aboriginal opportunists have clear-cut species with the high growth and survival rates that otherwise would contribute to sustainable tree populations. Be it through cultural insensitivity, sheer vegetal disregard, or ignorance of ecological limits, over-cut sites have suffered ecological change detrimental to wildlife and other values (Whitehead et al. 2006, Forner 2007).

Darwin stringybark and Darwin woollybutt both have strong links to Aboriginal culture but there are no indigenous cultural objections to their harvest. Logistically they may be harvested from a wide range of environments (only, of course, in the absence of indigenous cultural objection). However, careful ecological management is required where preliminary research indicates that stems of didjeridu dimensions are critical to the dynamics of forests (based on Whitehead et al. 2006, 73). A comparison of licensing regulations chronicled in Ryan (forthcoming) explains the benefits of a Western Australian didjeridu-tagging scheme yet to be adopted in the Northern Territory (NT).

Munro (2013) defines a system as a complex series of dynamic relations and functions located at any given time within a stability domain delimited by thresholds (stability being the persistence of a system close to an equilibrium state). The contemporary history of the didjeridu music-culture illustrates a system (subject to multiple attractors) following trajectories (describable over varying scales of time and space) such that the system proves itself resilient to perturbations in its adaptive or resistive response. But it is also a system that transforms, flipping from one basin of attraction to another.

The didjeridu spread from its locus in Arnhem Land to the Kimberley district and to Cape York Peninsula. Dispersed throughout the island-continent by the 1970s, it was diffused throughout the Western world by touring Aboriginal performers and Alistair Black's export of didjeridus *en masse* to Germany and other countries in the late 1990s (Lindner 2004, 76–79). An insatiable demand for didjeridus within Australia and abroad ensued as World Music practitioners and others adopted the instrument. These historical patterns and processes reflect the resilience model outlined by Holling (1986, see also Gunderson 2000, 430), in which an exploitative phase—characterized by rapid colonization in an arena of scramble competition—is followed by a phase of creative destruction prior to reorganization.

Among some fifty Aboriginal names for the didjeridu, the *yiḏaki* (also *yirḏaki*) forged from Darwin stringybark predominates in terms of prestige, commemoration, and value (criteria after Appadurai 1986). This situation strengthens the case put forward by Allen (2011, 419) that "the values accorded to individual tree species […] and to the cultural commodities dependent on them […] together create a ripple effect that reverberates globally" (see also Allen 2012). Cultural purists tend to revere Northeast Arnhem Land as the traditional heartland of *yiḏaki*, the Yolngu (Yolŋu) people as its inventors, and Yirrkala as its Mecca—notwithstanding the wide public performance berth that the didjeridu commands throughout Australia's Top End.

The *yiḏaki* basin of attraction has been fortified by the canny adaptive capacity of traditional owners to deal with their instrument's international transition—including New Age perturbations that conflate didjeridu culture with other non-Western spiritual sources (Neuenfeldt 1998)—on their own terms of constancy.[5] According to New Age thinking, music has a special affinity with ecological ideas (Ingram 2010), but idealist assumptions of the harmony and balance of nature projected by New Age didjeridu faddists tend to ignore the dynamic and fluctuating realities of physical ecosystems.

The didjeridu exudes resilience as a basin of attraction for another group. Musical purists, who perform on superior instruments, preoccupy themselves with the techniques and sounds of virtuosic playing. The non-Aboriginal performer Charlie McMahon (2004, 23), for instance, rejects souvenir ersatz (tool-hollowed) didjeridus for their inadequate shape, short length, and narrow bore. He also represents the school of ethical didj-makers

in Australia. Likewise Echo Tree, a Canberra-based didjeridu business, claim that their methods create impeccably handcrafted instruments from premium raw materials and, "unlock the true hidden beauty of trees, turning them into beautiful musical instruments and allowing them to live on, recreated in a different form" (Echo Tree 2014).

The Great Western Woodlands is the largest and healthiest intact temperate woodland on Earth.[6] Licenses are issued for didjeridus to be harvested within its Goldfields mallee belt, however stricter supervision is warranted. The resilience of this pristine Western Australian eucalypt ecosystem is under threat from burgeoning mineral exploration, mining tenements, quarrying, feral animals, weed invasion, and wildfires, before we even factor in the regime shifts likely to occur with enhanced heatwaves, insect attacks, and other secondary effects of global warming. The renowned instrument-maker Bruce Rogers (2004, 50–52) of Melbourne promotes forest farming methods that allow the didjeridu industry to be "sustainable indefinitely," an optimistic goal given that even small instabilities or disturbances can flip a system into another regime or stability domain, even into catastrophe (cf. Gunderson 2000, 426, 430).

THE RESILIENCE OF *EUCALYPTUS* UNDER CLIMATE CHANGE SCENARIOS

The environmental philosophers Wilson and Arvanitakis (2013) propose the term "cultures of resilience" to describe humankind's strategies for coping with a variety of human-induced environmental challenges. Conversely, a "culture of resistance" characterizes governmental inability to mitigate the magnitude of human-induced climate change. The adoption of a "postulate of resilience," to lean on the words of Munro (2013), might enable more enlightened stewardship of the biosphere, including improved natural resource management.

Through the inputs of energy, water, and nutrients, climate determines the rates of key ecosystem processes (Mackey 2007, 91). Since these processes change as climate changes, in order to be responsible ecosystem managers, "we need to know the limits of reversible variation and, if possible, the thresholds for irreversible change, and the likely agents of change" (Clark 1990, 5). Multiple lines of evidence indicate that Australia is drier, warmer, and moister than it was fifty years ago, and that hot weather will become more frequent and severe in Australia over the coming decades.[7]

The common stressor of forest decline and dieback is high temperatures, with amplified mortality increasing as trees pass their stress tipping points. The Western Australian summer of 2011–2012, for instance, saw 20,000 hectares of trees lost in Perth's Darling Ranges (Australian Broadcasting Corporation 2012). In these forests, eucalyptus long-horned borers thrive on live wood of the jarrah (*E. marginata*) and marri (*Corymbia calophylla*)

species that I have identified as "music trees" (i.e., trees that furnish musical instruments). Under current and future climate scenarios, the distribution of most species of *Eucalyptus* will likely contract and/or become increasingly fragmented (Hughes 2003, 430).

The physiological acclimatization of eucalypts to higher concentrations of CO_2 may cause trees to respond by altering patterns of water and nutrient use, by branching differently, and by growing thicker leaves (Science Alert 2007). Texture is relevant because thick leaves—in accordance with a law of physics—produce lower-pitched sounds than thin leaves. For the same water loss, the leaves can assimilate more carbon, but there is assumed to be more than one process involved.[8] Scientists sit on the cusp of a new era that positions them to interpret, predict, and monitor the impacts of climate change on the resilience of vegetation. CSIRO's remote sensing technologies warn of pest and disease outbreaks (the control of invasive species being an important factor in the recovery of natural resilience), and their sensing change forest technology identifies areas where plantations may not adapt successfully to hotter and drier conditions. The identification of refugia (places where favorable habitat persists) is a vital form of insurance against the risk of extinction; these refugia will enhance natural resilience as the climate changes. The *Eucalyptus* genome was sequenced in 2011, paving the way for studies of the variations within the genome to inform understanding of where trees should be planted and why some species are resistant to disease (Boness 2011).

Termites remain economically important to the didjeridu industry. However in the coming decades of a warmer climate, an escalation of cyclones and wildfires is likely to fragment termite habitats and alter their distribution patterns, thereby diminishing supplies of pre-hollowed eucalypt instruments. For this reason and those outlined above, it is worth considering how altered landscapes might result in patterns of change in the material use of and the sounds made by gumleaves and didjeridus in the coming decades.

MUSICAL RUPTURES AND RESILIENT SOLUTIONS

Disturbed ecosystems repair slowly. The popularity of and demand for didjeridus is at such a high level that, were it not for didjeridus made of other materials, many parts of Australia could now be deforested (Didjshop 2013). Clever didj-makers across the globe have crafted drone-pipes from agave cactus, clay, yucca, fiberglass, brass, and plastic piping[9]—usable alternative materials, to be sure, but ones that scarcely match the alluring look, feel, durability, and rich resonance of seasoned termite-hollowed instruments. Likewise, non-eucalypt leaf instruments (e.g., lemon leaves) lack the iconic cultural command of the gumleaf. Leaf musicians have also experimented with blowing plastic leaves, dried snakeskin, and ten-dollar notes to produce different types of sounds.

To increase the buffering capacity of *Eucalyptus*, and to nurture sources of renewal, rotational forest harvesting deserves consideration. Didj-hunters could also utilize freshly fallen eucalypt branches, or seek alternative cylindrical woods from timber mills. Taking into account a resilient solution outlined by Guyette and Post (chapter 3), the adoption of repositories of traditional Aboriginal knowledge, including firestick farming, holds potential as both social capital and critical source for sustainable arboreal management.

Music participates intimately with "the centrality of the social," a term coined by sociologist John Urry (2011) in his forward-looking imaginary of a post-carbon society. If it is in musical performance that relationships between humans and their environments are most cogently articulated, then leafists and didjeriduists are uniquely positioned to sensitize audiences to respect and rethink valuable environments as they imitate and explain the natural sounds of the bush. Thus, to Titon's suggestion that "sustaining music means sustaining people making music" (Titon 2009, 6), I would add the caveat that sustaining music must entail sustaining environments.

In the post-peak oil scenario envisaged by Urry (2011, 147), mobility will be reduced to virtual travel. Building on this hypothesis, music-making activities outside of low carbon virtual musical environments would remain localized, and energy shortages would cause shifts from electric to unplugged or solar-powered instruments. Necessity has already proved a resilient mother of invention in Cateura, Paraguay, where a youthful Landfill Harmonic Orchestra (or Recycled Orchestra) performs on instruments molded from trashcans and tools found in a slum rubbish dump.[10]

CONCLUSION

Applying the concept of resilience to the available evidence permits a broad holistic overview of the eucalypts' ability to furnish musical traditions that variously enhance or compromise the value of forests in Australia. Although coupled through their connection to *Eucalyptus*, gumleaf music and didjeridu traditions are context-dependent.

Aside from insects, cyclones, and didj-poachers, no conspicuous hubris appears to be sweeping *Eucalyptus* to destruction. Yet scientists hint that the tenacious image of the supremely resilient genus may warrant revision. As evidence is being shored up to indicate that eucalypts in a high CO_2 environment produce thicker leaves, a quasi-quantifiable link can be made between global warming and gumleaf pitch range. Resilience is time-bound, underscoring a critical need for care of the eucalypt ecosystems that will be important ingredients of our future energy needs—and therefore our cultural needs—once finite mineral and petrochemical supplies have been exhausted.

The new global cultural form created by the didjeridu's crossover into Western music sparked an export frenzy that strained timber stocks as management actions based upon incomplete understandings of environmental

and cultural values accelerated musical and technological change. Conceptually, the multiple thresholds breached—across scales of cultural and geophysical space, cosmological and sociomusical organization, and ecological and economic domain—coalesced into cascading effects. It is not surprising that cultural purists view these changes as transgressive ones. Despite being a kind of victim in this sense, didjeridu culture—as a global musical form—projects resilience and adaptability.

Holling introduced the theory of resilience to the literature four decades ago, and Wilson and Arvanitakis (2013) foresee its tropes gaining attention as we move further into the twenty-first century. It remains to be seen how *Eucalyptus* might become unmoored from its dominance over the Australian flora, or what patterns of surprise the future will bring to bear on the deep, rich connections of eucalypt music to place. Holling's (1986) conception of key structural parts of a maturing system as "accidents waiting to happen" (306) underlines the fact that if our forests atrophy into ecological wastelands then these examples of Australian Aboriginal music will experience decline. For the sake of the long-term sustainable capacity of trees, we must remain aware of and engaged in efforts to positively impact their resilience. As the deep ecologist John Seed (2001) famously wrote:

> We have no independent existence—
> The pain of the Earth is our own pain and the fate of the Earth our fate also.
> No tree—no leaf.

NOTES

1. I am grateful to my late husband, atmospheric physicist Dr. Brian Ryan of Australia's Commonwealth Scientific and Industrial Research Organisation, for challenging and inspiring me to apply the issue of climate change to the sustainability of musical instruments. Many thanks to Herb Patten for his constructive participation in gumleaf music research, and to James Goorie Dungay and Philip Elwood for their insights.
2. For a detailed comparison of didjeridu and gumleaf species, together with photographs, see the online supplement (http://www.ecomusicology.info/cde).
3. Harsh Australian landscapes have limited scope for the invention and manufacture of other indigenous musical instruments. The main exception is the ubiquitous (predominantly non-eucalypt) clapsticks (paired rhythm sticks).
4. Dr. Tom Beer, Centre for Australian Weather and Climate Research, Aspendale, Victoria, kindly discussed these issues with me on September 9, 2012.
5. Corn (1999) details the Yolngu's mediation of the didjeridu's international transition through the establishment of the Garma Cultural Studies Institute and the annual Garma Festival.
6. Termite-inhabited mallee growth is more characteristic of "scrub" than forest. Among the many functions outlined in Gondwana Link (2014), eucalypts in the

Woodland's motley landscape sequester large volumes of carbon to control rising carbon emissions.

7. For a definitive report on observed changes in long-term trends in Australia's climate, see CSIRO (2014).
8. Information kindly supplied by Dr Peter Lawrence, National Center for Atmospheric Research (NCAR), Boulder Colorado, USA, October 19, 2012.
9. See Echo Tree (2014b) for a comprehensive list of alternative didjeridu materials.
10. As of the time of publication, this film has not yet been released. See http://www.landfillharmonicmovie.com/ (accessed February 24, 2015).

WORKS CITED

Allen, Aaron S. 2011. "Prospects and Problems for Ecomusicology in Confronting a Crisis of Culture." *Journal of the American Musicological Society* 64 (2): 414–424.

———. 2012. "'Fatto Di Fiemme': Stradivari's Violins and the Musical Trees of the Paneveggio." In *Invaluable Trees: Cultures of Nature, 1660–1830*, edited by Laura Auricchio, Elizabeth Heckendorn Cook, and Giulia Pacini, 301–15. Oxford: Voltaire Foundation.

Appadurai, Arjun, ed. 1986. *The Social Life of Things: Commodities in Cultural Perspective*. New York: Cambridge University Press.

Australian Broadcasting Corporation. 2012. "Tree Deaths." *Catalyst*, April 26. Accessed April 27, 2012. http://www.abc.net.au/catalyst/stories/3488105.htm.

Boness, Laura. 2011. "Eucalypt Genome Sequenced." *Science Illustrated*, August 19. Accessed April 15, 2013. http://Scienceillustrated.com.au/blog/nature/eucalyptus-genome-sequenced/.

Carpenter, Stephen R., Frances Westley, and Monica G. Turner. 2005. "Surrogates for Resilience of Social-Ecological Systems." *Ecosystems* 8: 941–944.

Clark, R. L. 1990. "Ecological History for Environmental Management." In *Australian Ecosystems: 200 Years of Utilization, Degradation and Reconstruction*. Proceedings of the Ecological Society of Australia, vol. 16, edited by D.A. Saunders, A.J.M. Hopkins, and R. A. How, 1–21. Chipping Norton, NSW: Surrey Beatty and Sons.

Commonwealth of Australia National Land and Water Resources Audit. 2001. *Australian Native Vegetation Assessment*. Canberra.

Corn, Aaron. 1999. "The Didjeridu as a Site of Economic Contestation in Arnhem Land." *Newsletter: The Centre for Studies in Australian Music* 10 (December): 1–4.

CSIRO. 2014. "State of the Climate 2014: A Clear Picture of Australia's Climate." Posted March 4. Accessed December 5, 2014. http://www.csiro.au/Portals/Media/State-of-the-Climate-2014-A-clear-picture-of-Australias-climate.aspx.

Didjshop. 2013. "Authentic Aboriginal Didgeridoos." Accessed August 29, 2013. http://www.didjshop.com/authenticity.html.

Echo Tree. 2014a. "Echo Tree: The Didgeridoo Craftsman - Didgeridoos with Edge." Accessed October 20, 2014. http://www.echotree.com.au/didgeridoo_about.htm.

———. 2014b. "What Different Materials Can a Didgeridoo Be Made From?" Accessed October 20, 2014. http://www.echotree.com.au/didgeridoo_facts.htm#whatis.

Forner, Josh. 2007. "The Globalization of the Didjeridu and the Implications for Small Scale Community Based Producers in Remote Northern Australia." *International*

Journal of Environmental, Cultural, Economic and Social Sustainability 2 (5): 137–148.

Gondwana Link. 2014. "Eucalypts from Wet to Dry." Accessed October 20, 2014. http://www.gondwanalink.org/natwonders/Eucalypts.aspx.

Goldney, D. C., and I.J.S. Bowie. 1990. "Some Management Implications for the Conservation of Vegetation Remnants and Associated Fauna in the Central Western Region of NSW." In *Australian Ecosystems: 200 Years of Utilization, Degradation and Reconstruction. Proceedings of the Ecological Society of Australia,* vol. 16, edited by D. A. Saunders, A.J.M. Hopkins and R. A. How, 427–440. Chipping Norton, NSW: Surrey Beatty and Sons.

Gunderson, Lance H. 2000. "Ecological Resilience—In Theory and Application." *Annual Review of Ecology and Systematics* 31: 425–439.

Hay, Ashley. 2002. *Gum: The Story of the Eucalypts and Their Champions*. Sydney: Duffy and Snellgrove.

Holling, Crawford S. 1973. "Resilience and Stability of Ecological Systems." *Annual Review of Ecology and Systematics* 4: 1–23.

———. 1986. "The Resilience of Terrestrial Ecosystems: Local Surprise and Global Change." In *Sustainable Development of the Biosphere*, edited by William. C. Clark and R. E. Munn, 292–317. Cambridge: Cambridge University Press.

Hughes, Lesley. 2003. "Climate Change and Australia: Trends, Projections and Impacts." *Austral Ecology* 28: 423–443.

Ingram, David. 2010. *The Jukebox in the Garden: Ecocriticism and American Popular Music Since 1960*. Amsterdam: Rodopi.

Kinzig, Ann P., Paul Ryan, Michel Etienne, Helen Allison, Thomas Elmqvist, and Brian H. Walker. 2006. "Resilience and Regime Shifts: Assessing Cascading Effects." *Ecology and Society* 11 (1): 20. Accessed October 26, 2014. http://www.ecologyandsociety.org/vol11/iss1/art20/.

Landsberg, J., J. Morse, and P. Khana. 1990. "Tree Dieback and Insect Dynamics in Remnants of Native Woodlands on Farms." In *Australian Ecosystems: 200 years of Utilization, Degradation and Reconstruction. Proceedings of the Ecological Society of Australia,* vol. 16, edited by D. A. Saunders, A.J.M. Hopkins and R. A. How, 149–165. Chipping Norton, NSW: Surrey Beatty and Sons.

Lindner, David. 2004. "Didjeridu in 'Mass' Production: An Interview with Alistair Black." In *The Didgeridoo Phenomenon from Ancient Times to the Modern Age*, edited by David Lindner, 75–82. Schönau, Germany: Traumzeit Verlag.

Lindroth, Richard L., and M. Denise Dearing. 2005. "Herbivory in a World of Elevated CO2." In *A History of Atmospheric CO2 and its Effects on Plants, Animals, and Ecosystems*, edited by James R. Ehleringer, Thure E. Cerling and M. Denise Dearing, 468–86. New York: Springer.

Mackey, Brendan. 2007. "Climate Change, Connectivity and Biodiversity Conservation." In *Protected Areas: Buffering Nature Against Climate Change. Proceedings of a WWF and IUCN World Commission on Protected Areas Symposium, 18–19 June 2007, Canberra*, edited by M. Taylor and P. Figgis, 90–96. Sydney: WWF-Australia.

McMahon, Charlie. 2004. "The Ecology of Termites and Didjeridus." In *The Didgeridoo Phenomenon from Ancient Times to the Modern Age*, edited by David Lindner, 15–29. Schönau, Germany: Traumzeit Verlag.

Munro, Andrew. 2013. "Discursive Resilience." *M/C Journal* 16/5. Accessed October 20, 2013. http://journal.media-culture.org.au/index.php/mcjournal/article/viewArticle/710.

Neuenfeldt, Karl. 1998. "The Quest for a 'Magical Island': The Convergence of the Didjeridu, Aboriginal Culture, Healing and Cultural Politics in New Age Discourse." *Social Analysis* 42 (2): 73–102.

Rogers, Bruce. 2004. "Once Upon a Time, I Had a Hobby." In *The Didgeridoo Phenomenon from Ancient Times to the Modern Age*, edited by David Lindner, 45–58. Schönau, Germany: Traumzeit Verlag.

Ryan, Robin. 1999. "*A Spiritual Sound, A Lonely Sound:* Leaf Music of Southeastern Aboriginal Australia, 1890s–1990s." PhD diss., School of Music-Conservatorium, Monash University.

———. 2005. "La diffusione del didgeridoo dall'Australia al mondo occidentale" ("The Expansion of the Didjeridu from Australia to the Western World"). *Enciclopedia Della Musica*, edited by Jean-Jacques Nattiez, volume V, 171–98. Torino: Giulio Einaudi Editore.

———. 2011. "From *Faint Aeolian Whisperings* to a Pop Instrument on *YouTube*: Discourse on the Origins, Adaptability and Sociability of the Gumleaf." In *Instruments of Change*: IASPM Australia-New Zealand Conference Proceedings, 24–26 November 2010, edited by Jen Cattermole, Shane Homan and Graeme Smith, 103–110. Melbourne: Monash University.

———. 2013. " 'Not Really a Musical Instrument?' Locating the Gumleaf as Acoustic Actant and Environmental Icon." *Societies* 3 (2): 224–42. doi:10.3390/soc3020224.

———. Forthcoming. "Didjeri-dus and Didjeri-don'ts: Confronting Sustainability Issues." *Journal of Music Research Online* 6.

Seed, John. 2001. "The Council of All Beings." *Deep Ecology – Selected Writings*. Posted December 26. http://www.rainforestinfo.org.au/deep-eco/council.htm.

Science Alert. 2007. "Speed of Climate Change Puts Trees at Risk." Macquarie University, February 22. Accessed October 27, 2014. http://www.sciencealert.com.au/features/20072302-13894-2.html.

Titon, Jeff Todd. 2009. "Economy, Ecology, and Music: An Introduction." *The World of Music* 51 (1): 5–15.

Urry, John. 2011. *Climate Change and Society.* Cambridge: Polity Press.

Vroland, Anna. 1951. *Their Music Has Roots*. Melbourne University Library. Typescript.

Whitehead, P. J., J. Gorman, A. D. Griffiths, G. Wightman, H. Massarella, and J. Altman. 2006. *Feasibility of Small Scale Commercial Native Plant Harvests by Indigenous Communities*. Report for the Rural Industries Research and Development Corporation, Pub. No 04/149, Project No UNT-6A. Accessed August 28, 2013. http://rirdc.infoservices.com.au/.

Williams, Kylie. 2013. "Helping an Iconic Australian Tree." ABC Environment, August 7. Accessed December 1, 2014. http://www.abc.net.au/environment/articles/2013/08/07/3819491.htm.

Wilson, Michael John, and James Arvanitakis. 2013. "The Resilience Complex." *M/C Journal* 16 (5). Accessed October 20, 2013. http://journal.media-culture.org.au/index.php/mcjournal/article/viewArticle/741.

Wrigley, John, and Murray Fagg. 2010. *Eucalypts: A Celebration*. Crows Nest, NSW: Allen and Unwin.

Zolli, Andrew, and Ann Marie Healy. 2012. *Resilience: Why Things Bounce Back*. New York: Free Press.

5 Why Thoreau?

Jeff Todd Titon[1]

Ecomusicology, as I understand it, probes the relationship between music and sound, nature and culture, and the environment in a time of environmental crisis (Titon 2013b). It informs a holistic musicology (including ethnomusicology) with ecocriticism (Allen 2014). Ecocritism, a movement in literary studies that arose in the late 1980s, is directed to the relationship between literature and the environment, also in a time of environmental crisis. This environmental turn opened a reading of literature focused on the natural world. First-wave ecocritics of the 1990s worked in opposition to critical theory, asserting the primacy of nature over text, construction over deconstruction, and scientific realism over postmodern simulacra (Buell 2005, 1–28). Later ecocritics selectively incorporate critical theory perspectives.[2]

The transcendentalist Henry David Thoreau (1817–1862) is the canonical American author ecocritics have found richest in possibility. Lawrence Buell, dean of American ecocritics, devoted his first monograph to Thoreau's writings (Buell 1995). Well known as a radical in politics and science, Thoreau's essay "Civil Disobedience" influenced the theory and practice of non-violent resistance (Thoreau 2001, 203–224). He was also a radical in science, the earliest American naturalist-conservationist. Fifty years before the Age of Conservation in the United States, he was writing about the need for preserving the Walden woods. Seventy years before twentieth-century ecologists made the climax forest the paradigmatic case for equilibrium and the balance of nature, he discovered the principle of succession of forest trees (Thoreau 2001, 429–443). His writings are usually classified within a tradition of American pastoral. Ingram (chapter 16) draws on Leo Marx's work to discuss English pastoral as an appropriate context for ecocritical interpretations of English folk song. In the context of the United States, however, Marx established pastoral as the cultural imaginary where canonical American artists work symbolically to explore ambivalences between the civilized and the primitive (Marx 1964). In *Walden* and elsewhere, Thoreau also worked within that same middle landscape to establish a vision of an alternative, non-industrial American culture (Thoreau 1962, 1971). Thoreau was always testing ideas by deep and direct experience, or the experimental method, using the word "experimental" in its older sense as a synonym

for experiential. Until now, ecocritics have focused on Thoreau as a natural historian, cultural critic, and proto-environmentalist. I hope to redirect this conversation towards ecomusicology by attending to Thoreau's extensive and complex ideas concerning music and sound. Sound was the source of Thoreau's deepest veneration of the natural world and a chief motivator in his desire to preserve and protect it. Whether as poet or scientist, his responses to sound worlds are a vital part of what makes him so valuable today.

Why Thoreau for ecomusicology now? Let me summarize my main points. First, thinking with Thoreau turns attention to the relation between music and place; that is, to music as a sound-world integrated into a local ecosystem. Second, thinking with Thoreau helps us to understand relations between music, sound, presence, and co-presence, which is an interdependent, relational ontology and epistemology characteristic of living systems. And third, thinking about music, sound and the environment with Thoreau directs us toward a construction of nature worth wanting.

Thoreau was raised in a musical family (Harding 1982). He was a singer and a flute player like his father. He sang maritime songs, especially on boat trips with his comrades; and he sang popular ballads and parlor songs on social occasions at home and elsewhere. He attended concerts and opera, in Concord and Boston, but he was not an avid concertgoer. Both his sisters played piano and one was accomplished enough to give piano lessons in Concord. But he never sang or played professionally. He did most of his flute playing outdoors, for he took it along with him on his daily and nightly walks, and when he went boating on lakes and ponds. In his journal he often mentioned his flute playing, which while adrift in his boat he would do in a meditative, improvisatory way. "Unpremeditated music," as he called it, was to him the best music (Thoreau 1981, 321; Journal, August 18, 1841). He understood the power of music. As he recorded in his journal numerous times during the early 1850s, walking near Walden Pond he would press his ear to the telegraph pole if the wind was humming in the wires, so that he could vibrate to what he called the telegraph harp (Thoreau 1962 I, 268; Journal, September 12, 1851). Awaking from a dream he sensed that "[My] body was the organ and channel of melody, as a flute is of the music that is breathed through it. My flesh sounded and vibrated still to the strain, and my nerves were the chords of the lyre" (Thoreau 1962 I, 294; Journal, October 26, 1851).

For Thoreau, as for his neighbor Ralph Waldo Emerson, spirit inhabited nature; spiritual facts were embodied in natural facts. Emerson saw—and wrote about—a symbolic relationship between language, nature, and spirit. That is, for Emerson, natural facts were symbols of spiritual truths, while the poet named the symbols with language (Emerson 1849, 5). But Thoreau heard the embodiment of spirit in nature directly, not symbolically. Sound was special because it spoke nature in a "language without metaphor," one that was both "copious and standard"—that is, ever-present and universal (Thoreau 1971, 111). Sound vibration was its characteristic expression; Thoreau sought co-presence with nature through resonance. He was mad

for what he called "contact" (Thoreau 1972, 71), i.e., for lived experience: He did not merely write about pastoral but lived it at Walden Pond. He was familiar with the theory, attributed to Pythagoras, that as the heavenly bodies rotated, they made music based on their astronomical ratios. It was said that only Pythagoras could hear the music of the spheres, but Thoreau believed that the music of the universe was all around him in the sounds of the natural world. In his journals he regularly referred to the insect sounds as the "earth-song." "Music," he wrote in his journal, "is the sound of circulation in Nature's veins" (Thoreau 1981, 303; Journal, April 24, 1841). Thoreau never wrote a pastoral symphony. He never needed to: He experienced it all around him, for the language in which nature communicated directly was sound.

First, then, music, sound-worlds, and place. Emerson criticized Thoreau for seldom venturing from Concord. Thoreau replied that he had "travelled a good deal in Concord" (Thoreau 1971, 4). A serious amateur naturalist and one from whom Louis Agassiz solicited specimens, Thoreau considered himself the natural historian of Concord, Massachusetts (Harding 1982, 290; Harding 1958, 178–183, 243–244; Thoreau 2001, 20–41). Emerson traveled far and wide; Thoreau went deep. Topophilia, as the cultural geographer Yi-Fu Tuan pointed out (1974), is found in cultures that are rooted in place; and such places usually are close to nature. For example, in the Appalachian Mountain South, topophilia is strong, and it is especially poignant in the face of the mountaintop removal that is destroying the very nature of their ecosublime (Titon 2013a, Rozelle 2006). Emerson famously experienced the ecosublime by becoming a transparent eyeball; Thoreau's characteristic ecstasies came as a vibrating body. Just as visible nature passes through a transparent, seeing eye, so audible nature passes through a vibrating, hearing body. He described vibrating after wading into a sound-world filled with copulating toads:

> In another pool, in Warren's meadow, I hear the ring of toads and the peep of hylodes, and, taking off my stockings and shoes, at length stand in their midst. There are a hundred toads close around me, copulating or preparing to. [They utter] their common musical ring, and occasionally a short, fainter, interrupted, quivering note, as of alarm. They are continually swimming to and leaping upon each other. […] One that rings within a foot of me seems to make the earth vibrate, and I feel it and am thrilled to my very spine, it is so terrene a sound. […] You would hardly believe that toads could be so excited and active. When that nearest ringer sounded, the very sod by my feet (whose spires rose above water) seemed to tremble, and the earth itself, and I was thrilled to my spine and vibrated to it. […] It is a sound as crowded with protuberant bubbles as the rind of an orange. A clear, ringing note with a bubbling trill. It takes complete possession of you, for you vibrate to it, and can hear nothing else. (Thoreau 1962 II, 1141; Journal, May 3, 1857)

In locating the vernal pool in Warren's meadow, Thoreau connects himself with a particular place through sound vibrations. On his daily walks, he was careful to note just where he saw plants, birds, insects, and other creatures; and where he heard particular sounds. His awareness of interrelationships among creatures and objects within given locations—that is, he understood the concept of an ecosystem even though he did not have the name for it—makes him even more a proto-ecologist than a proto-environmentalist. Boyle and Waterman (chapter 2) distinguish between ecological science and environmentalism, which latter is not a science but a socio-political movement. However, the two are closely related, as some important ecologists (e.g., Eugene Odom) became conservationists, and because conservation biology is a science with purposeful, direct application to conservation and the environmental movement (Soulé 1985). Most natural historians of his day were more interested in finding specimens than in recording their precise locations, but Thoreau, perhaps inspired by the plant geography work of Alexander von Humboldt, always related objects and sounds to their places, and he was particularly fascinated by echoes and the behavior of sound over distance (Harding and Bode 1958, 310).

Thinking with Thoreau about echoes helps us understand relations among sound, presence, and co-presence. In making this second point I adapt the term co-presence to the sonic realm. Co-presence was first described as face-to-face communication in which humans are "accessible, available, and subject to one another" (Goffman 1963, 13–22). Today, communication theorists use co-presence to mean the "sense of being together" at a distance—that is, a combination of presence and absence—particularly with other people in a shared virtual environment (Zhao 2003, 445–455). Acknowledging this complementary (rather than oppositional) relationship between presence and absence integrates Derrida's critique of the metaphysics of presence into Thoreau's ontology, for in Thoreau presence is never "present" without at least the trace of absence.[3] I would call your attention to those sounding moments when presence breaks into experience, and what was absent from consciousness suddenly is there. Think of signaling presence with "Hello!," or think how a sound signals the presence of prey to predator (or the opposite). A different species, or a different kind of being, is most often signaled by its unusual sound. The paradigmatic case of that difference, for Thoreau, was the echo.

For Thoreau, echo was not merely a reflection; it was interactive, signaling presence opening to co-presence. He was, for example, curious about echolocation. Today we are familiar with echolocation in bats and also in the "clicking" of blind people locating themselves in space. In the Maine woods, Thoreau observed that hunters fired a gun and listened to its echo to judge the distance between themselves and landmarks like lakes and cliffs, so that they could navigate through the woods. There, he also reported that the echoes of laughing loons sounded louder than the original notes: "The wood thrush sang on the distant shore, and the laugh of some loons, sporting in a concealed western bay, as if inspired by the morning, came distinct

over the lake to us, and, what was more remarkable, the echo which ran round the lake was much louder than the original note; probably because, the loon being in a regularly curving bay under the mountain, we were exactly in the focus of many echoes, the sound being reflected like light from a concave mirror" (Thoreau 1972, 264).

The common definition of echo is a "reflection of sound." But Thoreau observed that as the reflections he saw were not exact copies of the originals, neither was the echo. In his journal Thoreau recorded a thought-experiment, imagining himself in his boat on a lake and viewing the reflection of the shore on the water. He wondered: From what standpoint could he view the reflection so that it would look like the original? If he rowed closer, the reflection would change. What would he see if he could somehow get under the water at the point where the reflection started? And so on, Thoreau eventually deciding that there was no such standpoint. He concluded, "The reflection is never a true copy or repetition of its substance, but a new composition, and this may be the source of its novelty and attractiveness, and of this nature, too, may be the charm of an echo. I doubt if you can ever get Nature to repeat herself exactly" (Thoreau 1962 II, 1206; Journal, October 14, 1857).

Thoreau, of course, was far from the first to be fascinated by the echo phenomenon. An avid and eclectic reader, he would have encountered lengthy descriptions of echoes and reflections in European natural philosophy from the eighteenth century as well as in the later writings of Coleridge and Wordsworth, among others (Durer 2013, 156). It is not accidental that while Thoreau in the mid–nineteenth century was writing about echo and reflection, American landscape artists represented echo and reflection in their paintings of forests and bodies of water. Rather than portray Narcissus looking at his reflection in the pool with the nymph Echo by his side, they painted lakes and rock formations, rivers and ocean estuaries, cliffs and mountains, echo and reflection in the same scene. I offer three examples.

Figure 5.1

Figure 5.1 is by the artist Sanford Robinson Gifford and is titled "Lake Scene." Painted in 1861, the year before Thoreau's death, it shows a person paddling a canoe on a remote lake surrounded by forest and mountains reflected in the water. One can almost hear the echoes.

Figure 5.2

Figure 5.2 is a painting (c. 1855) by the well-known American artist Fredric Edwin Church; it shows Lake Katahdin, Maine, with the reflections of sky and trees on the lake, and the mountain in the background. The large rock on the shore at left would have echoed strongly. In 1846 Thoreau had canoed here (Thoreau 1972, 3–83).

Figure 5.3

In Martin Johnson Heade's 1868 painting of a thunderstorm on Narrangansett Bay, Rhode Island, which is Figure 5.3, the artist becomes an Emersonian transparent eyeball, eliminating the appearance of his painterly self by removing from his painting the brushstroke marks of its creation. One sees the lightning, the reflections of the sails, and one can imagine the echoing thunder.

These paintings, like Thoreau's writings, blur the line between pastoral and wilderness, mixing elements of each. Gifford and Church paint a placid wilderness, not a howling or dangerous one. Only Heade's is threatening. Thoreau, whose brief for wildness "as the preservation of the world" (Thoreau 1862, 663) is well known, was thought by his contemporaries to be unusually at ease in the natural world of woods, lakes, and rivers. His frequently-delivered lecture on "Walking" began, "I wish to speak a word for Nature, for absolute freedom and wildness, as contrasted with a freedom and culture merely civil—to regard man as an inhabitant, or a part and parcel of Nature, rather than a member of society" (657). Yet his walks in the Maine woods included some experiences that he rendered in the language of the awesome—the ecosublime:

> It is difficult to conceive of a region uninhabited by man. […] And yet we have not seen pure Nature, unless we have seen her thus vast, and drear, and inhuman, though in the midst of cities. Nature was here something savage and awful, though beautiful. […] Here was no man's garden, but the unhandselled globe. It was not lawn, nor pasture, nor mead, nor woodland, nor lea, nor arable, nor waste-land. It was the fresh and natural surface of the planet Earth, as it was made forever, and ever. […] Man was not to be associated with it. It was Matter, vast terrific,—not his Mother Earth that we have heard of, not for him to tread on or be buried in. […] There was there felt the presence of a force not bound to be kind to man. (Thoreau 1972, 70)

This terror is, ultimately, in being alone; that is, without a comforting co-presence of a nature worth wanting.

If for Thoreau echo was not an exact imitation, what was it? At times, playing his flute, he thinks echo is conversation, as if with a friend. From his journal: "When I play my flute to-night […] I hear echo from a neighboring wood, a stolen pleasure, occasionally not rightfully heard, much more for other ears than ours, for't is the reverse of sound. It is not our own melody that comes back to us, but an amended strain. And I would only hear myself as I would hear my echo, corrected and repronounced for me. It is as when my friend reads my verse" (Thoreau 1962 I, 112; Journal, July 14, 1845). And: "While surveying on the Hunt farm the other day, behind Simon Brown's house I heard a remarkable echo. […] Some voice of somebody I pined to hear, with whom I could form a community" (Thoreau 1962 I, 523; Journal, February 11, 1853). Echo, in short, points to co-presence and, for Thoreau, a longing for community. More than anything else it was sound that signaled the co-presence of nature, natural sounds mingled with human; for humans too are in nature. This journal entry sums up many of his ideas concerning sound and music:

> I hear Lincoln bell tolling for church. […] Heard at a distance, the sound of a bell acquires a certain vibratory hum, as it were from the

> air through which it passes, like a harp. All music is a harp music at length, as if the atmosphere were full of strings vibrating to this music. It is not the mere sound of the bell, but the humming in the air, that enchants me, just [as the] azure tint which much air or distance imparts delights the eye. […] All sound heard at a great distance thus tends to produce the same music, vibrating the strings of the universal lyre. There comes to me a melody which the air has strained, which has conversed with every leaf and needle of the woods. It is by no means the sound of the bell as heard near at hand, and which at this distance I can plainly distinguish, but its vibrating echoes, that portion of the sound which the elements take up and modulate,—a sound which is very much modified, sifted, and refined before it reaches my ear. The echo is to some extent an independent sound, and therein is the magic and charm of it. It is not merely a repetition of my voice, but it is in some measure the voice of the wood. (Thoreau 1962 I, 291; Journal, October 12, 1851)

Developing this proto-theory of ambient sound, Thoreau concludes that as sound travels over a distance it takes into itself the vibrations of the objects through which it passes—in this case, the natural world, the "voice of the wood," the sounds of the universal lyre, the pastoral symphony that surrounded him.

My third point in answer to the question "Why Thoreau?" is that thinking with Thoreau enables us to construct an idea of nature worth wanting, a nature that acknowledges the key role of sound and that has positive consequences for sustaining life on planet Earth. Some ideas of nature are worth wanting and others not. One meme not worth wanting is the familiar idea that nature serves as an ever-abundant resource for human use. As we have learned to our increasing dismay, the consequences are exploitation and destruction of species, diminished ecosystem resilience, global warming, and further human exploitation. The posthumanism of Morton (2009) would have environmentalists do away with the concept of nature entirely, at least insofar as it has developed into a myth that affirms human life. What of music and sound? What might be the role of music and sound in a nature worth wanting?

One of the commonest sounds in the natural world, one that we all have heard, is the sound made by insect choruses: spring peepers, locusts, crickets, etc. These are examples of animal sound communication, one of the places for sound in a nature worth wanting. Like other animals, insects and amphibians make these sounds to attract mates and protect territory. These creatures also synchronize these signals in order to confuse potential predators. That is, the cricket chorus erects an acoustic protective texture, for as long as these surveillance signals sound, no predator can pick one out from the rest (Bradbury and Vehrencamp 2011, 581, 608). Sound interference can upset the synchronicity, and as the creatures try to re-establish it, certain insects inevitably sound individually. When that happens, predators find them. The sound recordist Bernie Krause reports witnessing just such

an event when a jet plane flew over a chorus of spadefoot toads, broke the synchronicity, and permitted an owl to identify the exact location of its prey, swoop in and eat it (Krause 2012, 176–184). Krause, Bradbury, and Vehrencamp refer to this function of sound synchronicity among insects and amphibians as if it were a recent research discovery, but Thoreau had taken note of it more than a century earlier. Moving about in a field full of noisy crickets, he tried and failed to locate any individual by its sound; and he wondered if their chorus protected them from predators.

> Who ever distinguished their various notes, which fill the crevices in each other's song? It would be a curious ear, indeed, that distinguished the species of the crickets which it heard, and traced even the earth-song home, each part to its particular performer. […] It is difficult, moreover, to judge correctly whence the sound proceeds. Perhaps this wariness is necessary to save them from insectivorous birds, which would otherwise speedily find out so loud a singer. They are somewhat protected by the universalness of the sound, each one's song being merged and lost in the general concert, as if it were the creaking of earth's axle. (Thoreau 1962 I, 226; Journal, August 20, 1851)

Thoreau understood how sound interference could disturb animal communication. Today we are familiar with the effects of anthropogenic shipping noise and sonar on whales and dolphins (Bradbury and Vehrencamp 2011, 82–83); Thoreau had in mind something similar when in *Walden* he noted how the railroad train's noise shattered the pastoral sound-world of the Walden woods. "The whistle of the locomotive penetrates my woods summer and winter, sounding like the scream of a hawk sailing over some farmer's yard […] scaring the owl and fox" (Thoreau 1971, 115–117). This is ominous language: the whistle "penetrates," and the hawk is a predator.

Without sound interference, animal species communicate freely. One of Thoreau's keenest soundscape observations came to him while sitting outdoors in Concord one early spring evening in 1855 while waiting to hear an owl. He soon found himself listening to an acoustic commons in which many species communicated clearly, a sound collage of a nature worth wanting:

> Just before sundown took our seats before the owl's nest and sat perfectly still and awaited her appearance. We sat about half an hour, and it was surprising what various distinct sounds we heard from there deep in the wood, as if the vistas aisles of the wood were so many ear trumpets,—the cawing of crows, the peeping of hylas in the swamp and perhaps the croaking of a tree-toad, the oven bird, the *yorrick* of Wilson's thrush, a distant stake-driver, the night warbler and black and white creeper, the lowing of cows, the late supper horn, the voices of boys, the singing of girls,—not all together but separately, and musically, from where the Partridge and the red tailed hawk and the screech owl sit on their nests. (Thoreau 1962 I, 888; Journal, May 12, 1855)

These musics each occupied their distinct soundspace. Contemporary soundscape ecologists believe that each species has adapted to its own acoustic niche so that individuals may communicate with as little sound interference as possible (Pijanowski et al. 2011, 203–216). Thoreau noted this phenomenon 150 years ago.[4]

Why Thoreau? If anyone thinks that cultural sustainability is not intimately related to ecosystem maintenance, if any critical theorist thinks that nature is a construction merely, if anyone thinks that culture is not dependent on nature, let them look again to those areas of the globe where ecosystem disturbance threatens massive extinctions of species. Thoreau resets music and sound not as peripheral or epiphenomenal or as an evolutionary exaptation, but as a principal means of communication within species in the Earth's ecosystem, humans included. In so doing, he decenters human music and culture. Sound is an indicator the health of an ecosystem. The healthier the habitat, the more "musical" the polyphony of the creatures that occupy it. Although Thoreau is often regarded as the epitome of the solitary individual, he understood nature in terms of a relational ontology and epistemology, based on the ecological principle of interdependence (Titon 2013b, forthcoming). Thoreau's construction of a vibrating nature is, finally, not an endorsement of experiential self-reliance, but rather points to an interactive community communicating presence in sound, with human music an artful echoing of this most basic principle of life.

NOTES

1. A revised version of a paper delivered at the Ecomusicologies 2012 conference, New Orleans, LA. Earlier iterations were offered as public lectures: the Sidore Lecture at the Sustainability Academy "Sustainability Unbound" Symposium, on Sustainability and the Humanities, at the University of New Hampshire, March 22, 2012; and the Distinguished Lecture in Musicology, University of Tennessee, Knoxville, TN, Oct. 23, 2012. I am grateful for suggestions and encouragement from Aaron S. Allen, Denise Von Glahn, Mark Pedelty, Lewis Hyde, Burt Feintuch, Leslie Gay, Marta Daniels, and Mary Hufford.
2. See Edwards (chapter 11) for more on critical theory perspectives in relation to ecocriticism and ecomusicology.
3. Discussion of Derrida's deconstruction of presence is beyond the scope of this essay, but see, e.g., Derrida 1970 and Garrison 1999.
4. The acoustic niche hypothesis proposes evolutionary adaptation by natural selection as the mechanism. Recent experiments have revealed that certain bird species raise the pitch range of their songs to minimize noise interference that has been introduced into their habitat (Belcher and Quinn 2014).

WORKS CITED

Allen, Aaron S. 2014. "Ecomusicology." *The Grove Dictionary of American Music*. New York: Oxford University Press.

Belcher, Kera P., and John E. Quinn. 2014. "A Study to Determine Baseline Vocalization Changes in the Carolina Chickadee across an Anthropogenic Noise Gradient." Paper presented at Ecomusics & Ecomusicologies 2014. Asheville, North Carolina, October 2–6.

Bradbury, Jack W., and Sandra L. Vehrencamp. 2011. *Principles of Animal Communication*. 2nd ed. Sunderland, MA: Sinauer Associates.

Buell, Lawrence. 1995. *The Environmental Imagination: Thoreau, Nature Writing, and the Formation of American Culture*. Cambridge: Harvard University Press.

———. 2005. *The Future of Environmental Criticism*. Oxford: Blackwell.

Derrida, Jacques. 1970. "Ouisa and Grammé: A Note to a Footnote in *Being and Time*." In *Phenomenology in Perspective*, edited by F. J. Smith, 54–93. The Hague: Ninjof.

Durer, David. 2013. *The Natural Philosophy of Emanuel Swedenborg*. New York: Springer.

Emerson, Ralph Waldo. 1849. *Nature*. Boston: James Munroe & Co.

Garrison, Jim. 1999. "John Dewey, Jacques Derrida, and the Metaphysics of Presence." *Transactions of the Charles S. Peirce Society* 35 (2): 346–372.

Goffman, Erving. 1963. *Behavior in Public Places*. Glencoe, IL: The Free Press.

Harding, Walter, and Carl Bode, eds. 1958. *The Correspondence of Henry David Thoreau*. New York: New York University Press.

Harding, Walter. 1982. *The Days of Henry Thoreau*. New York: Dover.

Krause, Bernie. 2013. *The Great Animal Orchestra*. New York: Back Bay.

Marx, Leo. 1964. *The Machine in the Garden*. New York: Oxford University Press.

Morton, Timothy. 2009. *Ecology without Nature*. Cambridge: Harvard University Press.

Pijanowski, Bryan C., Luis J. Villanueva-Rivera, Sarah L. Dumyahn, Almo Farina, Bernie L. Krause, Brian M. Napoletano, Stuart H. Gage, and Nadia Pieretti. 2011. "Soundscape Ecology: The Science of Sound in the Landscape." *Bioscience* 61 (3): 203–216.

Rozelle, Leo. 2006. *Ecosublime*. Tuscaloosa: University of Alabama Press.

Thoreau, Henry David. 1862. "Walking" *The Atlantic Monthly* 9: 657–674.

———. 1962. *The Journals of Henry David Thoreau*. 2 volumes. Edited by Bradford Torrey and Francis Allen. New York: Dover Books.

———. 1971. *Walden*. Princeton: Princeton University Press.

———. 1972. *The Maine Woods*. Princeton: Princeton University Press.

———. 1981. *Journal, Vol. 1: 1837–1844*. Princeton: Princeton University Press.

———. 2001. *Collected Essays and Poems*. New York: Library of America.

Titon, Jeff Todd. 2013a. "Music and the US War on Poverty." *ICTM UNESCO Yearbook for Traditional Music* 45: 74–82.

———. 2013b. "The Nature of Ecomusicology." *Música e Cultura* 8 (2013): 8–18.

———. Forthcoming, 2015. "Thoreau's Ear." *Sound Studies: An Interdisciplinary Journal*, 1 (1).

Tuan, Yi-Fu. 1974. *Topophilia*. New York: Columbia University Press.

Zhao, Shanyang. 2003. "Toward a Taxonomy of Copresence." *Presence: Teleoperators and Virtual Environments*, 12 (5): 445–455.

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Part II

Fieldwork Directions

Aaron S. Allen and Kevin Dawe

The essays in this section are connected through their reliance on fieldwork. All five essays include research and experiences informed by ethnography in particular places. The perspectives of two authors, Mark and Ivakhiv, are grounded in the interdisciplinary field of environmental studies, and together with Dawe, who has training in ecology and ethology, they connect ethnomusicological and environmental studies both practically regarding applications of environmental justice (Mark) and sustainability (Dawe) as well as intellectually regarding our understanding of music and environmental issues (Sonveytsky and Ivakhiv). Seeger and Simonett both draw on their experiences in Latin America (the rainforests of the Brazilian Amazon and the semi-arid regions of northwestern Mexico, respectively) to offer examples that differ from Western thinking and terminology, particularly regarding concepts relating to animals and ecology. In addition to their fieldwork experience, the careers and contributions of all six authors of these five essays are grounded in multiple understandings of ecology—sometimes different from those provided in Part I.

Seeger provides a warning for ecomusicology regarding ethnocentric thinking about nature, animals, humans, and music. He illustrates conceptions of those terms (and their attendant binaries) that differ from Western thinking by examining the how the Kĩsêdjê/Suyá Indians of Brazil relate with animals, and how in turn those relationships are manifest in their music. Kĩsêdjê maintain that the animals and fish, which they hunt and need for their survival, live in villages where to each other they look and act like humans. Each species has their own songs, which are often used for communication with other species. The Kĩsêdjê themselves learn their music from the other species. Seeger thus argues that the distinction between humans and animals is more fluid than Western scientific understanding suggests. Building on the idea of perspectivism (Viveiros de Castro 2004) to challenge Western understanding of the world, Seeger stops short of condemning science; to understand the relations between music, culture, and nature, there is room for multiple perspectives, especially when deployed carefully. The upshot is that Seeger encourages us to be self-reflective and flexible in order to avoid ethnocentricism. Seeger is drawing on a long and distinguished career working in the Amazon (Seeger 1981, 2004), and his essay here engages with recent thinking in ecomusicology and related fields in ethnomusicology. For example, Allen (2011, 392–393) outlines the complexity and multiplicity of definitions for the terms involved in the ecomusicological project; Titon (2013) deepens that understanding of such terminological polyvalency. Seeger and the authors he cites (e.g., Roseman 1998, Ramnarine 2009) expand the necessary critique of those core terms. The idea of non-human music is addressed in Brabec de Mori and Seeger (2014) and in Sorce Keller (2012); these ideas engage with the field of zoomusicology (Martinelli 2008, 2009) and constitute an area of posthumanist studies in music that critiques the culture-nature binary. In this volume, Simonett provides a similar case of the human-animal fluidity, while Guyette and Post offer parallels with regard to humans and domesticated animals; these authors share with Seeger an interest in traditional ecological knowledge. From a different and less ontologically critical perspective are the issues with

animals in the essays by Allen, Boyle and Waterman, Feisst, Ingram, and Titon. Epistemological concerns are also of shared interest with Edwards, Simonett, and Titon. And Pedelty, Simonett, and Seeger share a Latin American context for their work. Seeger finds a place for Boyle and Waterman's ecological approach to performance, even as he does not see it as uniquely scientific: Seeger encourages us to understand as similar the approaches of both scientists and shamans. Titon's essay provides a middle ground: Thoreau, as proto-ecologist/early ecomusicologist, seems a figure between scientist and shaman. Seeger's essay addresses the nature-culture debate, as do Dawe, Edwards, Feisst, Hui, Mark, Simonett, Sonevytsky and Ivakhiv, and Windsor

Simonett's study of the Yoreme in northwestern Mexico encourages us to rethink dominant Western epistemologies and ontologies regarding nature and culture as mediated through music and dance. Through the lens of sentient ecology, which considers communicative relationships between human and non-human animals, the ceremonies of the Yoreme provide examples of how music is not purely human. Rather, music emerges from the sentient ecology between humans, non-human animals, and the abiotic environment. Yoreme singers, musicians, and dancers merge with their non-human contexts by transforming into animals and co-inhabiting an enchanted world. The Yoreme cosmology, as expressed in music and dance, has developed through experiencing life with animals and through dwelling in a particular place. Such a sentient ecology grants personhood to all non-human life, thus challenging Western Cartesian dualism. Simonett's essay engages with diverse areas of scholarly inquiry: from studies of non-human music and zoomusicology (Martinelli 2009, Brabec de Mori and Seeger 2014, Sorce Keller 2012) to critiques of landscape (Tilley 1994, Grimley 2011), and from philosophy (Heidegger 1971) to anthropology (Descola and Pálsson 1996, Ingold 2011). In particular, Simonett finds problematic those conceptions of landscape and soundscape that simplistically relate place and sound; she furthers this critique by enmeshing human-environment relationships in relational multi-sensory experiences (Simonett 2014). In this volume, Simonett furthers the epistemological and ontological re-evaluations proffered especially in the essays by Edwards, Seeger, and Titon. Relationships between humans and animals are further explored in Guyette and Post and in Seeger (in particular regarding traditional ecological knowledge) as well as in the more general animal studies of Allen, Boyle and Waterman, Feisst, Guyette and Post, Ingram, and Titon. The idea of dwelling relates to other ideas of place (bioregionalism and topophilia), which are important to the essays by Edwards, Ingram, Titon, and Von Glahn in particular (and to many others in general); Pedelty's study of Mexican pop music offers an extreme contrast to Simonett's study of Mexican indigenous music, while Seeger's essay offers a third Latin American context. Soundscapes are a shared topic along with Allen, Hui, Guyette and Post, and Titon. Studies of perception are a common interest of both Simonett and Windsor. Simonett's essay addresses the nature-culture debate, as do Dawe, Edwards, Feisst, Hui, Mark, Seeger, Sonevytsky and Ivakhiv, and Windsor.

Dawe emphasizes the importance of material. In so doing, he argues for a political ecology of music that necessarily engages with the fundamental primary resources necessary for cultural production. The musical instrument is an excellent example of the relationships between sound, environment, and society; of particular interest, however, are the multifarious components, inputs, and results of those connections. Dawe engages with the physical impacts and symbolic aspects of musical instruments, as well as the sensual cultural and sustainable practices of guitar makers. He profiles two instrument-making traditions, in Spain (guitars) and Crete (*lyra*, bowed lute), and two guitar makers in Scotland and Uganda who exemplify twenty-first-century ideals that relate to materialism. Materials for musical instruments serve as a nexus for cultural and ecological awareness and for greater sustainability. Ultimately, Dawe advocates for a materialism that creates more responsible encounters between people and materials. Dawe's essay relates to a significant body of organological scholarship, particularly in his area of expertise, the guitar (Dawe 2010, 2012), as well as regarding other situated studies of (Bates 2012) and ecomusicological investigations of materials for (Allen 2012) musical instruments. At the same time, his work is in dialogue with political ecology and materialism (Bennett 2010), anthropology and materialism (Ingold 2012), and sustainable material design (McDonough and Braungart 2002)—demonstrating his commitment to the idea that, indeed, materials matter. In this volume, both Ryan and Dawe are concerned with the provenance, collection, crafting, and distribution of fundamental resources for musical instruments. Sustainability is also of interest to Ryan as well as Guyette and Post. Dawe's discussion of materialism relates to Edwards's examination of that philosophy. Dawe's essay addresses the nature-culture debate, as do Edwards, Feisst, Hui, Mark, Seeger, Simonett, Sonevytsky and Ivakhiv, and Windsor.

Mark examines musical communities in search of clues to the remarkable counter-culture of radical politics on Hornby Island, Canada. Through his development of ecoethnographic justice, a methodology that seeks to employ ethnographic research to improve the balance between humans and the environment, Mark critiques traditional fieldwork approaches. Hornby has long been seen as a unique place for artistic, natural, and social experience: from its unique geographic features to the independence of the individuals and communities that have made it home, many mainlanders desire to visit the Island and absorb something of its vibe. Not surprisingly, the place is threatened by economic, social, and environmental problems—from skyrocketing costs and taxes and the resulting poverty, gentrification, and inequality, to water scarcity, resource extraction, and impacts from a high volume of tourists. Nevertheless, the small rural community of Islanders maintain solidarity and work to reproduce the environmental and social governance that make the place so special. In part, they do so through making music. Mark's participant observation in bands, and his particular focus on one situation, explores the ideas of vibration and the social skills that musicians bring to this particular

struggle. Mark's work is in dialogue with environmental studies (Bateson 1972, Evernden 1993, Livingston 2007) and ethnomusicology (Keil and Feld 1994, Small 1998, Turino 2008), especially regarding his development of the method of ecoethnographic justice. By focusing on an island, he is building on the work in Dawe (2004), and by taking a decolonizing approach to work in a Western context, Mark is building on Smith (1999). With regard to this volume, Drott is also interested in postcolonial issues, particularly with regard to tourism (an issue relevant to Feisst as well). Mark's methodology is grounded in ideas expressed by Titon and in Edwards, particularly regarding the posthumanist, neo-materialist approach. Mark and Hui are both concerned with environmental ethics, especially as related to Leopold (2001), but in different ways: Hui from a historiographical perspective and Mark from an experiential, applied one. Mark addresses the issue of environmental justice, as do the essays by Pedelty and by Sonevytsky and Ivakhiv. Mark's essay addresses the nature-culture debate, as do Dawe, Edwards, Feisst, Hui, Seeger, Simonett, Sonevytsky and Ivakhiv, and Windsor.

Sonevytsky and Ivakhiv examine concepts of nature and culture in the context of traditional music and identity of villages impacted by the 1986 Chornobyl (Chernobyl) Nuclear Power Plant accident. The creation of exclusion zones in the wake of the disaster resulted in massive resettlements of long-standing village cultures; in the late-Soviet period and in post-Soviet Ukraine, the impacts of such actions resulted in nationalist, environmental, and cultural movements. Sonevytsky and Ivakhiv consider one of these: musical *avtentyka*, which considered "authentic" village styles of traditional music. In particular, they are concerned with the unique *a capella* singing traditions in the area near Pripyat, Ukraine. The growth of *avtentyka* paralleled the rise of movements related to national identity, political sovereignty, environmental awareness, and the neo-traditionalist "Native Faith." In some cases, movements with divergent purposes coalesced around traditional music connecting ideas of place and nature. Sonevytsky and Ivakhiv support Titon's (2009) proposal for a sustainable ecology of music, and they do so with a unique emic source, one used by *avtentyka* supporters: Likhachev's "ecology of culture" (1985), which called for the preservation of human cultural production and its related parallels in nature. The impacts of the Chornobyl disaster still reverberate, particularly because nuclear disasters still happen (Phillips 2011). We are familiar with the use of music to express humanity, cohere groups, display identity, and achieve national ends; it should not, therefore, be surprising that environmental problems and related social movements, such as eco-nationalism (Dawson 1996), find similar places for music. Elsewhere in this volume, Pedelty and Mark make related arguments about musicking in the context of environmental and social problems. Historiographical considerations relate to those in Allen (and Edwards). Sonevytsky and Ivakhiv's use of cultural ecology provides a contrast to the scientific ecology of Boyle and Waterman. Sonevytsky and Ivakhiv's essay addresses the nature-culture debate, as do Dawe, Edwards, Feisst, Hui, Mark, Seeger, Simonett, and Windsor.

As we argue in the introduction, and as this volume demonstrates, ecomusicology is a field. But is working outside in *the* field as an ecologist or ethnographer necessary to ecomusicology? It may appear so, because fieldwork is common to all the essays of Part I and Part II, to at least two essays of Part III, and, to a lesser extent (through interviews if not the ethnographic fieldwork of participant-observation), to two of the essays of Part IV. Certainly, such a method of engagement with the world, one that has the author in its messiness rather than safely cloistered from it, results in sensitivity to and insight regarding issues ecomusicological (see Pedelty 2012). And certainly, the results of place-specific ethnographic research, particularly regarding non-Western ways of thinking, are powerful examples to help us understand, confront, and ameliorate the problem of culture central to the environmental crisis. But if we consider the importance of the ecological concept of strength in diversity, then fieldwork in particular places (ecological or ethnographic) alone would not be a pre-requisite for ecomusicology—as the remainder of this volume illustrates. Rather, we need numerous approaches and more collaborations: many ecomusicologies. And so even in the context of the common method of engagement in this section, we see a useful diversity of places, peoples, and approaches: from one of the worst environmental catastrophes ever (Chornobyl) to the problems of a slowly unraveling community (Hornby Island), from the Yoreme of semi-arid northwestern Mexico to the Kĩsêdjê of the Amazon basin's rainforests, and from Scotland to Uganda and the global guitar cultures on which they are but select nodes. Fieldwork is an important direction in ecomusicology, and the sharing of knowledge learned through such work, be it cultural or ecological, is yet another of the paths that connects the field.

WORKS CITED

Allen, Aaron S. 2011. "Ecomusicology: Ecocriticism and Musicology." *Journal of the American Musicological Society* 64 (2): 391–94.

———. 2012. "'Fatto di Fiemme': Stradivari's Violins and the Musical Trees of the Paneveggio." In *Invaluable Trees: Cultures of Nature, 1660–1830*, edited by Laura Auricchio, Elizabeth Heckendorn Cook, and Giulia Pacini, 301–315. Oxford: Voltaire Foundation.

Bates, Eliot. 2012. "The Social Life of Musical Instruments." *Ethnomusicology* 56 (3): 363–395.

Bateson, Gregory. 1972. *Steps to an Ecology of Mind*. New York: Ballantine Books.

Bennett, Jane. 2010. *Vibrant Matter: A Political Ecology of Things*. Durham: Duke University Press.

Brabec de Mori, Bernd, and Anthony Seeger. 2014. "Introduction: Considering Music, Humans, and Non-humans." In "The Human and Non-Human in Music: Listening to the Indigenous Peoples of Lowland South America," edited by Bernd Brabec de Mori. Special issue, *Ethnomusicology Forum* 22 (3): 269–286.

Dawe, Kevin, ed. 2004. *Island Musics*. New York: Berg.

———. 2010. *The New Guitarscape in Critical Theory, Cultural Practice and Musical Performance*. Burlington, VT: Ashgate.

———. 2012. "The Cultural Study of Musical Instruments." In *The Cultural Study of Music: A Critical Introduction*, edited by Martin Clayton, Trevor Herbert, and Richard Middleton, 2nd edition, 195–205. New York: Routledge.

Dawson, Jane I. 1996. *Eco-Nationalism: Anti-nuclear Activism and National Identity in Russia, Lithania, and Ukraine*. Durham: Duke University Press.

Descola, Philippe, and Gísli Pálsson, eds. 1996. *Nature and Society: Anthropological Perspectives*. London: Routledge.

Evernden, Neil. 1993. *The Natural Alien: Humankind and Environment*. Toronto: University of Toronto Press.

Grimley, Daniel M. 2011. "Music, Landscape, Attunement: Listening to Sibelius's Tapiola." *Journal of the American Musicological Society* 64 (2): 394–398.

Heidegger, Martin. 1971. *Poetry, Language, Thought*. New York: Harper Colophon Books.

Ingold, Tim. 2011. *The Perception of the Environment: Essays on Livelihood, Dwelling and Skill*. London: Routledge. Original edition, 2000.

———. 2012. "Toward an Ecology of Materials." *Annual Review of Anthropology* 41: 427–42.

Keil, Charles, and Steven Feld. 1994. *Music Grooves: Essays and Dialogues*. Chicago: University of Chicago Press.

Leopold, Aldo. 2001. *A Sand County Almanac*. New York: Oxford University Press. Original edition, 1949.

Likhachev, Dmitry S. 1985. *Ecologiia kul'tury*. Moscow: Nauka.

Livingston, John. 2007. *The John A. Livingston Reader*. Toronto: McClelland and Steward Ltd.

Martinelli, Dario. 2008. "Introduction (To the Issue and to Zoomusicology)." *TRANS-Transcultural Music Review* 12. Accessed December 8, 2010. http://www.sibetrans.com/trans/trans12/art08.htm.

———. 2009. *Of Birds, Whales, and Other Musicians: An Introduction to Zoomusicology*. Scranton: University of Scranton Press.

McDonough, William, and Michael Braungart. 2002. *Cradle to Cradle: Remaking the Way We Make Things*. New York: North Point Press.

Pedelty, Mark. 2012. *Ecomusicology: Rock, Folk, and the Environment*. Philadelphia: Temple University Press.

Phillips, Sarah D. 2011. "Chornobyl Forever." In *Somatosphere: Science, Medicine and Anthropology*. Accessed March 5, 2015. http://somatosphere.net/2011/04/Chernobyl-forever.html.

Ramnarine, Tina. 2009. "Acoustemology, Indigeneity and Joik in Valkeapää's Symphonic Activism: Views from Europe's Arctic Fringes for Environmental Ethnomusicology." *Ethnomusicology* 53 (2): 187–217.

Roseman, Marina. 1998. "Singers of the Landscape: Song, History and Property Rights in the Malaysian Rain Forest." *American Anthropologist* 100 (1): 106–121.

Seeger, Anthony. 1981. *Nature and Society in Central Brazil: The Suyá Indians of Mato Grosso*. Cambridge: Harvard University Press.

———. 2004. *Why Suyá Sing: A Musical Anthropology of an Amazonian People*. Urbana: University of Illinois Press. Original edition, 1987.

Simonett, Helena. 2014. "Envisioned, Ensounded, Enacted: Sacred Ecology and Indigenous Musical Experience in Yoreme Ceremonies of Northwest Mexico." *Ethnomusicology* 58 (1): 110–132.

Small, Christopher. 1998. *Musicking: The Meanings of Performing and Listening*. Middletown: Wesleyan University Press.

Smith, Linda Tuhiwai. 1999. *Decolonizing Methodologies: Research and Indigenous Peoples*. New York: Zed Books.

Sorce Keller, Marcelo. 2012. "Zoomusicology and Ethnomusicology: A Marriage to Celebrate in Heaven." Yearbook for Traditional Music 44: 166–183.

Tilley, Christopher. 1994. *A Phenomenology of Landscapes: Places, Paths, Monuments*. Oxford: Oxford University Press.

Titon, Jeff Todd. 2009. "Music and Sustainability: An Ecological Viewpoint." *the world of music* 51 (1): 119–37.

———. 2013. "The Nature of Ecomusicology." *Música e Cultura* 8 (1): 8–18.

Turino, Thomas. 2008. *Music as Social Life: The Politics of Participation*. Chicago: University of Chicago Press.

Viveiros de Castro, Eduardo B. 2004. "Perspectival Anthropology and the Method of Controlled Equivocation." *Tipití: Journal of the Society for the Anthropology of Lowland South America* 2 (1): 3–21.

6 Natural Species, Sounds, and Humans in Lowland South America

The Kĩsêdjê/Suyá, Their World, and the Nature of Their Musical Experience

Anthony Seeger

It is very important for ecomusicologists to take care with the way we define the central terms of the field because unreflective or ethnocentric definitions can create problems for our future work. The anthropologist Marshall Sahlins (1976) argued that, "much of anthropology can be considered a sustained effort at synthesizing an original segmentation of its object, an analytic distinction of cultural domains it had made without due reflection, if clearly [based] on the model presented by our own [Euro-American] society" (205). A bit like Humpty Dumpty after he fell from the wall, once broken up into parts it is difficult to repair the initial segmentation of a field. Ecomusicology is a newish field where many disciplines converge and interact. It is also one where we expect contributions from scholars from many different countries and scholarly backgrounds. We have to be especially careful about the way the words "nature," "animals," "humans," and "music" are defined and used, because we could easily replicate anthropology's early error. The four terms have meant different things in Europe over the centuries, and they may be defined differently by different disciplines as well as in diverse human communities. One example of this is found among the indigenous peoples of the Amazon basin.

Other examples of such terminological polyvalency are to be found in Simonett's essay (chapter 7) about how the performer of drum and flute music among the Yoreme in northwestern Mexico *becomes* the bird, Ramnarine's discussion (2009) of the saami joik in Finland, Guyette and Post's discussion (chapter 3) of the close physical and sonic relations between Mongolians and their animals and places, and Roseman's work (1998) on the Temiar in Malaysia. Roseman's statement that "theories about the structure of existence and the person posit a collegial permeability between entities that the post-Cartesian Western cosmopolitan philosophy hierarchically differentiates as 'human' and 'nonhuman'" (110), as also cited by Simonett (chapter 7), could be extended to many communities around the world. These different instances of "collegial permeability" (a wonderful term) can help us refine how we might wish to define the central terms of ecomusicology.

This essay will demonstrate how different concepts of nature, animals, humans, and music can be understood from the post-Cartesian Western philosophical perspective through the examination of the relationship

among them in a single indigenous group, the Kĩsêdjê, who live in northern Mato Grosso, Brazil. At times I will generalize to other Lowland South American Indian societies with similar ideas about cosmology, nature, and music ideas, but the details presented come from my own research between 1970 and 2010.[1] I first introduce the group, their soundscape, and their interaction with animals as they were in the 1970s when I first visited them.[2] I then discuss the relatively greater importance they gave to the faculty of hearing than to vision and smell, followed by illustrations of the humanness of animals and how animal songs enable the transformation of humans into animals. It is possible to talk about "nature" and "society" and "music" (especially song[3]) among the Kĩsêdjê, but their definitions of the terms and the relationships among them require a rethinking of simple paradigms taken from twenty-first-century European thought. In the concluding remarks I consider the implications of this single ethnographic description for ecomusicology.

THE KĨSÊDJÊ AND THEIR SOUND WORLD

I was extremely fortunate when I apprenticed myself to the group of Brazilian Indians then known as the Suyá in 1971. They allowed my wife and me to move in with the approximately 80 remaining members of their society and proceeded to teach us their language, their music, and their ideas about the cosmos, their social life, and the world in which they lived. As a condition of being there they required me to spend hundreds of days with men and boys on the rivers and in the forests fishing and hunting for food to contribute to the household larder; my wife joined the women to collect and process plants and cook the game we brought back. While we paddled dugout canoes up and down long stretches of their river using short paddles and quick, hard, strokes to move them along, the Kĩsêdjê men taught me to identify the cries of birds, species of trees, sounds of fish and game, and the sweet-promising hum of bees' nests. In the early days of our stay I saw my surroundings as classic European "nature": hostile or fleeing animals, tormenting insects, and forbidding, tearing, spiny, and dense vegetation. This I opposed to the Kĩsêdjê village with its meticulous clearing of all vegetation from the village plaza and area surrounding the houses and with the regular rhythm and diverse sound qualities of their singing—the loudest sound in their environment except for rare bursts of thunder in certain seasons.[4]

I was wrong about the radical opposition between the village and the surrounding nature, though. "Nature" was not an unknown terrain but rather a humanly defined landscape filled with other species with which the Kĩsêdjê interacted in a variety of ways. As we paddled they taught me the names of countless locations along the river. They made me learn the associations of place names and events and would quiz me on them after our return. They listened carefully to bird calls and to the sounds of fish and game.

They sometimes imitated animal sounds to attract or allay the suspicions of certain game animals.[5] Some bird cries were warnings that they should avoid travel that day or that they would catch no fish or game; a different call would presage a good hunt. They sometimes flicked their knuckles in the water to attract hungry predatory fish to their waiting arrows. Those among them who had the ability to hear the singing of a certain animal species were listening and learning new songs that sounded nothing like any of the sounds I could hear. The cacophony I perceived in their sound-world was to them an interspecies conversation with important implications and critical results.

HEARING: THE IMPORTANCE OF AURALITY IN LOWLAND SOUTH AMERICA

Human faculties may be valued differently in different societies. It has been suggested that hearing is more important than vision for many tropical forest groups around the world because there is less to see in the depths of the forest far below the lively canopy of the trees where many animals live that can be heard but not seen. While it may not apply everywhere in Lowland South America, this holds true for the Kĩsêdjê. Although they did not live in the deep forest, hearing was the most social sense. Not only was the ability to hear sound important, but paying attention and listening was a fundamental social act and the basis of moral behavior. If you listened well, you would act correctly. People who did not listen were incomplete and immoral. Knowledge of certain things was said to "lie in the ear-hole" rather than in the brain, the heart, or some other part of the body. Comparing vision, hearing, and smell, one could say that hearing was the most important of the three—as has been argued for certain other Lowland South American Indian societies (Menezes Bastos 2011).

It has always seemed to me that my own society (the United States) privileges vision and the eyes, with our emphasis on writing as well as the habits of saying a "picture is worth a thousand words" and "I see" when we mean "I understand." While the Kĩsêdjê certainly used their eyes to hunt and valued visual information, super-powerful vision (a kind of Superman-like X-ray vision) was attributed to evil witches (*wayangá*) whose power resided invisibly in their eyes. Most Kĩsêdjê knowledge was passed through oral/aural tradition: They used no system of writing. Instead of "I see" they would say "I hear." Super-hearing—the ability to hear the singing of certain animal, plant, and insect species other people could not hear—was a generally positively valued characteristic of those who could learn and teach songs. They associated a keen ability to smell more with animals than humans, even though they used a complex classification of aromas to classify animals, humans, and medicinal plants. The relationship of the senses was expressed physically through adult men's body ornaments—large white ear discs, red lip discs, and a lack of permanent markings or ornamentation of the eyes or nose (Figure 6.1; see Seeger 1981, 80–91).

Figure 6.1 Ropndo ornamented for a ceremony with ear ornaments, mouth ornaments, and the down and feathers of several bird species (Photo: A. Seeger).

THE HUMANNESS OF ANIMALS

Although the Kĩsêdjê interacted with animals and plants as they hunted, gathered, and traveled in forests and rivers, they said that most living things live in villages and perform ceremonies as they do. They said that the mice, for example, all live in a large village much like the Kĩsêdjê village, with a circle of houses around a huge plaza with a men's house in it. When mice arrive in their village they remove their skins ("unzip" them as it was described to me) and look like humans. Like humans they talk with one another, have families, and go hunting and gathering. And they perform ceremonies and sing (Kĩsêdjê 2012).[6] The Kĩsêdjê maintained that all animals and fish live this way; the social insects (bees and wasps and termites) and some plants (at least trees and arrow cane) do as well. The idea that animals live in villages and have a human form is a specific example of what in many societies of Lowland South America is a general cosmological idea that has been called "perspectivism" (Viveiros de Castro 2004). In this view, all animals and humans have souls or spirits and every species sees itself as human, speaks a language, uses tools, and engages in ceremonies in which music and dance are usually a part.[7] Members of each type of animal look like humans

to one another, but other types do not look like humans to them. And each type has a somewhat distinctive perspective on the world of which they are a part (thus "perspectivism"). For example, the delicious ceremonial food of vultures looks like rotten flesh to humans. Or, as Lima (1996, 31) has described it for the Yudjá, another Brazilian indigenous group:

> *From their own perspective* the peccaries [wild pigs] play flutes, which for humans are simply coconuts (emptied of their meat, the food of this animal) which the peccaries nuzzle, causing the emission of a sound reminiscent of whistling to human hearing, but whose musicality, to peccary ears, is as rich as that of the flutes. (Lima 1996, 31, cited in Menezes Bastos 2014, 299)

In many indigenous communities, convincing evidence of the humanness of animals comes from the reports or songs of certain humans who are able to shift perspectives. They can visit the villages of the animals and see them in their human form. They can speak to them, and they can watch them dance, listen to them sing, and learn their songs and flute melodies.

The specialists who can move from one perspective to another have different names in different societies but are usually referred to in English as "shamans": humans who can transform themselves into spirits or in some other way enter the other perspective. In some other cases the shift happens during sleep in dreams—many indigenous groups in Brazil report learning music in their dreams. Among the Kĩsêdjê the communication between them and the animal villages occurred through sickness or an individual's encounter with an animal outside the village. People whose spirits had been removed from their bodies by a witch (*wayangá*) and who are sent to live with a natural species[8] learned that species' language and songs. The person whose spirit had been taken to an animal village could then hear them singing as he or she sat in the village or walked in the gardens or forest. Learning the songs by listening to them, they subsequently taught the songs to the other Kĩsêdjê (Seeger 2004, 52–61). Viveiros de Castro (2004) calls the Lowland South American ideas about natural species a kind of "multinaturalism" as distinct from "multiculturalism," and he argues that we should learn from the South American Indians and consider our world to be multinatural also, not simply multicultural.[9] Reducing the radical distinction between humans and animals is a contribution of both ecology and ecomusicology; some South American Indians arrived at that conclusion long before most Euro-Americans did.[10]

KĨSÊDJÊ MULTINATURAL MUSIC AND MULTICULTURAL REPERTORY

Feld's study of the music of the Kaluli of Papua New Guinea reports that certain songs followed the structure of the cries of certain birds—specifically

the *muni* bird (Feld 2012). Several European composers have written compositions that include direct imitation of the sound of certain birds or have imitated natural sounds (Beethoven's Sixth Symphony is an obvious example). But although the Kĩsêdjê say they learn music from animals and plants, their songs do not sound anything like what can be recorded in their environment. It does not sound like buzzing bees or birdsong or fish splashing. In those animals' villages, they look and sound like (and hear themselves as) humans. Kĩsêdjê "nature" is very different from that of both the Kaluli and the European composers.

Almost all Kĩsêdjê music is vocal; they rarely use instruments other than rattles. There are various song genres: shout songs, unison songs, and songs of a particular ceremony. The natural species that originated each song is presented in the song text itself. Most song texts resemble this rainy season unison song.[11]

> PART A: The *kukruti* fish [*Hoplias aimara,* Valenciennes 1847] sings with its face painted for log racing, ho-ho-ha-ji … [song syllables]
> PART B: The *samdawti* fish [genus *cichla*] sings with its body painted for log racing, ho-ho ha ji … [song syllables]

The song has a fairly short melody that is repeated many times as the text is slowly presented in pieces until it includes the complete line of part A and then part B of the song text above. The short melody is usually first performed only with song syllables, then the action is added to the syllables, and finally (after a number of repetitions naming the action) the animal name is added to the action and the syllables. This part, "telling the name" of the fish, completes the presentation of the song text. This is followed by a short coda, a silence, and then the same way of presenting the song text, using the same melody, for Part B. The texts of A and B are very similar but with two important differences. They each name an animal, describe an action, and have specific song syllables. But they name different animals and the action described is slightly different. In this case the text describes a specific species of fish singing and dancing and painted for a ceremonial relay race with logs that is performed by most animals and the Kĩsêdjê. The fish in Part A has its face painted and the fish in Part B has its whole body painted. In fact (in the river), the fish genus in Part B has colorful body marking with black lines across its body and an "eye" on its tail while the fish of Part A is fairly plain, although it has a distinctive face that sometimes has some color. The text draws on observed differences between the fish and makes the connection to a ritual performance. In the river the two species are already painted for their log race.

This is a fish song that names particular species of fish. Fish sing about themselves. Birds sing about themselves. Rodents (mice) sing about themselves. Bees sing about themselves and trees sing about themselves. The Kĩsêdjê do not sing about themselves but instead sing the songs of other species. They are apparently unique in being able to learn and perform the

songs of all species. But humans have no music of their own—no Kĩsêdjê said he or she created a song. They said that they heard an animal species sing it and learned it from them. In order to sing, they must learn the songs of natural species which they do through specialists who have been able obtain the animals' perspective. Without this communication between humans and natural species they could not have ceremonies, initiate youth, and socially reproduce themselves. They need the animals and plants not only for subsistence but also for social reproduction.

There is another relationship between humans and animals that involves music. At some point during many of the ceremonies they have learned from animals, the participating Kĩsêdjê are transformed into the animals whose songs they are singing; they are later transformed back into humans. This powerful and somewhat mystical metamorphosis, accomplished through body ornamentation, dancing, and singing, is a central part of a number of initiation ceremonies. The transformation often begins in the evening and is reversed before dawn. In the Mouse Ceremony (Kĩsêdjê 2011), for example, the dancers became mice at dusk as they sang mouse songs—Kĩsêdjê specialists told me that the dancers were simultaneously humans and mice. Before dawn, their sisters pierced the men's dance capes with arrows and wounded the dancers, who symbolically "died" after dawn by falling silent, standing still, and stooping over. Their sisters rushed to strip the dancers of their capes and bathed them in cold water, returning them to fully human form. The reason for this was that the ceremony was originally learned from the mice. The power of this transformation was part of the efficacy and significance of the initiation ritual itself, in which young boys were inducted into the male ritual life of the plaza. If animals look like humans and sing and dance, humans also become animals as they sing and dance the animals' songs. At certain times, they each reveal traits of the other.

CONCLUSION

The reason we must consider carefully the way other societies have defined and interpreted the key terms of ecomusicology is that we should try to avoid thoughtless ethnocentrism and discipline-centrism. The terms of our emerging field derive from centuries of philosophical speculation and scientific experimentation in Europe and the United States. So have the terms and concepts of other societies, whose members have been on this planet, lived in complex ecosystems, and speculated about them for just as long, albeit differently, than we have.

The idea of "multinaturalism"—of a world in which each species sees only itself as human and cultural and every other species as a natural species—is a radical one. It calls for a different kind of perspective on the world, and it is a perspective that is relevant to ecomusicology. From his analysis of Lowland South American Indians, Viveiros de Castro (2004)

suggests that the worldview resulting from perspectivism poses a problem to Western society: His interpretation of alterity challenges some of the Euro-American ethnocentric naturalistic understanding of the world. Humans, animals, and plants are not necessarily separate and independent beings, and they may be linked through place, resource use, and, as a number of authors in this volume maintain, sound.

I do not mean to suggest ecomusicologists should replace a European orientation with that of Lowland South Americans (though Viveiros de Castro might). There is a place for the kind of ethological approach to human musical performances and animal behavior proposed by Boyle and Waterman (chapter 2), though I would not consider it to be a uniquely scientific approach. But we should certainly be aware of different articulations of similar concepts based on different lived experiences. The Kĩsêdjê have the benefit of thousands of years of intimate contact with and hard-earned knowledge about the world in which they live. In the twenty-first century, Euro-Americans have begun to recognize that other species use language and that other species may not only make sounds but also experience them as we experience music. This is a revelation to some; it is nothing new to many people who live in the Amazon. And if we use scientists rather than shamans or ensorcelled people to teach us the language and music of other species, we should recognize that scientists and shamans are doing similar things, although they appear to be very different. Both are building on thousands of years of observation and experimentation and both are trying to understand—and make understandable to their fellow humans—the ways of being of other species, places, and materialities.

Knowledge has many uses, not all of them either musicological or ecological. The Kĩsêdjê lived by hunting and fishing in the 1970s; they applied their knowledge and experimented with new information in their hunting and fishing and in their ritual experience and song. People can use knowledge in many ways, though. Although the Kĩsêdjê could not have been characterized as environmentalists in 1971, today they use their knowledge of their forests and rivers to work with NGOs to protect the ecology of their land and rivers and their inhabitants, which have been profoundly affected by Brazilian agribusinesses, forest clearing, and toxic runoff that affects the singing fish and almost everything else in the region. Humans have a lot to learn from one another about the world, and we should not only be listening carefully to each other, but using what we learn. If we listen well, we might—at least according to the Kĩsêdjê—behave better too. And that would be a very good thing indeed.

NOTES

1. I have published extensively on Kĩsêdjê society, cosmology, and music. Particularly relevant are Seeger 1981 and Seeger 2004. My acknowledgments in those publications apply to this essay as well.

2. Although I have spent over 30 months with the Kĩsêdjê, and most recently visited them in 2010, their environment and soundscape have changed significantly since my wife Judith Seeger and I made our first extended visits totaling about 15 months in the village between 1971 and 1973. My descriptions apply to that period. To discuss the changes that have occurred during the past 40 year would require another paper, but a partial update is found in Seeger 2004, 141–151.
3. Strictly speaking the word "song" should be "song/dance" because the movement accompanying the song is integral to it and both are included in the single Kĩsêdjê noun *ngere* and verb *ngre*. It is awkward to write song/dance every time, and the texts of the songs are crucial to the argument of this essay, yet the Kĩsêdjê seldom mention dance.
4. This may be a surprising thing to read, but before motors and amplification theirs was a quiet soundscape. One might compare the contrasts between groups of Kĩsêdjê singing and other sounds to the massiveness of European cathedrals and the height of surrounding city buildings in the seventeenth century.
5. Similar human/animal interactions can occur with domesticated animals, as described for Mongolian herders in Guyette and Post (chapter 3).
6. See also Simonett (chapter 7); Allen (chapter 20) offers a nineteenth-century Italian perspective on singing mice.
7. While spirits and predation are important in Viveiros de Castro's discussion, they appear to be less important to the Kĩsêdjê than to some of the other Lowland South American groups. For a somewhat related cosmovision, see Simonett (chapter 7).
8. By "natural species," I mean animals, insects, and plants.
9. Viveiros de Castro (2004) calls for something very different from Sorce Keller, who argued recently for the establishment of a zooethnomusicology (Sorce Keller 2012). Sorce Keller, however, does a very nice job of describing the slipperiness of the word "music" and the importance for ethnomusicologists of considering the music of non-human species.
10. For another example of an earlier realization (by Thoreau) of ecological/ecomusicological concepts, see Titon (chapter 5).
11. This song text is discussed in Seeger (2004) on pages 14–16 and 42–43, the melody is analyzed on pages 88–103, and a complete audio recording is track 3 of that book's accompanying CD.

WORKS CITED

Brabec de Mori, Bernd. 2014. "Shipibo Laughing Songs and the Transformative Faculty: Performing or Becoming the Other." *Ethnomusicology Forum* 22 (3): 343–361.

Brabec de Mori, Bernd, and Anthony Seeger. 2014. "Introduction: Considering Music, Humans, and Non-humans." In "The Human and Non-Human in Music: Listening to the Indigenous Peoples of Lowland South America," edited by Bernd Brabec de Mori. Special issue, *Ethnomusicology Forum* 22 (3): 269–286.

Feld, Steven. 2012. *Sound and Sentiment: Birds, Weeping, Poetics, and Song in Kaluli Expression*. Durham: Duke University Press. Original edition, 1982.

Kĩsêdjê. 2011. "A festa do Rato" (The Mouse Ceremony). In *Kĩsêdjê, Cineastas Indígenas 6*. Olinda: Video nas Aldeias. DVD with booklet.

Lima, Tânia Stoltze. 1996. "O Dois e seu Múltiplo: Reflexões sobre o Perspectivmo emu ma Cosmologia Tupi." *Mana* 2 (2): 21–47.

Menezes Bastos, Rafael José de. 2012. "Leonardo, the Flute: On the Sexual Life of Sacred Flutes among the Xinguano Indians." In *Burst of Breath: Indigenous Ritual Wind Instruments in Lowland South America*, edited by Jonathan D. Hill and Jean-Pierre Chaumeil, 69–91. Lincoln: University of Nebraska Press.

———. 2014. "Apùap World Hearing Revisited: Talking with 'Animals,' 'Spirits,' and Other Beings and Listening to the Apparently Inaudible." *Ethnomusicology Forum* 22 (3): 287–305.

Ramnarine, Tina. 2009. "Acoustemology, Indigeneity and Joik in Valkeapää's Symphonic Activism: Views from Europe's Arctic Fringes for Environmental Ethnomusicology." *Ethnomusicology* 53 (2): 187–217.

Roseman, Marina. 1998. "Singers of the Landscape: Song, History and Property Rights in the Malaysian Rain Forest." *American Anthropologist* 100 (1): 106–121.

Sahlins, Marshall. 1976. *Culture and Practical Reason*. Chicago: University of Chicago Press.

Seeger, Anthony. 1981. *Nature and Society in Central Brazil: The Suyá Indians of Mato Grosso*. Cambridge: Harvard University Press.

———. 2004. *Why Suyá Sing: A Musical Anthropology of an Amazonian People*. Urbana: University of Illinois Press. Original edition, 1987.

Sorce Keller, Marcelo. 2012. "Zoomusicology and Ethnomusicology: A Marriage to Celebrate in Heaven." *Yearbook for Traditional Music* 44: 166–183.

Viveiros de Castro, Eduardo B. 1998. "Cosmological Deixis and Amerindian Perspectivism." *Journal of the Royal Anthropological Institute* 4 (3): 469–88.

———. 2004. "Perspectival Anthropology and the Method of Controlled Equivocation." *Tipití: Journal of the Society for the Anthropology of Lowland South America* 2 (1): 3–21.

7 Of Human and Non-human Birds

Indigenous Music Making and Sentient Ecology in Northwestern Mexico

Helena Simonett

Consider two definitions of landscape: "the surface on which we live, [representing] the interface between human thoughts and actions and the biophysical environment" (Knight 2006, 5), and "a cultural image, a pictorial way of representing, structuring or symbolizing surroundings" (Cosgrove and Daniels 1988, 1). Taken as general conceptual framework for analyzing "landscapes in music" (the title of Knight 2006), such conventional and widespread ideas of landscape pose problems if we extend them to the concept of soundscape, an idea developed by Schafer (1994) and central to ecomusicology (Grimley 2011, 395). Soundscape ecology, based on the foundation of landscape ecology, draws from areas of coupled natural-human systems, with natural and human systems interacting to form spatial-temporal patterning of sound in landscapes (Pijanowski et al. 2011). I find these conceptions of "landscapes in music" and "soundscape ecology" to be particularly problematic regarding understandings of place and culture and their relationships to each other.

Based on ethnographic research on the ceremonial music and dance performed by the Yoreme (Mayo-Yoreme), an indigenous community dwelling in semiarid northwestern Mexico, I aim in this essay to contribute to understanding musical and sonic issues related to ecology and the natural environment from a non-Western perspective. As Guyette and Post point out, indigenous conceptualizations, in which "human and non-human sounds and sound-making play equally important roles in providing ecological knowledge about a sound landscape" (chapter 3, 43), provide an alternative to dominant Western epistemologies and ontologies. Seeger (chapter 6) shares that position and advocates a multivalent understanding of the key terms of ecomusicology, which is the "study of music, culture, and nature in all the complexities of those terms" (Allen 2014). My examination of a non-Western musical practice illuminates the multivalence of these terms and, more broadly, contributes to studies in soundscape ecology as envisioned by Guyette and Post. Furthermore, I relate Yoreme ceremonial music/dance performance with the concept of sentient ecology (Anderson 2000), which brings humans into communicative relationships with the ecological world and extends the concept of personhood to animals, and ultimately, to all life in an ecosystem.

HISTORICAL BACKGROUND

Radding (1997) chronicles the cultural persistence of Indian communities that inhabited the vast territories of the northwestern frontier of Spanish Nueva Vizcaya. Native peasant communities had settled in this semiarid region several millennia before European conquest, living by horticulture, foraging, and hunting. After the conquest, the region became a site of cultural and political confrontation between the colonial mission policy and the traditional lifestyle of indigenous communities. The breeding of European livestock altered the ecological conditions for hunting and gathering in the *monte* (mountainous wilderness), and Spanish colonialism transformed a classless society into a society of classes defined in terms of property and access to means of production (6). Wage labor was introduced, and the lands in the fertile river valleys that cut through the Western slopes of the Sierra Madre were tilled to grow new crops. Settlers and smallholders encroached on indigenous territories, accumulating and fragmenting the productive land. "Indigenous villagers conserved their ceremonial practices, albeit in altered form, within the economic and religious structures imposed by mission life. Hunting and food gathering required another set of rites in order to ensure the continued bounty of game and seed plants in the *monte*" (55). The conflict between the Indians' rationale of livelihood and the Spaniards' logic of mercantilism grew more intense over the centuries of colonial rule, culminating in the privatization of rural property and the dispersal of the communal lands that had been the agrarian foundation of mission economy.

In the twentieth century, the agricultural economy of the region underwent dramatic changes. A number of hydroelectric dams in the Sierra Madre mountains were built to meet the water demand of the growing agribusinesses, which thrive despite the prolonged droughts that plague this area. Whole mountains were flattened to make space for irrigable fields and orchards owned by individual landholders and industrial agricultural companies. Laws were amended to provide the opportunity to break up the *ejidos*, communal lands that individual members of a community are allowed to use for their own basic needs through subsistence farming.[1] The Mexican economy was undergoing radical structural changes in the 1980s as agriculture became increasingly export-oriented and privatized. Today, at the beginning of the twenty-first century, there are more agricultural laborers without land than before the Revolution of a century ago, a period that resulted in land reform.

Indigenous people continue to inhabit the margins of Mexican society, having been excluded systematically from the national public sphere (Lomnitz 2001). The Yoreme, like indigenous populations elsewhere in the world, feel the cultural impact of globalization, which has transformed their living spaces and affected the spiritual life that constitutes their communal identity. Yet, in spite of the intensification of global interconnectedness and the upheavals brought about from changes to land use, the links between cultural experience and local surroundings are still strong.

LANDSCAPE AS A PHENOMENON OF EXPERIENCE

As Boyle and Waterman (chapter 2) observe, it is a central concern for the ecomusicologist to understand how a given musical performance affects and is affected by the broader (cultural, social, and physical) environment in which it is manifest. But before construing Yoreme cultural practices as ecologically performative, some theoretical considerations on concepts of spatiality need to be brought up in order to challenge lingering conventional ideas of landscape and soundscape.

Lefebvre (1974) argued that space is a complex social construction based on values and the social production of meanings that affects spatial practices and perceptions. This argument implies the shift of the research perspective from space as such ("absolute space") to the following: the processes of its production; the embrace of the multiplicity of spaces that are socially produced and made productive in social practices; and the focus on the contradictory, conflictual, and political character of the processes of the production of space. Elaborating on Lefebvre's argument that every society produces its own space, Tilley (1994) holds that "space has no substantial essence in itself, but only has a relational significance, created through relations between peoples and places" (11). Rather than limiting "landscape" to the visual and objectified, he shifts our attention to the relationship between places, landscapes, material forms, and the construction of social identities. Ingold (2011) further challenges us to recognize the world we inhabit not as a landscape but a world based on experience, a "dwelt-in-world" (42). This "dwelling perspective" places us in the context of an active engagement with the constituents of our surroundings (5). The concept of dwelling had been developed previously by Heidegger (1971) in his 1951 lecture "Building Dwelling Thinking." He used the term "dwelling" to capture the distinctive manner in which we *belong in* the world. Our being-in-the-world, Heidegger holds, is always a being-with: "By reason of this *with-like* being-in-the-world, the world is always the one that I share with others" (1962, 155). Ingold adds to Heidegger's ontological considerations the social and ecological domains of being-with, arguing that humans "are brought into existence as organisms-persons within a world that is inhabited by beings of manifold kinds, both human and non-human. Therefore relations among humans, which we are accustomed to calling 'social,' are but a subset of ecological relations" (2011, 5). This "dwelling perspective," thus, places us in the context of an active engagement with the constituents of our surroundings.

Ingold warns against setting up a polarity between the ecological domain of human beings' relations with non-human "nature" and the cognitive domain of the cultural construction of nature. "Environmental perception is not a cultural construction of nature," he holds (2011, 20). The ways in which we perceive, understand, relate to, and involve in our physical world—to avoid the loaded term "nature"—is through perceptual skills that we acquire and fine-tune throughout our lifetime. Songs and stories "give shape to a perception of the world guided by this [sensory] education" (9–10). This knowledge

"is based in feeling, consisting in the skills, sensitivities and orientations that have developed through long experience of conducting one's life in a particular environment" (25). This intuitive understanding, which Ingold refers to as "sentient ecology" (after Anderson 2000, 116–117), develops from the continuing involvement with human and non-human constituents of our environments, "for it is by engaging with these manifold constituents that the world comes to be known by its inhabitants" (Ingold 2011, 10). Drawing on these observations, I turn to the sound ecology of birds.

OF HUMAN AND NON-HUMAN BIRDS[2]

When we listen to the sounds of birds invoked by the flute player in Yoreme ceremonies, do they differ from the bird sounds in Ludwig van Beethoven's *Pastoral Symphony* or in Olivier Messiaen's *Chronochromi*? To paraphrase Thoreau (see Titon chapter 5): Is music made by humans but an echo of the music of nature? Due to their descriptive quality, the bird sounds may indeed not differ to (Western) listeners, who have learned over the centuries to perceive the imitations of natural sounds as extra-musical, as mere programmatic effects. The birds are considered part of the landscape that composers/performers invoke musically. But as Cook (2013) suggests, instead of "acoustic tokens of objects," they could be heard as "acoustic expressions in a soundscape […] and therefore in ecological terms" (123). It is from such an ecological perspective that we may best approach non-Western/indigenous musical performance, such as the Yoreme ceremonial music in which the birds (and other animals) are singing through the performers who merge with the world around them as they transform into birds (and other animals) to fulfill their ritual obligation. Birdcalls played on a simple, three-holed cane flute and deer songs emerge from a consensual view of what makes up Yoreme sacred reality. Musicking and dancing are based on skills, sensitivities, and orientations that have developed through experiencing life with the movements, sounds, and gestures of animals (Simonett 2012, 2014).

The ritual (*fiesta*) is a multisensory environment that stimulates trancing, which is a behavior or skill learned in and informed by historically specific environments (Becker 2004). Indeed, it is the past world of the Yoreme people as hunters and gatherers that continues to inform their ceremonial life, worldview, and musical practice. Like other indigenous people, Yoreme do not have a proper term for "music" in their language, for acoustic behavior is not considered an exclusively human phenomenon.[3] Sound-worlds existed long before man became "yoreme," a self-designation derived from the verb *yore* which means "to be born." Yoreme mythology tells the story of how humans were taught to play the drum by the mountain mouse (*juiya to'ori*), who, after having eaten, lies in its tree nest and pats its full belly with its paw. Above the mouse trills the bird, thus teaching its songs to humans. This mouse-bird myth explains the origin of the musical human, who simultaneously plays the drum and the flute, and who, by entering mythological time

by means of trancing, *becomes* the bird (see Figure 7.1 and Figure 7.2). In his trancing mood, the Yoreme performer does not think of how to make his flute sound bird-like—rather, "it grows out of his entire being," as Leoš Janáček expressed it (in Ingold 2011, 24).[4] Beating the frame drum serves as rhythmic entrainment and is purely mechanical—much as the mouse is patting its belly, unabsorbed by its activity. The repeated short rhythmic patterns, however, do not have to correspond to the rhythm of the melody played on the flute—and so it is with the bird on the branch, which sings unconcerned with the tapping below. Indeed, the motor pattern of playing drum and flute once stabilized can be maintained without any sensory monitoring. Musical meaning does not emerge from notes, motives, melodies, or rhythms that one can learn to re-create, but from the experience of inhabiting the world.

Figure 7.1 Yoreme tampoleero (flute-drum player) Ignacio Escalante Buitimea playing during a ceremonial function.

Figure 7.2 Ignacio Escalante Buitimea trancing.

Given the hot climate, Yoreme people spend almost all their time outdoors—if not working in the fields, they prefer to sit in the shade of trees or under the *enramada*, a man-made shelter with a cover of interwoven twigs and leaves, which is usually attached to a house. Traditionally, houses are made with a wattle-and-daub technique and come with a thatched roof (see Beals 1945). They have one or two rooms, each with a single door and no windows, and are therefore quite dark. Traditional houses have become less common because the Mexican government is replacing them with brick houses (which are equally dark but hotter). Everyday life revolves around the kitchen under the *enramada*, where women cook on open fire and where people set up their cots to sleep during hot summer nights. Outside the towns, people live in small hamlets in the floodplains. In this area of low-lying lands, huge trees serve as protection from the sun for humans and as habitat for numerous birds. There is an almost perpetual trilling and warbling in the air. In contrast, the arid surroundings covered by deciduous and thorny bushes and shrubs are reigned by silence. Here, even the sliding away of a snake is audible.

But despite the indisputable audible presence of animals in Yoreme everyday life, performers draw their musical inspiration from their visualization of the environment. During the ceremonial *fiesta*, skilled performers immerse themselves mentally (and sensorially) in the landscapes of the *monte*. This natural landscape with all its animate beings constitutes what Yoreme call *juiya annia*, the enchanted world or the world of sensation. This world has long been a place of refuge for semi-sedentary indigenous groups in northwest Mexico (Radding 1997). It has provided protection and food. Thus, this world is not an imaginary but a real world. Then again, *juiya annia* is also a sacred reality, one that is made up of ephemeral images of a somewhat more stable and enduring world than the one experienced (Clendinnen 1991). *Juiya annia* is not a specific landscape one sees while wandering; it is not the mental construct of an image, but one that results from one's "direct perceptual *engagement* with its constituents, human and non-human, animate and inanimate" (Ingold 2011, 55). There is a fundamental indissolubility of the connection between animate beings and the landscape that they inhabit.

In his rather unconventional book on zoomusicology, Martinelli (2009) suggests recognizing music as an emotion-based and instinct-based phenomenon, rather than an exclusively human one, in order to avoid the present anthropocentric definition of the term (7). From a zoomusicological perspective, the conception of the nature-culture dichotomy is unsustainable as well. Martinelli reminds us that our predecessors knew that long ago (9). Roseman (1998) asserts that Malaysian rainforest people's "theories about the structure of existence and the person posit a collegial permeability between entities that post-Cartesian Western cosmopolitan philosophy hierarchically differentiates as 'human' and 'nonhuman'" (110). Such ecological worldviews are common among indigenous peoples around the world, as

evidenced by a large body of anthropological writings that challenge the nature-culture opposition by proposing alternative models (Descola and Pálsson 1996). Thus, rather than understanding the imitation of birdsong on the flute as a cultural and therefore symbolic expression, Yoreme establish communicative relationships with the ecological world that entrusts them with becoming "human birds." The birds then are not simply part of the landscape the performers invoke musically: By inhabiting the same environment as the birds, they share a common ground of experience that enables them to *become* human birds during the ritual.

SENTIENT ECOLOGY

The Yoreme worldview is akin to Anderson's (2000) "sentient ecology," which suggests relational identities, solidarities, and obligations between human and non-human entities. Having gained ethnographic insights into the daily practices of reindeer-herding people in Arctic Siberia, Anderson proposes an ecological theory in which people understand themselves as part of a complex network that includes other agentive powers. The knowing of another by being in relationship with them is not exclusively human. Human beings, however, have developed a myriad of ritual practices to engage with sentient ecology.

Modes of listening to and performing Yoreme ceremonial music implicate such structures of sentient knowledge and beliefs. Building on Bourdieu's notion of *habitus*, Becker asserts that, "a given community will foster a particular comportment to listening, a comportment not only of attitude, affect, and expectation, but also bodily gesture. Emotional responses to music do not occur spontaneously, nor 'naturally,' but rather take place within complex systems of thought and behavior concerning what music means, what it is for, how it is to be perceived, and what might be appropriate kinds of expressive responses" (2010, 129). Because human beings find themselves already attuned to the world, emotional responses to music gestures do not require reflective consciousness. McGuiness and Overy convincingly argue that, "what remains essential to music is the shared experience of an embodied present [our sense of the now], at the co-subjective, pre-reflective level of consciousness" (2011, 260). Furthermore, "Whether or not this type of shared experience is unique to music is a separate question, but it is difficult to think of another human activity that occurs with such temporal synchrony across a group, in such an embodied way, and across so many different kinds of human ritual" (259).

Without doubt, sensing—whether intuitive or acquired—is culturally inflected and situated. We learn to interact with human and non-human constituents of our environment in culturally specific and appropriate ways, often through intuitive engagement. Even though perceptions and affective responses are personal, "musical events set up an aural domain of coordination that

envelops all those present" (Becker 2010, 145). Participants who share a common history of a musical event—particularly in the context of a ritual—act, react, and think consensually. Yoreme performers indeed claim that seeing the same landscape (having the same vision) enables them to sing, play, and dance together.[5] This kind of mental entrainment is also crucial to the production and reinforcement of solidarity among community members. Moreover, the ritual interchange enjoins the Yoreme with their ancestors, natural forces,[6] and the deities that live in the ritual space (Simonett 2009).

To explain this being-enjoined, it is helpful to turn again to Anderson's concept of sentient ecology, which advocates a re-imagining of human-environment relationships as holistic, connective, and relational. Yoreme connectivity encompasses an embodied experience of their sound-world that positions them within a web of life-sustaining relationships with Others. Their ceremonial musicking and dancing establishes an emotional and ethical context for their ecological relationships that extends into their past as hunters and gatherers and orients them toward a future as a distinct people. Music's unique importance for "limit experiences," such as those made in ritual, is based on its ability to convey "insight into the world's essential significance as a place one can inhabit and in which one can dwell" (Savage 2007, 4).

For the Yoreme, sonic meaning is immanent in the relational context of their practical engagement with and intuitive understanding of their lived-in environment. Yoreme do not see a landscape only, nor do they only hear a soundscape. As Steven Feld, pioneer in the development of acoustemology, observed: "Soundscapes, no less than landscapes, […] are perceived and interpreted by human actors who attend to them as a way of making their place in and through the world. Soundscapes are invested with significance by those whose bodies and lives resonate with them in social time and space" (2000, 184). But the perception of these land- and sound-scapes is contingent on a sentient ecology: an intuitive understanding of and a practical engagement with the dwelt-in world.

Ecomusicology offers a chance to perceive pre-existing knowledge—in this case indigenous ceremonial music—as a new and innovative cultural form that allows us to unpack and rethink some dominant Western epistemologies and ontologies (Titon chapter 5, Seeger chapter 6). The Yoreme worldview—which is not ingrained in a history of Cartesian dualism—opens up the possibility to reconsider music not as an exclusively human invention but one that emerges from communicative relationships with the ecological world, i.e., those between humans, non-human beings, and their abiotic environment. In the *fiesta*, the performers merge with the world around them: musicking, singing, and dancing obscure the boundaries between humans, non-humans, and environment. Musicians and dancers transform into the animals with whom they co-inhabit the enchanted world (*juiya annia*). The way in which Yoreme are taking up a view in their sound-world obliges us to own up to the responsibility of creating a space in our fields of music study for alternative ecologies of knowledge—alternatives that may well become mainstream.

NOTES

1. The *ejido* system was re-initiated as an important component of the land reform program in the 1930s. *Ejitarios* do not privately own the land; rather, they enjoy community rights and a right to use the land. In 1991, president Carlos Salinas de Gortari eliminated the constitutional right to *ejidos,* citing the low productivity of communally owned land. Due to this reform, *ejido* land can now be converted into private property and sold to third parties, including foreigners. The change came about as a result of the negotiation of the North American Free Trade Agreement, implemented in 1994.
2. My focus is on the bird-sounding Yoreme flute, but this is only one type of ceremonial music among the indigenous people of northwestern Mexico. Deer song and *pascola* music are described in Simonett (2009).
3. The closest word in Yoreme language for music would be *jiahua*—an umbrella term for all the sounds produced by humans as well as animals and natural phenomena.
4. For other instances of mouse and bird musics, see Allen (chapter 20), Feisst (chapter 18), and Seeger (chapter 6).
5. This mental entrainment is particularly vital for the performance of the deer songs, in which the lyrics are more or less sung together by three deer singers. The song lyrics are to a certain degree spontaneous and "improvised" on the spot, employing formulae and repetitions (see Simonett 2012).
6. By "natural forces" I refer to the second definition of nature identified by Williams (1985) as an "inherent force which directs either the world or human beings or both" (219). For the Yoreme, nature is always imbued with spiritual power; nature is not merely landscape. Yoreme believe in a single living cosmos, a universe suffused with the sacred, i.e., monism. Such belief has, of course, been fused with the Catholic beliefs that missionaries introduced during colonial times.

WORKS CITED

Allen, Aaron S. 2014. "Ecomusicology." *The Grove Dictionary of American Music*. New York: Oxford University Press.

Anderson, David G. 2000. *Identity and Ecology in Arctic Siberia: The Number One Reindeer Brigade*. Oxford: Oxford University Press.

Beals, Ralph L. 1945. *The Contemporary Culture of the Cáhita Indians*. Washington, D.C.: Smithsonian Institution, Bureau of American Ethnology.

Becker, Judith. 2004. *Deep Listeners: Music, Emotion, and Trancing*. Bloomington: Indiana University Press.

———. 2010. "Exploring the Habitus of Listening: Anthropological Perspectives." In *Handbook of Music and Emotion: Theory, Research, Applications*, edited by Patrik N. Juslin and John A. Sloboda, 127–157. Oxford: Oxford University Press.

Clendinnen, Inga. 1991. *Aztecs: An Interpretation*. Cambridge: Cambridge University Press.

Cook, Robert C. 2013. "The Vocal Ecology of Crumb's Crickets." *Journal of the Society for American Music* 7 (2): 123–145.

Cosgrove, Denis, and Stephen Daniels, eds. 1988. *The Iconography of Landscape*. Cambridge: Cambridge University Press.

Descola, Philippe, and Gísli Pálsson, eds. 1996. *Nature and Society: Anthropological Perspectives*. London: Routledge.

Feld, Steven. 2000. "Sound Worlds." In *Sound*, edited by Patricia Kruth and Henry Stobart, 173–200. Cambridge: Cambridge University Press.

Grimley, Daniel M. 2011. "Music, Landscape, Attunement: Listening to Sibelius's *Tapiola*." *Journal of the American Musicological Society* 64 (2): 394–398.

Heidegger, Martin. 1962. *Being and Time*. Oxford: Basil Blackwell. Original edition, 1927.

———. 1971. *Poetry, Language, Thought*. New York: Harper Colophon Books.

Ingold, Tim. 2011. *The Perception of the Environment: Essays on Livelihood, Dwelling and Skill*. London: Routledge. Original edition, 2000.

Knight, David B. 2006. *Landscapes in Music: Space, Place, and Time in the World's Great Music*. Lanham: Rowman and Littlefield.

Lefebvre, Henri. 1991. *The Production of Space*. Oxford: Blackwell.

Lomnitz, Claudio. 2001. *Deep Mexico, Silent Mexico: An Anthropology of Nationalism*. Minneapolis: University of Minnesota Press.

McGuiness, Andy, and Katie Overy. 2011. "Music, Consciousness, and the Brain: Music as Shared Experience of an Embodied Present." In *Music and Consciousness: Philosophical, Psychological, and Cultural Perspectives,* edited by David Clarke and Eric Clarke, 245–262. Oxford: Oxford University Press.

Martinelli, Dario. 2009. *Of Birds, Whales, and Other Musicians: An Introduction to Zoomusicology*. Scranton: University of Scranton Press.

Pijanowski, Bryan C., Luis J. Villanueva-Rivera, Sarah L. Dumyahn, Almo Farina, Bernie L. Krause, Brian M. Napoletano, Stuart H. Gage, and Nadia Pieretti. 2011. "Soundscape Ecology: The Science of Sound in the Landscape." *Bioscience* 61 (3): 203–216.

Radding, Cynthia. *Wandering Peoples: Colonialism, Ethnic Spaces, and Ecological Frontiers in Northwestern Mexico, 1700–1850*. Durham: Duke University Press.

Roseman, Marina. 1998. "Singers of the Landscape: Song, History, and Property Rights in the Malaysian Rain Forest." *American Anthropologist* 100 (1): 106–121.

Savage, Roger W. H. 2007. "Being, Transcendence and the Ontology of Music." Paper presented at the 52nd Meeting of the Society of Ethnomusicology, Honolulu, Hawaii.

Schafer, R. Murray. 1994. *The Soundscape: Our Sonic Environment and the Tuning of the World*. Rochester, VT: Destiny Books. Original edition, 1977.

Simonett, Helena. 2009. "Narrativity and Selfhood in Mayo-Yoreme Mortuary Rituals." *the world of music* 51 (2): 45–64.

———. 2012. "*Cantos de venado*: New Insights into Mexican Indigenous Performance and Composition Practices." In *Flower World: Music Archaeology of the Americas/Mundo Florido: Arqueomusicología de las Américas*, edited by Matthias Stöckli and Arnd Adje Booth, 137–154. Berlin: Ekho Verlag.

———. 2014. "Envisioned, Ensounded, Enacted: Sacred Ecology and Indigenous Musical Experience in Yoreme Ceremonies of Northwest Mexico." *Ethnomusicology* 58 (1): 110–132.

Tilley, Christopher. 1994. *A Phenomenology of Landscapes: Places, Paths, Monuments*. Oxford: Oxford University Press.

Williams, Raymond. 1985. *Keywords: A Vocabulary of Culture and Society*. New York: Oxford University Press. Original edition, 1976.

8 Materials Matter

Towards a Political Ecology of Musical Instrument Making

Kevin Dawe[1]

What is a musical instrument? Is it a technological result of culture? Is it a product of nature? In this essay, I explore how musical instrument makers relate to their primary materials and, in turn, how musical instruments connect music, nature, and society in particular cultural contexts. Discussion of musical instruments usually revolves around how they are shaped in the minds of those for whom they become emblematic and how makers create them. But increasingly such discussions must also involve the origins of the construction materials. As in other artisanal traditions, discussion of musical instruments must increasingly focus on both the physical impact and symbolic power of the materials themselves. For in these natural resources, "nature" is given new life and form.

Integral to this discussion is the social context of making in relation to the "rhythm and ritual" of the workshop, where makers work *with* (rather than against) resistant materials while working *together* with each other (Sennett 2013, 200–208; Ingold 2014). The culture that surrounds musical instrument creation is a culture that both emanates from the workshop and also filters into the shape the workshop; if you will, it is a two-way street. In drawing attention to the role of materials in creating musical instruments, one becomes aware that musical instrument making is a process of and a contribution to place making and economy building. Musical instrument making constructs a culture that furthers the reputation of the maker and helps sustain the makers' artisanal traditions. As I have discussed elsewhere (Dawe 2001a, 2011), musical instruments become entangled with peoples and places, times and technologies; but they also have an intrinsic ability to reconnect us to the natural world through the wood, bone, skin, metals, and clay from which they are made. Musical instrument makers are literally "in touch" with the material world. They are agents of a material reality that affects the construction of musical cultures at the most fundamental level.

Musical instrument makers attune to a particular set of naturally sourced materials. As Sennett (2008) and Ingold (2014) argue, craftsmen work with both resistant and malleable materials. Through the acquisition of a certain skill set, proprioception provides feedback while movements are entrained: Knowledge of materials is not only memorized and cognitively

processed, it is also embodied and has tactile and olfactory dimensions. In this scenario we might ask the question: What exactly is a "musical instrument"? I advocate its broader definition here (as I do elsewhere, Dawe 2010): 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" (Howes 2005).

Drawing on my own field research as well as recent literature, I discuss the multifaceted role that materials play in the process of making guitars and the Cretan lyra, which happens both inside and outside of the workshop: from the forest to the fingertips of the performer. Allen (2012) in his discussion of violin making in Italy also draws attention to this process: "These instruments—made from the prized resonance wood of the Paneveggio [slow growth specimens of Norway spruce, *Picea abies*], crafted by the consummate skill of luthiers such as Stradivari, played by talented musicians who perform the carefully wrought musical works of famed composers—are cultural commodities that have histories ranging from their originating forest to their ultimate performance stage" (313). As in Allen's study, I aim to throw into relief the fundamental relationship between nature and culture in making a musical instrument as well as the ways the materials are held in the hands of various makers, whether lumberjack, luthier, lutenist, or *l'audience*.

MUSICAL INSTRUMENTS, PLACEMAKING, AND EMBODIMENT

During fieldwork in Spain in the 1990s (Dawe 2001b), I discovered that guitar makers are absolutely obsessive about the wood they use for their guitars. They love old well-cured wood with estimable density, often featuring a range of intriguing patterns, such as *con brisas*—subtle intercalations into the grain that curl about as if driven by vacillating winds. It became clear that the characteristics of the wood used in guitar-making features in an elaborate poetics that is at once an ecopoetics (Knickerbocker 2012) and a sensing of place (Feld and Basso 1999). In trying to convey the rich tapestry of sounds that one can extract from the wood that went into making his guitars, Manolo—Francisco Manuel Diaz, a guitar maker from Granada—uses powerful imagery drawn from the local surroundings. As with the soothing fountains of the Alhambra Palace and its gardens, the guitars' sonorities are related to a rainbow-like continuum of colors, while the smell of the woods provide a veritable perfumery. Aesthetics while the material qualities of wood are combined in an elaborate ecopoetics of place in relation to natural nature and cultivated nature; this combination is enveloped by colors and scents found in the environment both *outside* and *inside* the workshop. In extended form, and despite its almost mystical inflections at times, this poetics underlines a very real dependency of a guitar's tuning system

and timbre upon weather, temperature, humidity, and the quality and type of wood from which it is made. Rather like the fauna one finds in the surrounding area, it operates best in a particular physical ecotype; and, rather like the cultivars found in the local gardens, it is appreciated in a particular cultural setting.

Manolo put forward the view that guitars made in Granada lend themselves to personal interpretation and reflection, especially by those also born in the city and its environs. Indeed, he claimed their construction as one mirroring the obvious perfection inherent in the design of the nearby Generalife gardens, in its flowers and their colors and smells, and in the way the gardens have been designed sensitively to capture the seasonal varieties of plants. Thus guitars made in Granada, like the gardens of the nearby palaces of Alhambra and Generalife, were said to incorporate similar aesthetic and physical qualities. Manolo asked: "Do you remember our famous poet, Federico García Lorca? In his poem, *La Guitara* [1922], Lorca says, "The guitar weeps for distant things […] hot southern sands, yearning for camellias"' (in Leal Pinar 1989, 29).

During fieldwork in Crete in the 1990s (Dawe 2007), I discovered similar themes. My informants said that Cretans on the western half of the island often relate styles of music to the island's topography. They described the music of the eastern, less mountainous part of Crete as "softer" and "slower." Only *skopoi tou gambrou* (melodies of the groom) exist in western Crete, they said, in contrast to *skopoi tis nefes* (melodies of the bride) in the east. What we find here is the gendering of a local moral geography (Smith 2000): A male tough, dominating part of the island is contrasted with a female, weaker and dominated part. This gendering finds its expression in the short-necked, three-string upright fiddle known as the *lyra,* which forms part of the shepherd's baggage when he goes into the mountains for long periods to pasture sheep. He also carries the *floyera* (small flute), eating utensils, and a repair kit for clothing and boots. The *lyra* is carried in a special shoulder bag along with changes of clothing. When the shepherd dies the *lyra* is put away into this bag forever, for its owner has gone to the mountains, forever. The shepherds spend time in small villages high up in the mountains, in hamlets of dry-stone round huts, known as *mitata*. They live off the meat of their flocks and, after a long hard day they may relax by drinking *tsikoudiá* or *raki* while one of them plays the *lyra* or *floyera*. The shepherds are said to be alert to the power of sound in the mountains. They use the acoustic space of the mountain landscape practically and symbolically, where the power of sound is said to be a means of overcoming physical, mental, and supernatural challenges. For instance, the belling of flocks (goats and sheep) is also said to protect them from evil spirits while acting as a locating device. Magical power is attributed to the sound of these bells (Picken 1976, Anogianakis 1991), and bells are sometimes found on the bow of the *lyra* player. The *lyra* is often described as a product of the mountains. It is ideally made from mountain wood. It has a body, a neck, eyes, a heart, a soul, and a voice that cries out like the spirits and animals of the mountains.

In the Cretan musical instrument workshops there is a tradition of making the *lyra* soundboard out of cedar that is as much as 300 years old, whenever it is available. The back is made from walnut or other locally sourced woods, including *mournia*, *kelembeki* or *asfendamos* (plane tree), and it is usually carved with images of local birds such as the eagle. According to *lyra* maker Konstantakis Eleftherios (2015), about 80% of Cretan *lyras* are made from the wood of mulberry trees, and "As far as density, durability and tone quality are concerned, all species are similar."

The *lyra* is still regarded as a man's instrument, and the naming of its parts reflect this. Its body, neck, eyes, heart and soul have special symbolic resonance and technical significance. The *stylós* or pillar, a wooden device that takes the weight of the bridge and acts as a carrier for the transmission of vibrations between the bridge and the back of the instrument, is said to be the site where the psyche or soul/spirit of the *lyra* resides. If this post is missing, the instrument loses volume and tone; its sound will die—and so too, it is said, does the lyra.

The Spanish and Cretan case studies above throw into relief the cultural basis of musical instrument making, where instruments are clearly entangled in local value systems where nature is culturally bounded in a "tangible reality" (Sennett 2008, 21). The Spanish and Cretan examples suggest the following:

- Workshops are embedded in local webs of culture in which musical instruments become emblematic of identity.
- An intimate knowledge of the properties of materials used in musical instrument construction is common within the culture that surrounds the makers.
- A sensual culture is developed around musical instruments where knowledge and skills sets of making and playing are embodied and feature in local folklore.
- An ethnobiology of musical instruments (how their primary materials of flora and fauna are connected to their environment and the landscape) is articulated in terms of both the visual and sonic properties of musical instruments.
- Knowledge of materials used in constructing traditional instruments is embodied in a complex poetics of place, identifying and safeguarding both sonic and aesthetic values.
- The sources or provenance of materials used in musical instrument construction are important indicators of value (authenticity, quality), connected to landscape and integral to placemaking.

Considering Sennett's "tangible reality," the reality of nature made tangible through the use of materials in the making of musical instruments, it is clear that musical instrument materials could be in short supply if not embargoed. We need to understand luthiers' current use of wood and the resulting predicament in the context of rapidly changing materials

policy, as for example with the restrictions regularly enacted by CITES (Convention on International Trade in Endangered Species of Wild Flora and Fauna). New and sustainable means of musical instrument making are being explored and some guitar makers have become activists able to communicate effectively in the "environmental public sphere" (Cox 2013, 25). I suggest that the greening of the guitar industry requires material as well as symbolic change, and certainly it requires attention to the contexts and imperatives of both politics and economics—as with Bailey Guitars and DuncanAfrica, discussed below.

CREATIVE ENTANGLEMENTS IN THE WORLD OF SUSTAINABLE GUITAR MAKING

Guitar makers Jay Duncan in Uganda and Mark Bailey in Scotland are concerned with the development and improvement of the material conditions of social and cultural life through the various initiatives they are taking. It might be claimed that such initiatives are slowly transforming musical instrument making, offering new if not proven models of sustainability and entrepreneurship, with potential for community development and the promotion of the responsible use of natural resources. In their insistence on studying the materials and methods of making, such questions indeed go to the heart of the matter. The Spanish and Cretan examples point to already-established workshops whose sustainability has only recently been questioned; these older musical instrument making traditions have been embedded in local cultural contexts for several generations. When starting up a workshop in today's context of materials legislation and certification requirements, where there is also an imperative to conserve energy and to save money, could it be that the close relationship between makers and their materials that has existed since time immemorial has reached a new level of intensity in which, as it were, necessity has become the mother of invention? In the examples that follow, I discuss how materials matter as the basis for changing musical-instrument-making practices. Such practices depend on a deep knowledge of and interactivity with materials (as in examples from Crete and Spain), but makers also show increasing awareness of how those materials-become-instruments are enmeshed in a complex webs, networks, and infrastructures of ecological, socio-cultural, political, and economic relations and significance.

Independent guitar maker Mark Bailey is based in the small Scottish village of Kirkmichael in Ayrshire. At his guitar workshop, he developed and installed alternative and renewable energy sources. Jay Duncan is also an independent master luthier. Duncan works within the Third Sector (i.e., nonprofit organizations) in Uganda; he raises money at home in Canada and on the Internet for his Africa-based project. He markets and sells the guitars he makes with his African apprentices in the small town of Mpigi, Kampala District, Uganda.

Various models of sustainability and sustainable development already in existence could be rallied here to make sense of and gauge the impact of the work of Bailey and Duncan. Yet in the space available here, the simple emic model suggested by my guitar-making informants—low impact on the environment, high impact on people—seems a more appropriate starting point than any etic theory. This emic model moves towards identification of what Allen (2012) calls "the attendant elements of possible exploitation or sustainability [that] can shape our understanding and inform our management of both nature and musical cultures" (314). One must remain cautious, however, because "The word 'sustainable' has been doing some pretty heavy lifting lately" (Titon 2009, 219). And if Titon can say that the word "sustainable" has been doing heavy lifting, then "sustainable development" surely has the weight of the world on its shoulders. "Sustainable music" is based on a conservation ecology model (diversity, limits to growth, connectedness, and stewardship), which demands the careful management of cultural resources by informed community leaders whose task is to identify and encourage resilience in local creative industries (as well as to advise local government on cultural policy). For a wide variety of reasons outlined by Titon, this remains a tricky business, especially when established principles are overturned for purely economic reasons. Aware of the difficulties then, I have, nonetheless, tried to provide a basic model of the elements which make up the everyday running of the small guitar-making businesses in my examples from Scotland and Uganda.

Mark Bailey has built up his workshop to embrace basic principles of sustainable practice. In my conversations with Mark it is clear that he did not want to be, as he described it to me (personal communication 2013), "eco at the expense of traditional." He does not like the "wacky" green guitars that are made from scrap oil cans and the like. He knows that most guitar players are rather conservative in their preferences. In general, Mark and his partner Carol state that they developed their own way of working because of the way they were living when they first started out: in a double-decker bus. They also recall how they "built an electric guitar in a tent in two days at a festival using only self-generated power from solar and portable windmill power and an exercise bike for charging batteries. We also generated enough power to run a small amp so we could play too."

In modeling the Bailey operation, I notice the following main elements at work:

- Bailey has knowledge, expertise, and a reputation as master of musical instrument construction and design.
- The small business is managed with a sense of entrepreneurialism that includes close management of the costs and impacts of parts, labor, and advertising.

- Guitar-making courses and demonstrations, including those at the village guitar festival, are a supplement to income.
- Bailey uses reclaimed, locally sourced, and Forest Stewardship Council (FSC) certified hardwoods.
- The workshop is designed to minimize waste through careful design, in-house production of linings and bridge-blanks, and creating blocks and veneers from offcuts.
- Workshop energy consumption is minimized, and energy comes from alternative sources of renewable energy, such as wind and solar.
- All otherwise outsourced parts, such as metal and strings, come from companies that produce their materials in environmentally friendly ways.
- In order to minimize costs and the environmental impacts of transport, Bailey purchases materials in bulk.

Nevertheless, in embracing these sustainable practices, Bailey has not abandoned his intimate knowledge of woods beyond their sustainability, as evidenced in the following quote:

> I just love wood. I have some antique rosewood that smells like cherries and chocolate when it's worked. I love the way each individual species has its own smell, feel and tone. My own guitar is East Indian rosewood and Sitka spruce. Since Amazonian rosewood has gone out of fashion I think that is the best combination to suit most people. Mahogany and Cedar would be the next choice. (Christopher 2013)

Bailey combines his deep knowledge of materials to seek out those that are both sustainable and fit for purpose:

> We try to use FSC approved and native wood as much as possible and this has led me to some interesting alternatives—I've used everything from Adirondack to ziricote but still keep finding new ones to try. Most notably I made a version of our Bailey Bootlegger acoustic guitar with an ancient Kaori soundboard cut from a log preserved for 40–50,000 years in a New Zealand peat bog. I also have a small supply of Walnut which came from Kew Gardens, some spectacular Flamed Jarrah from Australia. Some Scottish walnut and sycamore as well as unusual natives like laburnum […] I am having a lot of success with reclaimed mahogany sourced from old church pews. It is very high quality and its antique nature makes it very stable, combined with a cedar soundboard top. (Ibid.)

"But could a guitar change the world?" This is the question posed by guitar maker Jay Duncan as he prepares for an annual trip to his Ugandan-based workshop (Duncan 2015). I say "his" workshop, but the idea is to hand it

over to his trainees and the local community. Not inconsequentially, this community has access to several Africa-based sources of wood, including mahogany, mugavu, and ebony. University-educated musician and allied churches volunteer, Jay began building guitars in his father's garage in 1992. From 1996 to 2003 he worked for himself as an independent luthier while also working for Larrivée Guitars. In 2004, he founded The DuncanAfrica Society, which took him to Uganda to establish the Suubi Trade school in the township of Mpigi, just outside the capital city, Kampala. DuncanAfrica assisted with the setup of a cooperative business by the graduates of the trade school, built a manufacturing facility, provides ongoing mentoring, and provides business training based in biblical morals and principles. The trade school teaches guitar making as well as English, mathematics, computers, first aid, and business skills. They are continually fund-raising to cover ongoing building renovations and the purchase of woodworking machinery.

In modeling the DuncanAfrica operation, I notice the following elements at work:

- They are a faith-based, charity-funded, low income, start-up business.
- They collaborate with the local community as an educational and business college.
- Duncan himself made a significant initial investment of time, expertise, and fund-raising.
- He also brought extensive knowledge in musical instrument construction and design.
- The small business is managed with a sense of entrepreneurialism that includes close management of the costs and impacts of parts, labor, and advertising.
- The workplace is carefully designed (largely built from scratch) and managed (integrating many health and safety considerations).
- DuncanAfrica's woods are locally sourced (mugavu and ebony) and reclaimed, and they make efforts to minimize waste and patronize environmentally friendly companies for outsourced parts.

Although the workshop draws on wood from around the world (e.g., Sitka spruce, mahogany, western red cedar, western flamed maple, and East Indian rosewood), DuncanAfrica's locally sourced woods are valued for their sound and appearance as well as ready availability. Duncan (2015) provides the following descriptions of both the acoustic and aesthetic qualities of local woods:

> MUGAVU[:] Locally sourced near our trade school in Mpigi, Uganda, Mugavu is golden and luminous in appearance. A dry sound, with a focus on the mid-range, Mugavu is quickly become one of our favorite tone woods. It rewards the listener with a deep, complex array of overtones—and it's not bad looking either!

> EBONY[:] As dense as it gets, Ebony comes from all over the world, but we get ours from Northern Uganda. It is used for fingerboards and bridges to impart an immediate response to your playing. For an interesting twist, we can make nuts and saddles out of ebony to impart a softer, "aged" tone to your instrument.

Duncan's guitar-making tradition is embedded in place and region. Bailey's is as well. Yet they are both connected to the international trade in the raw materials for musical instrument making and in selling their creations. The true sustainability of these traditions, as in their capacity to endure, has yet to be confirmed; only time will tell. Nevertheless, as community-based workshops they are clearly entangled in their local web of culture. These are nascent traditions, but they embrace fully the move towards both a sustainable musical instrument making and sustainable materials acquisition.

CONCLUSIONS

Musical instrument making embodies what Sennett (2008) has called, "The intimate connection between hand and head" (9) and "the grounding of skill in physical practice" (10). Guitar maker Antonio Torres Jurado provides us with a useful illustration of this connectivity:

> My secret is one you have witnessed many times, and one that I can't leave to posterity, because it must with my body go to the grave, for it consists of the tactile senses in my finger pads, in my thumb and index finger that tell the intelligent maker if the top is or is not well made, and how it should be treated to obtain the best tone from the instrument. (Shaw 2008, 17)

In his discussion of tactile awareness, Tallis (2003) notes that the "hand is an organ of exploration and cognition in its own right," able to detect small changes in the environment as it feels its way around (28). Napier (1971) describes the hand as the "chief organ of the fifth sense," referring to the sense of touch; the hand is "a motor and sensory organ in one" (176). There are both cognitive and cultural factors at play, and in making a musical instrument one is surely caught up in "the multiple ways in which culture mediates sensation (and sensation mediates culture)" (Howes 2005, ix). As we grow up, we become accustomed to the "sensuous materiality" (7) of a musical instrument. From his study of the lute cultures of Afghanistan, anthropologist, musician, and experimental psychologist, John Baily (1977) observes: "Factors such as the shape and size of the instrument, the material of the strings, the tension to which they are stretched, the height of the frets, and many other seemingly small details, are significant when we consider how the body interacts with them" (308). For Sennett (2008), the skills of

craftsmanship are based on "fundamentals of the human body" (178) where "The emotional rewards that craftsmanship holds out for attaining skill are twofold. […] People are anchored in tangible reality, and they can take pride in their work" (21).

In this essay I am moving towards Bennett's (2010) call for "greener forms of culture and more attentive encounters between people-materialities and thing-materialities." Following on Deleuze and Guattari, she calls this the "ecological character of vital materialism" (x), which brings out connections between different types of organic material in order to induce a greater "ecological sensibility" (xi). I detect recognition and representation of that "vital materialism" among the makers and the discourses about instruments discussed above, whether among the new breed of guitar maker in Scotland and Uganda, or the older instrument making traditions of Crete and Spain. (See also the discussion of historical and neo-materialism in Edwards chapter 11.)

The case studies above demonstrate how particular musical materials flow through societies and our world in what is an ultimately transient, and largely biodegradable, form. In some cases, this flow is "cradle to cradle" (McDonough and Braungart 2002): wood—in the form of musical instrument, collectable antique, reclaimable or recyclable material, rubbish, or waste—goes from tree through human hands back to the earth. Bennett (2010) argues that political theory might better recognize the active participation of non-human forces in human life and events: from minerals in the human body to waste dumps affecting our general health. Bennett questions the boundaries we put in place to separate us from these and other phenomena that make up the world we live in, where the materials that make us, flow through us, and are contingent upon our everyday lives are reduced to "things" rather than understood or identified as agents or actants with power (Bennett's model incorporates the work of Bruno Latour, Félix Guattari, and Gilles Deleuze, among others). Agency, Bennett argues, emerges as the effect of ad hoc configurations of human and non-human forces. This distribution of agency is not the sole province of humans, she argues, but the result of a web of forces affecting situations and events.

Makers, whether of instruments or other cultural artifacts, and their materials provide an intriguing convergence of energies and forces, mind and matter, as a confluence of agents and actants with distinct cultural contexts, as numerous studies have demonstrated (Gell 1998, 2006, Dawe 2001b, 2007, 2010, Miller 2005, Allen 2012, Bates 2012, Kies 2013, Roda 2014). Musical instruments as "vibrant materials" made of wood, for instance, indeed vibrate at the atomic level, but they were also once alive and growing in the forest, were cut and lumbered by various agents and processes, and then taken to the workshop wherein and where-after they continue to breathe, expand, and contract—vibrating as their environments change even apart from when they pick up vibrations from their attached strings. Tonewoods are in effect sound-producing devices all

by themselves, which are merely appropriated and honed by artisans, and which players encourage to sound out. The surprisingly well-established but perhaps understated politic is to recognize the intimate connectivity that musical instruments have with the world around us: they are made of the world—just like us—however much they have been taken in hand or made in our image.

The workshop is a hub of activity, connected far and wide out into the society of which it is a part. It is connected to that human world in a fundamental way through its materials for making, which enter and leave it and which create physical affects, economic and symbolic values, and social reputations of the workshop, maker, and instrument. The harvesting and sourcing of materials is not unconnected to the reception, economy, and social history of musical instruments. As Allen (2012) argues, for example: The value of the Stradivari violin "lies in its process of becoming, its life history" (314).

In the light of publications such as Bennett (2010), McDonough and Braungart (2002), and Sennett (2013), I argue that it is essential for organology to take materials used in musical instrument construction back to the very center of scientific and cultural analyses. It is essential for a study of musical instruments to engage with an emerging corpus of literature on materiality, new materialism, craftsmanship, and sustainability. The material basis of musical instrument making has come under scrutiny, not only in terms in terms of considering the material culture of music, but also in light of new legislation and certification requirements over the sourcing of wood and its supply chains. There are stringent regulations now in place for the use of wood in musical instrument making (Dudley 2014). Perhaps the best-documented and widely reported case is the raid on American guitar giant, Gibson, with claims by authorities that it illegally imported exotic hardwoods.

In my approach to ecomusicology in this essay, material culture studies and ecological anthropology are concerned "with the material conditions of social and cultural life" (Ingold 2012, 427). Clearly, if a rounded political ecology of musical instrument making is to be constructed then it must recognize the influences of a variety of agencies engaged in "creative entanglements in a world of materials" (Ingold 2008). In his challenging and detailed review of materials policies within industry, Geiser (2001) argued that *materials matter.* There is a palimpsest of influences across a variety of human and non-human, technological and affectual, material and cultural fields all at work in the making of musical instruments. We must afford elements of that complex web their agential and contingent places. Ryan (chapter 4) approaches this web and the various agents in a similar way, but in the context of resilience theory, a concept perfectly in line with the "vibrant matter" approach of Bennett and that I have articulated here. A political ecology of musical instrument making is likely to have a very broad and diverse constituency.

NOTE

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WORKS CITED

Allen, Aaron S. 2012. "'Fatto di Fiemme': Stradivari's Violins and the Musical Trees of the Paneveggio." In *Invaluable Trees: Cultures of Nature, 1660–1830*, edited by Laura Auricchio, Elizabeth Heckendorn Cook, and Giulia Pacini, 301–315. Oxford: Voltaire Foundation.

Anoyianakis, Fivos. 1991. *Greek Popular Musical Instruments*. Athens: Melissa Publishing House.

Baily, John. 1977. "Movements in Playing the Herati Dutār." In *Anthropology of the Body*, edited by John Blacking, 275–330. London: Academic Press.

Bennett, Jane. 2010. *Vibrant Matter: A Political Ecology of Things*. Durham: Duke University Press.

Bates, Eliot. 2012. "The Social Life of Musical Instruments." *Ethnomusicology* 56 (3): 363–395.

Christopher, Tom. 2013. "The Workshop: Bailey Guitars." Accessed March 1, 2015. http://www.acousticmagazine.com/features/the-workshop-bailey-guitars/.

Cox, Robert. 2013. *Environmental Communication and the Public Sphere*. Third Edition. Thousand Oaks, CA: Sage.

Dawe, Kevin. 2001a. "People, Objects, Meaning: Recent Work on the Study and Collection of Musical Instruments." *Galpin Society Journal* 54: 219–232.

———. 2001b. "Handmade in Spain: The Culture of Guitar Making." In *Guitar Cultures*, edited by Andy Bennett and Kevin Dawe, 63–87. New York: Berg.

———. 2007. *Music and Musicians in Crete: Performance and Ethnography in a Mediterranean Island Society*. Lanham, MD: Scarecrow Press.

———. 2010. *The New Guitarscape in Critical Theory, Cultural Practice and Musical Performance*. Burlington, VT: Ashgate.

———. 2012. "The Cultural Study of Musical Instruments." In *The Cultural Study of Music: A Critical Introduction,* edited by Martin Clayton, Trevor Herbert, and Richard Middleton, 2nd edition, 195–205. New York: Routledge.

———. 2013. "Introduction." In "Guitar Ethnographies: Performance, Technology and Material Culture," edited by Kevin Dawe. Special issue, *Ethnomusicology Forum* 22 (1): 1–25.

Dudley, Kathryn. 2014. *Guitar Makers: The Endurance of Artisanal Values in North America*. Chicago: University of Chicago Press.

Duncan, Jay. 2015. "The DuncanAfrican Society." Accessed March 1, 2015. http://www.Duncanafrica.com.

Feld, Steven, and Keith H. Basso. 1999. *Senses of Place*. Rochester, NY: Boydell and Brewer.

Geiser, Ken. 2001. *Materials Matter: Toward a Sustainable Materials Policy*. Cambridge: The MIT Press.

Gell, Alfred. 1998. *Art and Agency: An Anthropological Theory*. New York: Oxford University Press.

———. 2006. *The Art of Anthropology: Essays and Diagrams*, edited by Eric Hirsch. New York: Berg. Original edition, 1999.

Howes, David, ed. 2005. *Empire of the Senses: The Sensual Culture Reader*. New York: Berg.

Ingold, Tim. 2008. "Bringing Things to Life: Creative Entanglements in a World of Materials." Accessed March 1, 2015. http://www.reallifemethods.ac.uk/events/vitalsigns/programme/documents/vital-signs-ingold-bringing-things-to-life.pdf.

———. 2012. "Toward an Ecology of Materials." *Annual Review of Anthropology* 41: 427–42.

———. 2014. *Making: Anthropology, Archaeology, Art and Architecture*. New York: Routledge.

Kartomi, Margaret. 1990. *On Concepts and Classification of Musical Instruments*. Chicago: University of Chicago Press.

Kies, Thomas. 2013. "Artisans of Sound: Persisting Competitiveness of the Handcrafting Luthiers of Central Mexico." In "Guitar Ethnographies: Performance, Technology and Material Culture," edited by Kevin Dawe. Special issue, *Ethnomusicology Forum* 22 (1): 71–88.

Knickerbocker, Scott. 2012. *Ecopoetics: The Language of Nature, the Nature of Language*. Amherst: University of Massachusetts Press.

Konstantakis Eleftherios. 2015. "Mulberry Wood Strips." Accessed March 1, 2015. http://www.ekonstantakis.gr/en/mulberry-wood-strips/.

Leal Pinar, Luis F. 1989. *Retazos de guitarra*. Madrid: Editorial Alpuerto, S.A.

McDonough, William, and Michael Braungart. 2002. *Cradle to Cradle: Remaking the Way We Make Things*. New York: North Point Press.

Miller, Daniel, ed. 2005. *Materiality*. Durham: Duke University Press.

Napier, John. 1971. *The Roots of Mankind*. London: Allen and Unwin.

Picken, Laurence Ernest Rowland. 1975. *Folk Musical Instruments of Turkey*. London: Oxford University Press.

Roda, P. Allen. 2014. "Tabla Tuning on the Workshop Stage: Toward a Materialist Musical Ethnography." *Ethnomusicology Forum* 23 (3): 360–382.

Sennett, Richard. 2008. *The Craftsman*. London: Penguin.

———. 2013. *Together: The Rituals, Pleasures and Politics of Cooperation*. London: Penguin.

Shaw, Robert. 2008. *Hand Made, Hand Played: The Art and Craft of Contemporary Guitars*. London: Lark Books.

Smith, David M. 2000. *Moral Geographies: Ethics in a World of Difference*. Edinburgh: Edinburgh University Press.

Tallis, Raymond. 2003. *The Hand: A Philosophical Enquiry into Human Being*. Edinburgh: Edinburgh University Press.

Titon, Jeff Todd, ed. 2009. "Music and Sustainability." Special issue, *the world of music* 51 (1).

9 "Keepin' It Real"

Musicking and Solidarity, the Hornby Island Vibe

Andrew Mark

Hornby Island, located in the Salish Seas between southern British Columbia and Vancouver Island, has a large reputation for its small size of twelve square miles. This is a place where the draft-dodging, peace-loving, and back-to-land movement of the West Coast 1960s and 1970s never died. Hornby could be described as an intentional community (i.e., a commune) or artists' colony. But life on the Island is more complex than such labels or reputations might convey. Local musician Faron Crowe captures some of the tensions of life on Hornby (personal interview 2011):

> It's a healing place. [… But] once you are healed you have to do something for the world; you can't just be healed and sit here and be healed. [Hornby is] the type of place people should experience, just so that they can see that the world can be something other than city busses and flat screen TVs. But it's also not somewhere that you should stay forever […] because the rest of the world needs to realize […] we can't all fit here. So, you've got to take your turn and get off and go change the world in some small way or big way. […] You can't hog it. And everyone wants to hog Hornby.

For many, Hornby Island has a special "vibe": It is a place where radical social and utopian environmental thinking are put into practice. But its social structure and environment are threatened.

Middle-class and young people have been steadily leaving Hornby since the 1990s. As of 2014, the average age on the Island is 66. The circa 800 residents[1] hold a perennial debate as to whether they can keep their community school open with so few children. These demographic issues are exacerbated by problems of poverty,[2] mental health, gentrification, and housing. Every summer the population of Hornby swells sixfold to over 5,000 people. These tourists are attracted to the distinctive counter-culture and some of the most extraordinary natural beauty in the Gulf Islands. A great irony of these attractions is that Hornby hosts the vacation homes of an elite class that the counter-culture opposes and that, by and large, contributes to the destruction of the global environment. The environment of the small island, which boasts three provincial parks, is threatened by

such vacation-home development and overwhelming tourism. For Islanders, "Keepin' it real" means holding on to a sense-of-self-in-place at all cost (or senses-of-selves-in-places)—this is their struggle to maintain community identity in the summer when for every local there are perhaps five tourists who bring comparatively immense urban material wealth and habits of consumption.[3]

In this essay, I investigate the importance of musicking (Small 1998) for fostering community solidarity when faced with such social and environmental problems. As an example, I discuss a conflict I experienced in a Hornby Island band, and I relate this moment to larger processes of community-building that connect individuals through music making. This ethnographic research works towards a reconciliation of environmental thought and applied ethnomusicology, and it is here that my research is relevant to ecomusicology. At the nexus of this project is the issue of environmental justice—the proposition that environmental problems are products of social oppression. With the Island's social and environmental problems, the ability for Hornby to reproduce its radical cultural identity, including its autonomous systems of governance, is at risk. Musicking helps Islanders cope and oppose injustices that are largely products of an economy that favors the wealthy and powerful. In short: Musicking helps with sociality, which in turn can help the environment.

Keil (1998) questions the value of preserving the world's music while Western economies make the planet uninhabitable for humans to do any listening. But could music making provide resistance to such destructive incursion and self-interested capitalism? Hornby Islanders may provide some answers in how they articulate environmental concerns and musical practices. Through musicking, Hornby musicians develop collective and cooperative skills and social bonds that help them improve the capacity of the larger community to confront the social and environmental issues facing the Island.

ECOETHNOGRAPHIC JUSTICE

To conduct this investigation, I have endeavored to work towards a research practice guided by what I call ecoethnographic justice.[4] The aim of such a methodology is to use ethnography to bring about greater balance between humans, and between humans and more-than-humans. By prepending "eco" to ethnography, I signify my attempt to incorporate critical environmental views of ethnographic research methodologies. For example, ethnography is historically an anthropocentric practice with colonial roots involving researchers and subjects with vast differences in life experiences (Smith 1999). My prefix helps to de-center humans as the ultimate ethnographic subject, to qualify the environmental footprint of the research, to center ecological criticism of the subject(s), and to interrogate the power dynamics between

researchers and subjects. Similarly, by following ecoethnography with "justice," I frame environmental problems as products of inequalities and (criminal) injustice.[5] Furthermore, I position justice-based methodologies—borrowed from anti-racist research practices, participatory action research, indigenous research methods, multispecies ethnography, and similar critical and self-reflective perspectives towards ethnography used by academics in environmental studies—as being directed towards using processes and producing products that improve social and environmental fairness. While such a goal may be lofty, two related goals are more realistic in the context of this essay: to bring attention to such gaps in justice, and to suggest how ethnomusicologists can enhance their recursive and critical awareness of their research practices when they pursue environmental thought.

I must admit: During my preliminary research I felt that musicking on Hornby seemed of tangential importance to the community's social and environmental problems. Realizing how difficult things are for many Islanders, I thought my proposed research might be accused of fiddling while Rome burned (or, in my case, drumming while Greenland melts). I was witnessing the collapse of Hornby as a place of radical and utopian environmental thought and practice—how could I study musicking on the Island? At first, following the ethic of ecoethnographic justice, it seemed I should focus on helping develop knowledge and skills that community members could use to enhance the retention of and provide housing for younger working-class Islanders. However, I was forestalled by musicians who explained how their work improves the community's ability to face challenges. It became apparent that investigating the role of the arts in determining the future of Hornby was a worthy cause. Feeling under-acknowledged, local musicians asked me to focus on what they contribute to Hornby's ability to reproduce their society, and I took this as my mandate.

When I first visited Hornby, I met many serious musicians living outdoors, often with little or no electricity; these were North Americans trying earnestly to move towards a more reciprocal relationship with the land in expression and action.[6] When my family and I moved to Hornby, we lived outdoors in a forest camp, indoors on a farm, at friends' houses, and on two different land co-ops. During ten months of fieldwork on Hornby, including three separate visits during different times of year, I conducted multiple in-depth interviews with 40 individuals, performed on 10 occasions, joined two bands and formed another. I collected over 60 hours of interview material, recorded soundscapes and events, and generally involved myself in community life.

I saw my own complicity in the Canadian colonial state reflected back to me as a White settler male, and I tried to maintain such awareness of my positionality in my interactions with other Islanders, who also are mostly White settler North Americans. More practically, I maintained no illusions about the deeply unsustainable nature of human life on the Island and the ecological impact of my being there. To understand the motivations of a comparatively privileged people who choose to live in a community that

works to reject high-ecological-impact behaviors, I participated in community dialogues and activities regarding: housing, food security, fresh-water management, nearby resource extraction (both occurring and proposed), indigenous and invasive plants and animals, treaty claims by First Nations, and out-of-control tourism. This work towards a holistic approach allowed me to better comprehend the larger environmental consequences of the smaller musicking phenomenon on Hornby.

ISLANDERS THEORIZING, THEORIZING ISLANDERS

A joke Islanders have about Eastern Canadians like me, who are often fascinated with the "supernatural beauty" of British Columbia's mainland, is that we simply have not come "West enough." In a country as large as Canada, where cities contain four out of every five people, it is striking how small places take on big importance. Consider Luke O'Hearn's comments (personal interview 2011):

> Hornby is an ideal as much as it is a place. […] I believe that the spirit of Hornby is an ideal. It's the idea that we can all co-exist in a peaceful fashion. I mean everyone goes through things at different times, but when it comes down to it, we're stuck with each other, you know, and to act any differently is foolish, so, why take for granted all this beauty that surrounds us? Why not just acknowledge, "Guys, we're on Hornby, it doesn't have to be like this," and swallow your pride and humble up a little bit?

O'Hearn is referring generally to how the Island is imagined but also specifically to a fire-side conflict I witnessed between headline "Hornby Festival" musicians. Instead of staying only the one night, they ended up spending the week, playing naked hoe-downs on Little Trib Beach, swimming at midnight in phosphorescence on Phipp's point, crashing local jams at the Syzygy co-op, and sleeping in random tents, trailers, and VW minivans. At one point in this verbal fight, someone yelled, "Hey, we're on Hornby, let's not do this!" Later I was made to understand that it had been a trying tour, but that the unplanned week on Hornby checked large egos. This story reflects how quickly people attune to Hornby's vibe: where place is repetitively re-signified as it is constantly re-encountered, attaining a kind of semiotic density, where association speedily becomes thick. Attitudes change when visitors witness locals' concerns for their immediate social and environmental resources, when they understand that sharing and cooperation inform the community ethic.

Islanders describe Hornby as a special place, and they do so by emphasizing its unique "vibe." Many residents and visitors find its environment and social atmosphere attractive. Although apparently unique, Hornby Island

shares many of the same attributes, triumphs, and challenges as those societies described in *Island Musics* (Dawe 2004). As Dawe and his collaborators show, musicking on islands all over the world is crucial for the construction of local identities. Hornby's particular vibe propagates from the friction between the community's imagined ideals, its hard realities, and the external influences of dominant North American society.

Hornby musicians manipulate this vibration to reshape the social and environmental resonance between the Island and the mainland. Brett Martens (personal interview 2011) described the importance of musicking on the Island:

> Music is everywhere. So music has a role in everything because everything ultimately is vibrations. Ah, when we're coming down to the physical science of things, everything is a different vibration, and that is what music is. Music is vibrations. When we think about the word music, what comes to mind in our head is the audible vibrations that we hear. And music is really the, it's all the vibrations happening at once. […] [And] Performers choose to blatantly move [that] energy.

Martens is suggesting that reality is made of vibrations, that vibrations are musical, and thus, that reality is comprised of music. He suggests that musicians manipulate vibrations (or, reality) to improve community solidarity. These vibes—whatever they are (physical reality or mystical belief), and whatever the process of creating them—are central to my investigation.

Islanders report that musical events can be some of the most important opportunities for socializing during the ten months of the year when most businesses and restaurants are closed. They provide opportunities for community members to check in on each other during a time when problems seem harder. By ruminating on experiences with and testimony from Islanders, I began to see how musical practices train people in those soft organizational skills needed to negotiate and solidify any community of resistance with a will to survive. And it is here we move from Islander's theorizing to theorizing Islanders.

Musicking, when observed as a social phenomenon, fosters particular social habits. When abstracted from genre and perhaps even place, the habits of musical coordination even appear potentially universal. Ensembles usually require participants to confront group decision making, consensus, organization, ego-management, leadership, visioning, fund-raising, event planning, space management, power dynamics, neighborly volume negotiation, time management, media out-reach, and—most important for ever-shifting environmental problems—creative response. Many a rehearsal is not spent playing but in discussion about creative praxis. These realizations are the core of a critical approach to analyzing environmental problems: understanding how we make creative decisions, and thus how we change our practices.

Unjust decision making processes and failure to achieve full consensus by all concerned parties are hallmarks of environmental disaster. Ethnomusicology has a powerful theory to deal with decision-making and consensus in musicking: participatory discrepancies (Keil 1995). This theory suggests that musicking requires sonic consensus through negotiation in timing, tuning, and timbre. Furthermore, participatory discrepancies (PDs) demonstrate that sometimes the best grooves are manifestations of musicians' abilities to use discrepant aspirations and ideas in order to forge sonic consensus.

However, PDs are insufficient as a tool to examine larger social and environmental dynamics. By considering Small (1998), we widen the potential of PDs by highlighting the importance of all of the social activity surrounding the micro-matters of musicking. Bateson (1972) helps get beyond Small's social to the even larger environmental; he argues that engaging in artistic micro-patterning (the theory of PDs is based on this insight) promotes awareness of larger recursive ecosystemic patterning, such as the rhythms and vibrations of our environment (Charlton 2008). Similarly, work on participation by Turino (2008) confirms this scalar connection from micro to macro, because musicking uses semiotic communication that relies heavily on immediate and experienced place-based somatics and stimuli.

But how does music bring people together? The idea of nonsynchronism (Bloch 1977) suggests that we are not all present in the same moment in time, thus preventing us from responding to the problems modernity presents. In response to such pessimism, I agree with Small (2011) who suggests that musicking is a utopian practice that can actually put us together in the same moment, if only temporarily. Bakhtin's dialogism (Gardiner 1992) provides that such creative opportunities for dialogue within temporal consensus are what allow for positive change. Drawing more clearly on environmental thought to position musicking, the idea of the "sense of self" within the collectivity of nature—as developed by Leopold (2001),[7] Evernden (1993), and Livingston (2007), and as critiqued by ecofeminists Plumwood (1993, 141–164) and Warren (1999, 255–269)—could also describe the feeling of becoming and being together in time and place. The importance of musicking on Hornby to create such moments and spaces is tremendous, even while the community may be fracturing.

THE ISLAND SETTING

Hornby is a day's travel and three ferries from Vancouver. Annually, about 40,000 visitors pass through Hornby, but most of the houses on Hornby are entirely empty from September to July. The community has faced skyrocketing property values and land taxes that contrast with the Island's endemic poverty and other social problems discussed above. Such injustice challenges the community's ability to replicate their identity as a place for extraordinary social and environmental stewardship.

Before colonial contact, First Nations like the Pentlatch, K'ómox, We Wai Kai, and Klahoose used Hornby seasonally. After the spread of European disease among First Nations and the expropriation of lands by the English Crown, from the mid-1800s to the 1940s European settlers were drawn to the prospect of farming, logging, and fishing on Hornby, and to coal mining on nearby Vancouver Island. Prominent artists began spending time on the Island in the 1920s. The annual human population eventually reached 100, and in the period from 1940 to 1960, the community established regular ferry service, developed electricity and phone utilities, and began creating the many cooperative and self-governing institutions that now exist: The Coop General Store, Credit Union, Health Center, Community Hall, Free Store, Recycling Center (one of the first in North America), Radio Station, Ball Park, Elder Housing, and many more. This trend in governance was initiated in no small measure by Hillary Brown (1937), a writer, an English emigrant, feminist, scholar, socialist, and an active anti-war advocate. Her importance to the present culture of the Island cannot be over stated because she founded or was a co-founder of many of those progressive social institutions. Having lost all four of her brothers in World War I, she fled Europe to Hornby in 1937 during the rise of Nazi fascism to live with circa fifty Islanders serviced by a monthly freight boat:

> She reflected that change historically comes from small places from "small" people—those who were not famous until maybe later—because people worked best in small communities, even in cities, to create change. She said it was easier to make connections in small places—to see needs, dangers and benefits. And that an essential feature of humanity—our relationship with nature—was easier to realize in small places. (Wolfwood 2008)

The Island is home to long sandy beaches, a small mountain, old-growth forests, incredible biodiversity, and is in a rain shadow that limits the otherwise prevalent Pacific Northwest rains. In the mid-twentieth century, like so many beautiful places provided with increasingly easy access, while land was cheap, Hornby began to take on a reputation as a place for quality summer recreation, camping, and increasingly as a place for artistic retreat. For a time in the 1960s, Hornby was a place where one might find a piece of land for $25 down and $25 a month, or better yet, a place to squat on vacant or Crown land. Back-to-the-landers, hippies, Vietnam draft dodgers and deserters, Vancouver and Victoria's burgeoning middle-class, musicians, painters, writers, and ceramicists all flocked to the Gulf Islands in these years. Condominium style subdivisions became so rampant that Islanders and the provincial government came together to implement the Islands Trust Act in 1974. The Act outlines authority for sustained local ecological governance to regulate housing and business development on specific member islands.

By the late 1980s, Hornby's annual population was around 1,200 permanent residents. With housing inflation and living costs wildly outpacing income gains from the mid-1990s to the mid-2010s, the demographics of the Island have changed enormously from the youthful nostalgia of the 1970s. Hornby has become a retirement community. Relative to even the 1990s, those who have moved onto the Island since 2005 and bought property have needed comparatively enormous access to capital when choosing traditional real estate. The minority that rents homes on the Island is often asked to find other housing for some portion of the summer in order to produce valuable income from tourist rentals, a practice that is outlawed in British Columbia. The problem of housing younger newcomers, who may eventually invest in the Island and care for its institutions, is a subject of significant debate.

THE BAND ENVIRONMENT (OR, THE REHEARSAL OF LIFE)

If everything is made of vibrations, as Martens suggested, and bands create vibrations, how do musical vibrations influence Hornby? Whereas there are a number of ways that Islanders express sentiments that align with a vibration or energy-centered cosmology, here I want to dissect a scenario from my work as a musician participant-observer. This singularity should leave my reader wondering about how bands are transformed by their own internal vibrations long before they move to the stage to overtly impact the beings of their audience. One should also take away the sense of oozy-dramaturgical-liminality, the boundary permeability that the band-community has on Hornby: a Deleuzian ecotone between on and off stage.

Musicking is a socially transformative process in which group alchemy builds a team of personalities, instruments, abilities, and interests. On Hornby, the stakes are high, because people are tied to each other beyond the band as parents, co-workers, board members, or all of these. On Hornby, if one goes out the door, it is difficult to avoid people—which is not the usual image of rural Canada. Hornby is a retreat from which one cannot retreat. The maintenance of a healthy group dynamic in one's band is the very maintenance of one's community on Hornby. The inclusion and exclusion of individuals has significant ramifications. One cannot quit a band (or any Island relationship) and expect to slide into the anonymity of an urban mass or perhaps even to find other musicians with whom to play.

On my longest trip to Hornby, Martens and I put together a reggae band. The idea of a White Canadian reggae band did not come easily because I have spent so much time pondering and participating in the ethical dimensions of North American bands that perform music from Other places. I gauged that people brought a desire to make the effort required to perform a highly demanding and stylized genre of popular music, and so far as I could tell, no one was under any disrespectful illusions about their capacity to lay claim to reggae or Jamaica. The kinds of soul-reggae classics that we

covered offered constructive criticisms of social ills, songs relevant to Island life, and themes of togetherness that challenge constructions of power. We never considered any sexist and homophobic hits that some might imagine as representative of reggae. Unlike other bands in which I participated on Hornby, all of the members were male, and this impacted the social scene and discourse, particularly as six of seven members in this group had a female partner and children with whom to negotiate rehearsal times.

For four hours or more, each week for five months, we crammed the events of the past seven days, seven people, instruments, amps, social lubricants, and a PA into one twelve-by-twelve-by-eight-foot room. The room included a beautiful Island quilt that covered up a giant plasma screen TV. Beneath us, refugee river otters from Vancouver Island, driven out by the toxicity of their natural habitat, had colonized the crawl space; their fish, excrement, and noise added to the textures of the space that contained only one small window for air.

When seven people set out to learn their parts using recordings that they likely have never heard, without sheet music, some listening for the first time to a genre they have never performed—such a process of learning and mutual criticism consumes enormous amounts of energy, time, and patience. I struggled to replicate many of the songs we chose. There were differences between the groove as I was hearing it on recordings, how I was playing it, and how I was being asked to play it. Martens and I found ourselves in a heated and uncomfortable debate in front of the group about the role of drummers in this kind of music: He felt he knew more about reggae drumming than I did, and I felt that I knew more about drumming, period. I could hear quite well what the drummer on the recording was actually doing—I just could not play it yet. These were PDs about our PDs.

This band conflict brings together several key concepts: dialogue, participation, groove, tourism, utopia. The conflict concerned Martens' entirely valid desire for me to keep things simple for rehearsal. He needed the rehearsal to be a success because his musical career relies on other Island musicians, and his reputation could be impacted by vouching for the abilities of a visitor (me). When rehearsal ended, Martens said to everyone that it was a great practice; then, looking at me and referring to himself, he said, "Until Brett started acting like a dick." To which bassist Ken Clark replied, "Yeah, I thought I was about to witness the fastest band break up in history." We all hugged and agreed to meet again.

Clark called me the next day to ask how my family was settling in and how I felt about the rehearsal. He encouraged me to remember that being stuck together on Hornby means working things out. My wife recalls that I spent a good deal of time in doubt after this exchange and also that I practiced harder than I had in years. I figured some measure of the success of my research required me to make this project work.

Martens and I both felt embarrassed by the time we got together to talk through what had happened. Walking among the rocks along the ocean on

a cool February night under the stars and moon, we dialogued: I explained my frustration with being on unequal footing, learning an entire new style of drumming while he and others had smaller mountains to climb; trying and failing in a group setting made me feel inadequate, vulnerable, and overly sensitive to criticism. Martens expressed his frustration with wanting to play above his level; he felt held back by Hornby musicians' tendency to accept "good enough" because of their unwillingness to be confrontational, open, and honest. We both felt that nothing is really worse than *trying* to play reggae. We were able to affirm our regrets and promise better behavior in the future.

By the fifth rehearsal, Clark announced that I was "doing the reggae." Any concerns about my ability to back the band died away. Overcoming this challenge allowed us to improve our social and musical synchrony. That winter on Hornby we put on some great shows to perform solidarity and to create spaces for further community dialogue. The most significant transformations we achieved were within our group, but these achievements impacted our daily lives, our families' lives, and those who helped us organize events long before we went on stage. We contributed to the long tradition of musicking on Hornby for the pleasure of entertaining other Islanders, a situation in which it can be hard to tell who is performing for whom. In rehearsals we worked through the tension between perfect replication of beloved recordings and the reality of our own skills—we worked through the tension between the utopian Island relationships we sought and the way things were. In closing that gap, something never fully realized, we took our practice of perfection into our rehearsal of life.

CONCLUSION

In this brief narration of a conflict in a Hornby Island band, I demonstrate the meaning of Williams' observation that, "our descriptions of our experience come to compose a network of relationships, and all our communication systems, including the arts, are literally parts of our social organization. […] Since our way of seeing things is literally our way of living, the process of communication is in fact the process of community" (2001, 55). As we tried to perform as a tight-knit group for the Island community, we demonstrated that musicking for ourselves and Hornby is that "process of community."

Young Islanders and visitors alike are attracted to musicking in pursuit of utopia, and Hornby propagates radical ideas and processes of community, self-governance, and living within ecological limits. But numerous economic and demographic factors—the allure of off-Island higher wages and better economic standards of living, the high land taxes on-Island, the exploding privatized ferry costs, and the influx of new, older, wealthy residents who have disproportionate influence in governance—are preventing the maintenance and renewal of these pursuits. The place that once was, that people still imagine is Hornby, is disappearing.[8]

Focusing on Hornby's small musical communities illuminates how their interactions resist marketization and dominant norms of North American consumption. By bringing people together to celebrate, and by promoting social dialogue and awareness of who lives within and contributes to the needs of the community, these musicians propagate positive vibrations of solidarity that fuel the desires to stay together, to keep alive the utopian ideals, and to resist the fragmentation of Hornby's society and environment. By prioritizing the pursuit of fleeting aesthetic perfection and/or by using "good enough" strategies that minimize friction, Islander musicians work to subvert larger forces of economic profit and environmentally destructive social structures.

I am not suggesting that by virtue of musicking Islanders are doing anything more than slowing trends towards alienation (Putnam 2000) and the dissolution of community solidarity. Hornby's bands do not magically produce justice in the face of injustice. But they do help residents cope with injustice by advancing community building, which happens both through musicians making music and audiences experiencing music. The goals of and practices that result from musicking, particularly in the unique social and environmental contexts of Hornby, are essential for the environmental movement.

In contrast to a theoretical discussion, my aim has been to bring pragmatic phenomenological attention to how musicians perform their obligations to their communities, their cosmologies, their ecomusicologies. Doing ecomusicological ethnographic research means looking at musicking within the whole of anti-oppressive research practices. Ecomusicologists must continue to struggle with an exploration of what musicking contributes to our collective ethics.

NOTES

1. Locals say this figure is accurate; the StatCan census of 2011 reports the figure as 958.
2. More than half the Island earns less than $20,000 a year (Hornby Island Community Profile 2010, 42).
3. See Drott (chapter 17) for another postcolonial, ecocritical, and environmental history of how tourism and the urbanization of the rural have impacted music cultures.
4. I agree with Seeger's (chapter 6) concern for careful use of terminology. By attaching "eco" to ethnography, I suggest music scholars must engage with the ample self-reflectivity of fields like environmental studies, environmental and social justice, and indigenous studies to help us take care with our words, practices, and recognitions of multiple human and more-than-human realities. Such methodology relates to the posthumanist, neo-materialist co-presence sought by Edwards (chapter 11), who built on Titon's "relational ontology" (chapter 5).

5. Fairness and equity are different, and oppressed communities do not necessarily want equity.
6. Reflecting on Windsor (chapter 12), Hui (chapter 13) asserts, as do many environmental scholars, that there is no division between nature and culture. Edwards (chapter 11) also believes this dichotomy is false. For many purposes, this is true. However, when I met a Hornby woman who has farmed and lived off the land her entire life, raised animals and rode a horse for transportation, lived without a car for the last quarter century, and for the last fifteen years has resided on her own in the woods, I did not care to correct this nonagenarian on her false dichotomies or romanticism. Dichotomies are made real by those who think them, and comparatively, many who maintain them do better for the planet and society than those who insist for theoretical ends that gentrification is as natural as a sycamore.
7. For more on Leopold, see the discussion by Hui (chapter 13).
8. I imagine that my research might bring attention to the need for younger people and musicians to move to the Island in order to maintain Hornby's historic and ideological institutions of subversive collectivism. In fact, my future research with other community members may involve creating and improving Hornby's institutional capacity to do just this.

WORKS CITED

Bateson, Gregory. 1972. *Steps to an Ecology of Mind*. New York: Ballantine Books.

Bloch, Ernst. 1977. "Nonsynchronism and the Obligation to its Dialectics." *New German Critique* 11: 22–38.

Brown, Hillary. 1937. *Women Must Choose*. Richmond, England: Hogarth Press.

Charlton, Noel. 2008. *Understanding Gregory Bateson: Mind, Beauty, and the Sacred Earth*. Albany: SUNY Press.

Dawe, Kevin, ed. 2004. *Island Musics*. New York: Berg.

Evernden, Neil. 1993. *The Natural Alien: Humankind and Environment*. Toronto: University of Toronto Press.

Gardiner, Michael. 1992. *Dialogics of Critique: M. M. Bakhtin and the Theory of Ideology*. Routledge: London.

Hornby Island Community Profile. 2010. Hornby Island Local Trust Committee. Accessed March 2, 2015. http://www.islandstrust.bc.ca/ltc/ho/pdf/hocommunityprofile.pdf.

Keil, Charles. 1995. "The Theory of Participatory Discrepancies: A Progress Report." *Ethnomusicology* 39 (1): 1–20.

———. 1998. "Applied Sociomusicology and Performance Studies." *Ethnomusicology* 42 (2): 303–312.

Leopold, Aldo. 2001. *A Sand County Almanac*. New York: Oxford University Press. Original edition, 1949.

Livingston, John. 2007. *The John A. Livingston Reader*. Toronto: McClelland and Steward Ltd.

Plumwood, Val. 1993. *Feminism and the Mastery of Nature*. New York: Routledge.

Putnam, Robert. 2000. *Bowling Alone: The Collapse and Revival of American Community*. New York: Simon and Schuster.

Small, Christopher. 1998. *Musicking: The Meanings of Performing and Listening*. Middletown: Wesleyan University Press.

———. 2011. "Prologue: Misunderstand and Reunderstanding." In *Music and Solidarity: Questions of Universality, Consciousness, and Connection*, edited by Felitcy Laurence and Oliver Urbain, vii–xvii. London: Transaction Publishers.

Smith, Linda Tuhiwai. 1999. *Decolonizing Methodologies: Research and Indigenous Peoples*. New York: Zed Books.

Turino, Thomas. 2008. *Music as Social Life: The Politics of Participation*. Chicago: University of Chicago Press.

Warren, Karren. 1999. "Ecofeminist Philosphy and Deep Ecology." *In Philosophical Dialogues: Arne Naess and the Progress of Ecophilosophy,* edited by Nina Witoszek and Andrew Brennan, 255–269. Lanham, MD: Rowman and Littlefield Publishers.

Williams, Raymond. 2001. *The Long Revolution*. Peterborough, ON: Broadview Press. Original edition, 1961.

Wolfwood, Theresa. 2008. "Hilary Newitt Brown—An Activist and Inspiration." Memorial Service for Hilary Newitt Brown. Hornby Island Community Hall, February 18. Accessed March 2, 2015. http://www.bbcf.ca/_articles/2007/hilary_newitt_brown.htm.

10 Late Soviet Discourses of Nature and the Natural

Musical *Avtentyka*, Native Faith, and "Cultural Ecology" after Chornobyl[1]

Maria Sonevytsky and Adrian Ivakhiv

> The preservation of the cultural environment is a task no less central than the preservation of nature's environment. If nature is vital to mankind for our biological life, then the cultural environment is just as vital for our spiritual, moral life. […] Thus there are two sections in ecology: biological ecology and cultural, or moral, ecology. Not observing a person's biological ecology can result in a person's biological death, while not observing a person's cultural ecology can lead to a person's moral death. Between them there is no deep divide, just as there is no sharply defined border between nature and culture. (Likhachev 1985, 54–55)

CHORNOBYL'S CULTURAL AFTERMATH

On April 26, 1986, a power surge resulted in a series of fires and explosions in Reactor No. 4 of the Chornobyl Atomic Energy Station, located in the city of Prypiat in north-central Ukraine. The result was a release of radioactive contaminants into the atmosphere and water. Prypiat—with a population of circa 50,000 in 1986, and the USSR's ninth "Atomic City"—was evacuated starting on April 27, 24 hours after the disaster began. But Soviet leadership did not publicly acknowledge the disaster until April 28, when a Swedish nuclear power plant over 1,000 km away registered elevated radiation levels. It took 18 days for Soviet leader Mikhail Gorbachev to appear on television and alert the public to the nuclear catastrophe that had occurred. In Ukraine's capital, Kyïv (Kiev), located 70 km downstream from Chornobyl, May Day celebrations had gone forward as planned on May 1—though rumors of the contamination had spread throughout the city, and those citizens who could afford it had fled.

In the first week after the disaster, the government moved over 200,000 people from a 30 km Exclusion Zone surrounding the reactor. Today an estimated 9% of Ukraine's territory is contaminated with high radiation levels, while irradiated territory stretches across 23% of Ukraine's northern neighbor, Belarus; by some estimates, Ukraine's and Belarus's exclusion zones total over 1,800 square miles (Mycio 2005). Over 3.5 million Ukrainian citizens have official "Chornobylets" status—legally defined as *poterpili*

(sufferers) and qualifying for free medical care, cash subsidies, and other social services—but Ukraine's weak economy left many of them inadequately supported (Petryna 2002, 4).

The effects of the Chornobyl disaster, however, went beyond the medical and ecological. The event catalyzed public outrage and gave momentum to a broad range of political and civil society initiatives that propelled Gorbachev's policy of *glasnost* (openness) into unexplored terrain. These included emergent environmental groups and the "eco-nationalist" movements that took the environmental cause as an opportunity to ask deeper questions about political authority and national self-determination. As Dawson (1996, 79) writes, "calls to protect the Ukrainian lands and people from the nuclear threat" served to resuscitate a sense of Ukrainian national identity and to catalyze nationalism in irrepressible directions. Ultimately, it was movements such as Ukraine's *Rukh,* the Popular Movement for Restructuring in Ukraine, and analogous movements in other Soviet republics, that came to topple and fragment the USSR into multiple, independent republics (Dawson 1996; Petryna 2002, 5; Phillips 2011, 7; Reid 1997, 191).

With the restoration of religious freedoms that accompanied the dissolution of the USSR in 1991, a variety of nationally oriented religious movements emerged as well, including a newly legalized Ukrainian Catholic Church, the Ukrainian Autocephalous Orthodox Church, and the Kyïv Patriarchate of the Ukrainian Orthodox Church. Some, unsatisfied with the role of churches in recent and earlier Ukrainian history, sought religious sustenance beyond the 1,000-year history of Christianity in Ukraine. Among these, Neo-Paganism (*Yazychnytstvo*) and Native Faith (*Ridna Vira*) grew in size and momentum. Both these movements sought to return to pre-Christian models of religious belief, ritual, and social organization. Coalescing around ideals of warriorship, honor, communalism, and the preservation of group identity, and rooted in territorialized notions of ethnicity, race, and nature, Native Faith is among the most radical of a series of cultural movements interested in reviving folk and historical traditions that had largely disappeared or been museumized.

At the same time as these late Soviet environmental and faith revivals emerged, a form of musical folklore known as *avtentyka* ("authentic" village folklore) took on prominence as a form of resistance to the entrenched norms of Soviet institutionalized folklore. Concomitantly, the *avtentyka* movement emphasized the holistic, "natural" and spiritual qualities of village musical folklore, thereby rejecting the professionalized and secularized version of folklore that had been officially sanctioned during the twentieth century.[2]

All of these revivals took place within a field of intellectual discourse that, in the waning years of the USSR, became marked by what eminent Russian historian and philologist Dmitry Likhachev (1985) called "the ecology of culture," a term that resonates strongly with Titon's notion of an "ecology of music" (2009). These movements did not comprise a simple system;

rather, the relationship of musical *avtentyka* to the advent of environmental activism and the Neo-Pagan and Native Faith movements was part of a web of interconnected milieux that orbited around conceptualizations of nature and "the natural" in the waning years of the Soviet Union, spurred on by the cataclysmic nuclear disaster of 1986. As such, these relationships exemplify the kinds of interactions studied in ecomusicology, which considers "the relationships of music, culture, and nature" and examines "musical and sonic issues, both textual and performative, as they relate to ecology and the environment" (Allen 2012, 392). In particular, our account of the musical *avtentyka* of Kyïvan Polissia—the ethnographic region that surrounds Chornobyl—and movements related to its revival and celebration, will parallel the kinds of concerns articulated by Titon (2009) surrounding the "sustainability" of musical cultures. What happens when longstanding relations between place, music, and everyday practice are shattered by an event of such magnitude as the Chornobyl disaster? How is the event itself made sense of in terms of popular understandings of nature, ecology, and culture? How is music reconceptualized by those affected, and by those responding to such an event? Our account provides no definitive answers to these questions, but our exploration of relations among these elements offers suggestive hints for how such relations can be studied elsewhere.

CULTURAL ECOLOGY IN KYIVAN POLISSIA

The name "Polissia" (*Polesie* in Russian and Polish, *Pal'ess'e* in Belarusian) comes from Slavic and Baltic roots meaning forest or muddy forest (*lis* in Ukrainian, *les* in Russian; *Pala, Pelesa, Pelysa* in Lithuanian and Latvian). Historically a marshy, boggy, and forested land stretching across northern Ukraine and southern Belarus, and into southwest Russia in the east and southeast Poland in the west, Polissia had retained longstanding cultural traditions largely due to its status as remote hinterland to metropolitan centers like Kyïv.

For Likhachev (1985), the idea of "cultural ecology" (*ekologiia kultury*) is that the entirety of humanity's cultural production parallels the entirety of material nature, and the preservation of both is considered valuable. But only foundational and highly valued cultural monuments—literary, architectural, religious, and others—provide humans an adequate "cultural home." Likhachev considered their protection both a scholarly and moral imperative. His and others' exhortations in the 1980s encouraged activists to defend cultural and architectural monuments in the face of planned destruction or obsolescence. In Ukraine, they encouraged the growth of groups prepared to defend Ukraine's cultural and material environments.[3]

Among the cultural forms dislodged by the Chornobyl accident was Kyïvan Polissia's unique and colorful tradition of *a capella* singing with both heterophonic and polyphonic textures. In the isolated and remote

villages near Pripyat, time had been marked through ritual calendar songs and performances that bridged everyday life with narrated cultural memory going back as far as most villagers could remember. As Ukrainian ethnographer and museologist Lidia Orel put it,

> ninety kilometers away from a modern, industrial city with an atomic substation, people still wove their own clothes, lived on their own natural means, and even confessed to their own pre-Christian gods. […] During Easter, instead of carrying the specially baked bread to church, they offered it to the setting sun, confessed and prayed before a sacred tree for prosperity and a good harvest. All the old ways were preserved there like nowhere else. (Brown 2003, 227)

Due in part to their isolation, these villages had preserved a style of vocal heterophony for an expansive repertoire of ritual songs, many of which blended Christian motifs with pre-Christian themes. Iryna Klymenko, an ethnomusicologist at the Kyïv Academy of Music, delineates three "functional-stylistic groups in the song culture of Polissia": 1) archaic traditional tunes, usually linked to rituals; 2) traditional lyrics, with free rhythm; and 3) melodies from later traditions, usually from the nineteenth and twentieth centuries (2002). She identifies the first of these categories as the most vital for its uniqueness and "ancientness."

Ukrainian ethnomusicologists categorize ritual songs as belonging either to the "calendrical ceremonial cycle" (such as Christmas and harvest) or to repertoires of "family rituals" (marriages, funerals, baptisms). In the agrarian cycles of Polissian villagers, liminal periods interceding the seasons were times of heightened ritual activity, since, as Klymenko claims, that is when the "frontier between the two worlds opened." She notes that the "initial function of such tunes is magical: they had to influence the powers of nature in order to subordinate them to the needs of human society and also to regulate social relations" (2002). The clearest examples of the power to regulate nature through song is evident in spring "calling songs" in which the young women of the village would gather at the highest point in the village—a rooftop or hill, but always outdoors—and sing in a strident manner ("at the border of shouting"), with *hukannia,* or hooting, punctuating the ends of each line of text. Like most of the village repertoires, this style is characterized by highly varied ornamentation and melodic improvisation. The last syllables of many lines are drawn out, sustained on a strident unison to emphasize overtones, and lyrics are often clipped at the ends of phrases. Finally, many melodies have dozens or even hundreds of textual variations that are sung depending on the whims of the singer. This latter feature made the lyrics easy to manipulate to suit the ideological agendas of Soviet censors.

The calendrical cycle traditionally began with the "summoning of spring" by local women. Spring songs, or *vesnianky*, include *khorovody*, songs that included circular movement, and *striły*, which some consider

to have originated as pre-Christian sacrificial songs. As summer set in, many Polissian villages marked the *Zeleni Sviata* (the "Green Holidays") associated with the Christian feast of Pentecost. In some villages, Pentecost was combined with *Kupalo*, a midsummer fertility festival that has been revived with vigor in the Post-Soviet era (Helbig 2014, Kononenko 2004). According to Yefremov (1997), however, the central ritual event of early summer in Kyïvan Polissia was the *provid rusalochok,* or Procession of the Rusalkas. The restless spirits of ancestors who had suffered "unnatural" deaths (innocents, drownings, suicides), Rusalkas were believed to awaken and walk the forests in early summer. Villagers feared they could cause mischief, misdirect people in the forests, or lead people to drown. During the *provid rusalochok*, women would parade together from the far ends of the village to the cemetery, singing Rusalka songs, which often promised bribes to the spirits (such as a sprig of herbs) or shooed them out of the village with loud claps. Arriving at the cemeteries, villagers would build fires and celebrate the return of the Rusalkas to their resting places for another year.

Late summer was characterized by harvest songs, sung solo or in groups and often plangent in character, while women worked in the fields. Autumnal songs revolved around family rituals, including weddings. Polissian weddings were multi-day affairs, with bridal laments, contestations between married and unmarried village women, and songs about the unplaiting of the bride's braid (a symbol of maidenhood) and the wrapping of the bride's head in a headscarf (designating her as married).[4] Winter rituals of the *koliada* and *shchedrivka* cycles preserved ancient roots within Christian reference points. In some villages, a tradition known as "the leading of the Goat"—with young men enacting the death and resurrection of a goat—is still staged during the Christmas period.[5]

After the 1986 catastrophe in Chornobyl, about 160 villages containing some 160,000 inhabitants were evacuated from the Exclusion Zone and resettled in various regions of Ukraine. There, they had to adjust to new social and ecological environments. As community networks, family bonds, and ties to the land were severed, some villagers fought to protect their traditions. But locals unfamiliar with them and suspicious of their perceived pagan activities undermined or mocked them, and a younger generation of resettled Polissians has tended to lose interest in maintaining traditions. Ethnomusicologists, who had earlier collected and analyzed the songs of the region, continued to visit sites where the villagers had relocated. Yevhen Yefremov, ethnomusicologist and founder of the important revival group Drevo, told one of us (Sonevytsky) about the time he witnessed how the young men of a village doused resettled village girls with water as they carried out the procession of the Rusalkas. Such rituals, Yefremov asserts, have nearly died out among resettled villagers, and the songs, which were inseparable from the rituals, are no longer sung.

Today, a few hundred *samoseli*, or "self-settlers," have returned to their villages in Kyïvan Polissia. As Fialkova (2001) notes, many of the samoseli "dismiss the radiation threats as immaterial, since radiation cannot be seen or felt immediately. Others treat radiation like a house spirit, trying to charm or cajole it; they maintain that radiation affects those who prefer city comfort but has no harmful influence on people who appreciate nature" (198). This faith in radioactivity's inefficacy over those "who appreciate nature" is consistent with how villagers historically conceptualized their relationship to the land. To natives, the Earth is life sustaining, just as it always has been. Any other truth is too difficult to imagine, too cataclysmic in its effects, and therefore dismissed.

Meanwhile, the Exclusion Zone has been ferociously reclaimed by nature: numerous previously disappearing species have returned to flourish here, including moose, lynx, wild boars, eagles, ravens, peregrine falcons, the largest wolf population in Europe, and notably the beavers that have been craftily returning the once reclaimed farmland to swamp. As villagers from Kyïvan Polissia have let go of their traditions, however, the urban revival movement that reenacts such ritual repertoires has grown.

AVTENTYKA AND THE VILLAGE SONG REVIVAL MOVEMENT

In Moscow in 1973, Dmitri Pokrovsky convened the first rehearsal of what was to become the Pokrovsky ensemble, the first Soviet performance collective dedicated to "authentic" folklore. Pokrovsky trained as a choir master to develop the skills necessary for leading Soviet institutionalized folklore ensembles. In an interview with Levin (1996), Pokrovsky recalled the graduation exam from the mandatory course for choir masters:

> The first song they sang was about two falcons on an oak tree. The falcons represented Lenin and Stalin. It was a fake song from the 1950s. They still had to sing it in the mid-1960s, but by that time, there was, of course, only one falcon on the tree. That song was published as folklore by folklorists. To publish any collection of folk songs at that time, you had to have a song about Stalin at the beginning; a song about electricity, a tractor; and after that, you could have you love songs, calendar songs, or whatever. After a while, no one looked at the first few pages of those books. (20)

Levin points out that Pokrovsky's early experiments with "authentic" folklore proved that, in the USSR,

> every artistic field, folk music revivalism included, has its stylistic norms and internal boundaries that distinguished the canonically official from the aggressively unofficial, but that also included a large grey

> area in which artists played out a game of "chicken" with the cultural censors. [… By] the 1970s and 1980s, it was common enough for artists to probe the cultural no-man's-land between official and unofficial art, and to move back and forth between official and unofficial work, official and unofficial artistic life. (21)

Pokrovsky's ensemble soon became an underground phenomenon throughout the USSR. Falling in and out of favor with the Soviet leadership, it spawned comparable ensembles in many other Soviet republics.

Drevo, the first Ukrainian revival ensemble, was founded in 1979 by a group of ethnomusicology graduate students in Kyïv and led by Yevhen Yefremov. In the waning years of the Soviet regime, interest in *avtentyka* took on momentum in urban centers of Ukraine such as Kyïv, Kharkiv, and Rivne, practiced by ensembles dedicated to "authentic" song repertoires. Like Pokrovsky's model, these groups did not purport to specialize in "national" music per sé, but rather in the regional and local styles of the villages to which performers traveled to gather material. Today's notable groups include Drevo, Bozhychi, Majsternia Pisni, Hurtopravtsi, Nadobryden', and Huliajhorod.

This Ukrainian *avtentyka* movement, like music revivals elsewhere, grew out of an impulse to restore and salvage vestiges of "ancient, authentic" local culture (Helbig 2011, Livingston 1999). More than just music, these song repertoires connect to older models of daily life that came to symbolize a "true," "natural," and "primordial" way of being. The revival movement also grew as a reaction to the culture of Soviet institutionalized folklore (known as *folkloryzm* or *sharovarshchyna* in Ukraine), which had standardized and sanitized the timbral, textural, and harmonic qualities of village singing to conform to Soviet professional performance norms. A major goal of the revival singers was to preserve the dialect, timbre, vocal improvisations, and other stylistic features of these songs. Currently, ethnomusicology students at the Kyïv Academy of Music are required to take classes in "authentic" vocal style—which raises interesting questions about the pedagogical challenges of teaching "authenticity."

The reaction against Soviet institutionalized folklore also had an ideological component. As the Soviet central government relaxed its strict cultural and social policies in the period of *perestroika*, members of the authentic village song revival movement deepened their explorations of sacred and spiritual themes in village songs. Discussion of these repertoires commonly focuses on the symbiotic relationship between natural environments, villager identities, and the songs and rituals. For urban singers, many of whom approached their de-Sovietized identities vis-à-vis the spirituality and "naturalness" of village songs, such connections have been crucial. With its aura of ancientness, *avtentyka* has allowed singers and ethnomusicologists to embrace something unique, local, "pure," and "natural." Today, groups reconstruct entire ritual events based on field recordings, mining these rituals for the links they provide to the past.

MUSIC, ECO-NATIONALISM, AND NATIVE FAITH

The young journalist Svyatoslav Voytko opined in the *Kyïv Post* (July 1, 2011): "It is natural for Japanese to follow Shintoism, and Judaism is practiced by one nation only, so why should Ukrainians not have a native faith?" In a series of studies on this Native Faith, along with Neo-Pagan identities in Ukraine, Ivakhiv (2005a, 2005b, 2005c) linked the "eco-nationalist" impulse that arose from the Chornobyl accident to a greater interest in ecology and nature mysticism (Ivakhiv 2005c, 10). Ukrainian Native Faith derives in part from folkloristics and ethnography, including the study of folk beliefs and practices, folk medicine, traditional arts and music, and activities associated with the traditional agricultural calendar (Ivakhiv 2005a, 8). In the wake of Chornobyl, and spurred on by the growing environmental and cultural protection movements, the folk music of the authentic village style stoked the interest of those who sought cultural refuge in deeper, more authentic sources—deeper than even the Christian heritage that others enthusiastically sought to recover.

Martin (2001) describes how the mixed messages of Soviet nationalities policy in the 1920s and 1930s inadvertently gave rise to conceptions of ethnicity, or *ethnos*, as primordial identities that were intimately linked to territories and natural environments. By the late Soviet period, this "primordialism" was revamped with an ecological twist, most notably in the work of Lev Gumilëv in his widely read *Ethnogenesis and the Biosphere* (officially published only in 1990).[6] Gumilëv's concept of *etnogenez* (ethnogenesis) develops the idea of ethnic communities as social and biological organisms, with life cycles that originate, grow, and decay on specific territories. For Gumilëv, an ethnic group is catalyzed by "passionaries" with a "passionary drive," selfless leaders who mobilize and solidify a collective's identity. In Sonevytsky's fieldwork in Hutsulshchyna (the western Ukrainian Carpathian Mountain region) and Crimea (the disputed Black Sea peninsula that borders Ukraine),[7] Gumilëvian notions of *passionarnist'* and *etnogenez* were repeatedly invoked during interviews that touched on the ideas of "homeland" and the fate of indigenes in their specific territories. The case of Kyïvan Polissia offers a micro-perspective on what Martin (2001) argues is a genericizing phenomenon of Soviet nationalities policies, in which titular nationalities took precedence over all other types of communities. Polissians, or *Polishchuky*, including those displaced by disaster, considered themselves fundamentally local—literally *tuteshni*, or "those from here."

Ivakhiv (2005b) explains the tripartite definition of "nature" that Gumilëv's work offers: nature as land, blood, and tradition. Gumilëv's theory had a significant impact on early Native Faith revivals in post-Soviet Ukraine and Russia, and also on territorial claims made by *ethnes* in the immediate post-Soviet era. In contemporary Ukraine, practitioners of Native Faith raise provocative questions about contemporary Ukrainian identity (filtered through the idea of ancient Ukrainian identity) in terms

of ethnicity, language, religious beliefs, and gender roles. Today, the eco-nationalist movement of the late 1980s and early 1990s has subsided, but the Native Faith movement has grown as a site in which nationalist and environmental platforms meet; this connection is strengthened through the connection to village song, ritual, and folk tradition.

In Ukraine, the environmental, nationalist, and Native Faith movements of the late Soviet period were reinforced through musical *avtentyka,* which was believed to carry deeply embedded knowledge about place, territory, history, and ritual. In post-Soviet Ukraine, discourses of the "natural" have manifested as activist agendas and as mandates for the preservation of village musical traditions in all regions, including those of the Exclusion Zone. Since the 1980s, music and national politics have been deeply intertwined in Ukraine. In the late Soviet era, Anglo-American rock music with Ukrainian-language lyrics formed a blaring soundtrack of protest against Soviet power. The village song revival movement, like the related movement of bardic *kobzars, bandurists*, and *lirnyks* (all traditional instruments with extensive song repertoires), operated as a less visible, but still significant, form of resistance to Soviet authority. Parallel to the rise of a nationalist rock culture in Ukraine, the Independence era propelled the revival of "authentic" folklore that stressed the link between Ukrainian identity and place.

Bolstered by the rise of movements in environmentalism and Native Faith and spurred on by the trauma of the Chornobyl nuclear disaster, the song culture of Kyïvan Polissia offers a rich example of how this kind of traditional ritual music, with its embedded discourses of nature and place, has consolidated groups around diverse agendas including those of environmental protection, national identity, and political sovereignty. In today's conflicted post-Soviet landscape, *avtentyka* and other forms of "traditional" musical culture continue to play a role as markers of identity, belonging, political commitment, national affiliation, and environmental activism. Given such relationships, the movements discussed here could be interpreted as a form of ecomusicology *avant la lettre* in a Soviet context.[8] Furthermore, they illustrate Likhachev's notion of an "ecology of culture," which seeks to connect—and thus break down the artificial barriers between—nature and culture.[9] Likhachev's approach to this ecology is explicitly and fundamentally ethical, rather than scientific (as in Boyle and Waterman chapter 2), lending support to Titon's (2009) advocacy for a sustainable ecology of music.

NOTES

1. In this article, we use the Ukrainian spelling for "Chornobyl," rather than the Russian "Chernobyl."
2. This definition of *avtentyka* is limited to the vocal and instrumental repertoires associated with village cultures that were thought to be ancient and unspoiled by colonial intervention. Another significant musical revival of the late Soviet

period was the reinvention and resurrection of *kobzarstvo,* the Ukrainian tradition of epic balladeering that had been effectively stamped out after the 1930s. For more on the tradition and reinvention of *kobzartsvo,* see Kononenko (1998, 1992); for an account of *kobzarstvo* as part of late Soviet Ukrainian musical protest culture, see Wanner (1998).

3. This notion of "cultural ecology" and its implicit call to action muddles the disciplinary orientations of the North American science of ecology, which eschews the conflation of ecology and environmentalism (Boyle and Waterman chapter 2).
4. Famously, similar wedding rituals are represented, reimagined, and exoticized in Igor Stravinsky's *Les Noces*, premiered by the *Ballets Russes* in Paris in 1923. Stravinsky's interest in rural folklore is well known. As a child, Stravinsky summered at country estates in Russia and Ukraine (including the central Ukrainian Podil province, which has both calendrical and lyrical singing traditions that were especially well-documented by Soviet-era ethnomusicologists), where he heard and transcribed local singing. Mazo (1990) explains that, "in Stravinsky's recollections of the landscapes from his childhood, his very first memories of musical sound are linked directly to folk singing, and […] to its characteristic sonority in particular" (102). *Les Noces* offers the clearest example of how rural folk genres influenced his compositions, though elements of folk inspiration also marked his earlier works for the *Ballets Russes*, including the *Firebird* (premiered 1910) and the *Rite of Spring* (premiered 1913).
5. As with other ostensibly ancient and pre-Christian traditions, historians and folklorists debate the extent to which these predate Christianity in their origins and to which they are later additions reinterpreted by overenthusiastic modern ethnographers. See Hutton (1996) for the case against many British customs purported to be ancient, and Rock (2007) for a critique of the notion of Pagan-Christian *dvoievierie*, or double-faith, which is the common assumption that Slavic pre-Christian rites were combined with Christian meanings into a synthesis that lasted centuries.
6. The concept of *etnogenez*, coined by Soviet anthropologist L.V. Oshanin in 1938, has a distinct legacy in Soviet anthropology and geography that has been under-theorized by Western scholars (see Bychkova Jordan 2003). Gumilëv's (1990) broadening of the concept both references the early Soviet anthropological projects of the 1920s and 1930s—closely linked to the nationality-building project of that time—and the growing ecological concerns of the late Soviet period.
7. In March of 2014, the Crimean peninsula was illegally annexed by the Russian Federation in what the anthropologist Alexei Yurchak (2014) defined as a "new political technology of non-occupation." The territory is now disputed, although locals (the majority of which are Russian-speaking, and many of whom consider themselves to be "Russians") have largely accommodated with Russian edicts mandating that Crimeans convert from Ukrainian to Russian passports. For the indigenous Crimean Tatar population, this recent act of annexation stands out as another trauma in a long history of historical traumas.
8. See also the historiographical discussion of ecomusicology in Allen (chapter 20).
9. Regarding debates over nature-culture binary, see Edwards (chapter 11), Hui (chapter 13), Mark (chapter 9), and Windsor (chapter 12), among others.

WORKS CITED

Aleksievich, Svetlana, and Keith Gessen. 2005. *Voices from Chernobyl*. London: Dalkey Archive Press.

Allen, Aaron S. 2012. "Ecomusicology: Ecocriticism and Musicology." *Journal of the American Musicological Society* 64 (2): 391–394.

Bilyk, Olena. 2008. *Kalendarno-obriadova pisennist Zakhidnoho Polissia*. Lutsk: Vydavnychyi dim "Tverdynia."

Brown, Kate. 2004. *Biography of No Place: From Ethnic Borderland to Soviet Heartland*. Cambridge: Harvard University Press.

Brummond, Janice. 2000. "Liquidators, Chornobylets and Masonic Ecologists: Ukrainian Environmental Identities." *Oral History* 28 (1): 52–62.

Bychkova Jordan, Bella, and Terry G. Jordan-Bychkov. 2003. "Ethnogenesis and Cultural Geography." *Journal of Cultural Geography* 21 (1): 3–17.

Dawson, Jane I. 1996. *Eco-Nationalism: Anti-nuclear Activism and National Identity in Russia, Lithania, and Ukraine*. Durham: Duke University Press.

Fialkova, Larisa. 2001. "Chornobyl's Folklore: Vernacular Commentary on Nuclear Disaster." *Journal of Folklore Research* 38 (3): 181–204.

Gumilëv, Leo. 1990. *Ethnogenesis and the Biosphere*. Moscow: Progress Publishers.

Helbig, Adriana. 2014. "Ivana Kupala (St. John's Eve) Revivals As Metaphors of Fertility and Contemporary Ukrainian Femininity." In *The Oxford Handbook of Music Revivals*, edited by Caroline Bithell and Juniper Hill, 508–527. Oxford: Oxford University Press.

Hutton, Ronald. 1996. *The Stations of the Sun: A History of the Ritual Year in Britain*. New York: Oxford University Press.

Ivakhiv, Adrian. 2005a. "In Search of Deeper Identities: Neopaganism and 'Native Faith' in Contemporary Ukraine." *Nova Religio* 8 (3): 7–38.

———. 2005b. "Nature and Ethnicity in East European Paganism: An Environmental Ethic of the Religious Right?" *The Pomegranate* 7 (2): 194–225.

———. 2005c. "Stoking the Heart of a (Certain) Europe: Crafting Hybrid Identities in the Ukrainian-European Borderland." *Spaces of Identity* 6 (1): 9–36.

Ivakhiv, Adrian, and Catherine M. Tucker. 2012. "Intersections of Nature, Science, and Religion: An Introduction." In *Nature, Science, and Religion: Intersections Shaping Society and the Environment,* edited by Catherine M. Tucker, 3–21. Santa Fe, NM: School of Advanced Research (SAR) Press.

Klymenko, Iryna. 2002. "Traditional Song Culture of Polissya." *Zelenyj Shum Polissya*. ArtVeles. CD.

———. 2010. *Dyskohrafiya Ukrayinskoyi Etnomuzyky (Avtentychne Vykonannia) 1908–2010*. Kyiv: Ministerstvo Kul'tury i Turyzmu Ukrajiny, Natsional'na Muzychna Akademiya Ukrajiny im. P. I. Chajkovskoho.

Kononenko, Natalie O. 1992. "'*Duma Pro Chornobyl':* Old Genres, New Topics." *Journal of Folklore Research* 29 (2): 133–154.

———. 1998. *Ukrainian Minstrels: And the Blind Shall Sing*. New York: M.E. Sharpe.

———. 2004. "Karaoke Ivan Kupalo: Ritual in Post-Soviet Ukriane." *The Slavic and East European Journal* 48 (2): 177–202.

Korzun, Ksenia. 2011. "Scenes from the Underground: Getting Back to Nature, Slavic Style." *Transitions Online* Issue no. 4/19/2011.

Levin, Theodore. 1996. "Dmitri Pokrovsky and the Russian Folk Music Revival Movement." In *Retuning Culture: Musical Changes in Central and Eastern Europe*, edited by Mark Slobin, 14–36. Durham: Duke University Press.

Likhachev, Dmitry S. 1985. *Ecologiia kul'tury*. Moscow: Nauka.

Livingston, Tamara E. 1999. "Music Revivals: Towards a General Theory." *Ethnomusicology* 43 (1): 66–85.

Martin, Terry. 2001. *Affirmative Action Empire: Nations and Nationalism in the Soviet Union, 1923–1939*. Ithaca: Cornell University Press.

Mazo, Margarita. 1990. "Stravinsky's *Les Noces* and Russian Village Wedding Ritual." *Journal of the American Musicological Society* 43 (1): 99–142.

Mycio, Mary. 2005. *Wormwood Forest: A Natural History of Chornobyl*. Washington, D.C.: Joseph Henry Press.

Petryna, Adriana. 2002. *Life Exposed: Biological Citizens After Chornobyl*. Princeton: Princeton University Press.

Phillips, Sarah D. 2011. "Chornobyl Forever." In *Somatosphere: Science, Medicine and Anthropology*. Accessed March 5, 2015. http://somatosphere.net/2011/04/Chernobyl-forever.html.

Reid, Anna. 2000. *Borderland: A Journey through the History of Ukraine*. Boulder: Westview Press.

Titon, Jeff Todd. 2009. "Music and Sustainability: An Ecological Viewpoint." *the world of music* 51 (1): 119–137.

Wanner, Catherine Cowhey. 1998. *Burden of Dreams: History and Identity in post-Soviet Ukraine*. University Park: Pennsylvania State University Press.

Yefremov, Yevhen. 1997. "Rhythmic-structural Types of Calendar Tunes in Kyivan Polissya." In *Polissya of Ukraine: Materials to Historical Ethnographical Research*, 245–259. L'viv: Institute for Folk Study of the National Academy of Sciences of Ukraine.

Yurchak, Alexei. 2014. "Little Green Men: Russia, Ukraine and Post-Soviet Sovereignty." *Anthropoliteia*, March 31. Accessed March 5, 2015. http://anthropoliteia.net/2014/03/31/little-green-men-russia-ukraine-and-post-soviet-sovereignty/.

Part III

Critical Directions

Aaron S. Allen and Kevin Dawe

The essays of this section take critical approaches from a diversity of academic disciplines. Connecting the essays—which consider sounds as diverse as crickets, transitcasting, advertisements, and pop music, and scholarly literature ranging from philosophy to psychology, from marketing to history, and from sociology to communication—are emphases on ethics and critique. Objective scholarship does not moralize; in texts of hagiographic praise and vitriolic complaint, moralizing fails to convince. Solid humanistic argument finds the necessary middle ground by marshaling evidence, displaying judgment, and formulating an argument. If ecomusicology is distinguished from a more simplistic study of music and nature (Titon 2013, Allen 2011) by taking a more critical approach, one that is self-reflective and/or theoretical and/or analytical and/or political, then all the essays in this volume should be "critical." But in grouping a few in this section, these essays provide emphasis on a critical element that connects with ethics. The essays of this section do share an approach with ecocriticism, particularly as explored in Part IV (although those essays focus more on texts and works). Although these essays may not emphasize place as much as the other essays in this volume, they still rely on situating us: from Japan (Edwards), Washington, D.C. (Hui), and Mexico (Pedelty), to Australia and the United States (Stimeling) and higher education in the United Kingdom (Windsor).

Edwards draws on critical theory to situate ecomusicology in this tradition (and as a "consciously critical acoustic ecology" in a much longer and more diffuse vein of thought); he also provides a framework for future ecomusicological inquiry. Drawing on the Frankfurt School, posthumanism, and neo-materialism, as well as his own expertise in Japanese aural culture, Edwards ultimately proposes a hybrid approach for ecomusicology, one that is informed by modernist and post-modernist thinking. Essentially, Edwards encourages us both to listen to our constructed binary worlds of nature and culture and, here connecting to ethics, to critique that singular world using reason yet still allow it to be a world worth wanting and keeping. Edwards' essay is perhaps the most obviously "critical" in the sense of relying on that wide-ranging body of humanistic and social-science thinking from disciplines such as literary studies, sociology, and philosophy that has come to be known as critical theory. The critical theorist interrogates the institutions, modes of production, and ways of thought that allow a society to carry on. As if that challenge to understand complex human societies were not enough, the ecocritical tradition faces the further challenge of engaging with the intertwined effects of humans in nature—that is, with the environmental crises caused by and impacting all societies. Further reading on the nexus of critical theory, music, and environment can be found most notably in Ingram (2010). Edwards' essay connects with numerous other essays in this volume, especially Titon (whose ideas on relational ontology and epistemology are important for Edwards) and the essays by Ingram (whose method is informed by some of the same ecocritical theories and whose essay could have easily been in this section as well); by Ingram, Simonett, Titon, and

Von Glahn (who share an interest in place-based issues such as bioregionalism, dwelling, and topophilia); by Dawe (regarding materialism); by Drott (who is also interested in dissensus); and by Simonett and by Seeger (both of whom also critique Cartesian duality and engage with issues of ontology and epistemology). Historiographical concerns also come up in Allen (and in Sonevytsky and Ivakhiv). Along with Edwards, Windsor critiques the music-noise/sound binary (along with Hui and Titon). Edwards' essay addresses the nature-culture debate, as do Dawe, Feisst, Hui, Mark, Seeger, Simonett, Sonevytsky and Ivakhiv, and Windsor.

Windsor brings ecological psychology into dialogue with ecomusicology and he uses these ideas—together with some critical theory, as in Edwards—to critique our notions of the ubiquitous and fluid binaries of nature-culture and noise-music. In Windsor's analysis, the assumptions underlying these binaries collapse because our understandings of those neat categories rely on the same processes of perception and action. The upshot, for Windsor, is an argument that is applicable for many teacher-scholars: the incorporation of improvisation in music curricula, which could be a corrective to mediated experiences and processes of enculturation that create nature-culture and noise-music binaries. This suggestion for pedagogical reform is in line with claims for teaching made in Allen (2011), and it is an ethical deployment of ecomusicological scholarship. Further reading on the ecological psychology approach to music can be found in Borgo (2007), Clarke (2005), and Windsor and de Bézenac (2012); Windsor's ideas regarding improvisation and jazz can be productively read in dialogue with Ingram (2010, 217–231) and issues of genre discussed in Pedelty (2012). Windsor's essay connects and contrasts with numerous other essays in this volume; the idea of ecology deployed in ecological psychology is in dialogue with the essays by Boyle and Waterman (especially regarding performance analysis), by Simonett (regarding perception), as well as those by Guyette and Post and by Titon. Improvisation is of interest also to Boyle and Waterman and to Titon. Windsor's essay addresses the nature-culture debate, as do Dawe, Edwards, Feisst, Hui, Mark, Seeger, Simonett, and Sonevytsky and Ivakhiv; furthermore, Edwards and, to a different extent, Hui and Titon offer varied critiques of the related binary of music-noise/sound.

Hui offers a fascinating look at the use of transitcasting: background music akin to Muzak on public transportation. As a historian of science who engages extensively with environmental history, Hui takes a critical approach to the understanding of the nature-culture divide; for her, nature is culture, especially given the extensive documentation of how humans have understood nature in different ways in different places at different times. The transitcasting case from the post-war United States is a moment in the changing American understanding of nature between the nineteenth and twentieth centuries, when sound became an increasingly important way for humans to relate to the environment, especially as urban development diminished otherwise natural spaces. Captive listeners on buses demanded aural rights

akin to constitutional freedoms, and their complaints went all the way to the Supreme Court (although they were ultimately unsuccessful). Hui situates this case in the changing understandings of nature that, a few decades later, resulted in the rise of the field of environmental ethics, which sought to broaden philosophical inquiry to the non-human world. Such concerns with aural rights and ethics relate to humans' role as citizens who are part of a shared sound commons. Hui connects ecomusicology with environmental history and sound studies, areas in which most interesting further reading could take place: Coates (2005), Bijsterveld and Pinch (2011), Lanza (1994), and Sterne (1997). Elsewhere in this volume, Hui's essay connects especially well with Titon (whose discussion of Thoreau and concept of the sound commons are central for her) and with the essays by Allen, Guyette and Post, Simonett, and Titon (regarding soundscapes). Hui's essay addresses the nature-culture debate, as do Dawe, Edwards, Feisst, Mark, Seeger, Simonett, Sonevytsky and Ivakhiv, and Windsor. Hui's discussion of environmental ethics, especially her engagement with a number of central texts (Leopold 2001, White 1967, Hardin 1968), resonates also with Mark's essay.

Stimeling focuses on energy companies' television advertisements. Stimeling's critical approach is to show how music abets advertisements' other features in a fundamentally un-ethical way: through greenwashing, or the practice of making false, vague, misleading, or exaggerated claims about the environmental benefits of a company. The music of these advertisements helps craft pro-environmental rhetoric, despite the features of the product that are primarily environmentally un-friendly. Energy companies with problematic environmental histories used these campaigns as appeals to particular demographics in order claim a sort of environmental stewardship. In particular, these corporations aim to reposition themselves by using musical notions of "progress" and "modernization" and by appealing to audiences interested in minimalism and indie rock. Stimeling connects musicological work on such genres (Fink 2005, Hibbett 2005), with innovative work on musical multimedia (Cook 1998) and social theory and cultural history (Taylor 2012). To that eclectic musicological background, he draws on research from marketing, psychology (Griskevicius et al. 2010), and environmental communication (Plec and Pettenger 2012). In relation to this last field in particular, and in relation to the examination of popular music, Stimeling is in dialogue with Pedelty's essay. Hui uses advertisements (radio and print) as primary sources, although with different emphases and for different reasons; nevertheless, both Hui and Stimeling find problematic ethical issues with regard to music/sound and advertisements.

Pedelty considers the power of music, but not in the glib way (with apologies to William Congreve) that "music soothes the savage breast." Rather, Pedelty considers the power of music as environmental communication. He does so by considering two pieces by popular musicians from Mexico: Maná's "Cuando los ángeles lloran" (1995) and Belinda's "Gaia"

(2010), both of which have environmental themes that are, however, delivered and created in different contexts. The former involves political activism, while the latter is more superficial paean to the planet. In his critique, Pedelty finds ethical actions in Maná's arts activism. Belinda, on the other hand, is a more complex case: On the surface, "Gaia" belies her role as a pop star, but Pedelty finds the piece and her performing it praiseworthy in having had the courage to go against the grain and do it at all. Furthermore, ethical environmental communication is not just about the message sent or its rhetoric or the status of the messenger; ethical environmental communication is also to be judged by the receivers' contemplation of the message. Herein Pedelty's critique makes room for a negative evaluation of the pop medium (as an environmentally destructive and unsustainable global commodity), praise for the courage of the artist, admonishment regarding assumptions about the vacuousness of pop, and a lesson to be drawn from what others, in Mexico but also elsewhere, may make of the song. Both Maná and Belinda pave the way for other artists to invoke themes of sustainability, biodiversity, and environmental justice. While these artists are not the first to provide such lessons, Pedelty finds them unusual because of their sincerity and contexts in popular music. Pedelty's essay is productively read in conjunction with his ethnographically informed book on popular music and ecomusicology (Pedelty 2012), his upcoming book on environmentalist musicians, and related studies (Ingram 2008, Rosenthal 2006, Von Glan 2013). In this volume, Pedelty's context in Mexico dovetails with the other Latin American topical contributions of Simonet and Seeger. Pedelty is also in dialogue with the decidedly un-ethical environmental communication strategies that Stimeling analyzes. Pedelty, Mark, and Sonevytsky and Ivakhiv address issues of activism and environmental justice. Feisst and Von Glahn deal with the issues of feminism and environmentalism that intersect with Pedelty's discussion of Belinda (see also, to a lesser extent, Allen's essay). Pedelty along with Drott, Feisst, and Von Glahn are the only authors in this volume who consider at length musical works by identifiable composers. Finally, Pedelty exhibits a complementary use of ecology that relates to the environment and networks (and as communication) yet is distinct from the science of the essays by Boyle and Waterman and by Guyette and Post.

In sum, the essays in this section join together in explicit critique: in examining the assumptions of popular music, advertisements, the commons, noise, education, listening, and of course music, nature, and culture. Moreover, these five authors are not critical for the sake of intellectual titillation, although their methodological issues, stories, and case studies are indeed quite interesting on their own; nor are they critical merely in the sense of leveling a judgment, pro or contra. Rather, they marshal their criticism for an altogether larger purpose: ethics, an agenda they share most prominently with the essays of Part I. In doing so, together the essays of this section highlight the critical, ethical, and even applied directions of ecomusicology.

WORKS CITED

Allen, Aaron S. 2011. "Prospects and Problems for Ecomusicology in Confronting a Crisis of Culture." *Journal of the American Musicological Society* 64 (2): 414–24.

Bijsterveld, Karin, and Trevor Pinch, eds. 2011. *The Oxford Handbook of Sound Studies*. New York: Oxford University Press.

Borgo, David. 2007. "Free Jazz in the Classroom: An Ecological Approach to Music Education." *Jazz Perspectives* 1 (1): 61–88.

Clarke, Eric F. 2005. *Ways of Listening: An Ecological Approach to the Perception of Musical Meaning*. Oxford: Oxford University Press.

Coates, Peter A. 2005. "The Strange Stillness of the Past: Toward an Environmental History of Sound and Noise." *Environmental History* 10 (4): 636–65.

Cook, Nicholas. 1998. *Analysing Musical Multimedia*. Oxford: Clarendon Press.

Fink, Robert. 2005. *Repeating Ourselves: American Minimal Music as Cultural Practice*. Berkeley: University of California Press.

Griskevicius, Vladas, Joshua M. Tybur, and Bram Van den Bergh. 2010. "Going Green to Be Seen: Status, Reputation, and Conspicuous Conservation." *Journal of Personality and Social Psychology* 98 (3): 392–404.

Hardin, Garrett. 1968. "The Tragedy of the Commons." *Science* 162: 1243–1248.

Hibbett, Ryan. 2005. "What Is Indie Rock?" *Popular Music and Society* 28 (1): 55–77.

Ingram, David. 2008. "'My Dirty Stream': Pete Seeger, American Folk Music, and Environmental Protest." *Popular Music and Society* 31 (1): 21–36.

———. 2010. *The Jukebox in the Garden: Ecocriticism and American Popular Music Since 1960*. Amsterdam: Rodopi.

Lanza, Joseph. 1994. *Elevator Music: A Surreal History of Muzak, Easy-Listening, and Other Moodsong*. New York: St. Martin's Press.

Leopold, Aldo. 2001. *A Sand County Almanac*. New York: Oxford University Press. Original edition, 1949.

Pedelty, Mark. 2012. *Ecomusicology: Rock, Folk, and the Environment*. Philadelphia: Temple University Press.

Plec, Emily, and Mary Pettenger. 2012. "Greenwashing Consumption: The Didactic Framing of ExxonMobil's Energy Solutions" *Environmental Communication: A Journal of Nature and Culture* 6 (4): 459–476.

Rosenthal, Debra J. 2006. "'Hoods and the Woods: Rap Music as Environmental Literature." *Journal of Popular Culture* 39 (4): 661–676.

Sterne, Jonathan. 1997. "Sounds like the Mall of America: Programmed Music and the Architectonics of Commercial Space." *Ethnomusicology* 41 (1): 22–50.

Taylor, Timothy. 2012. *The Sounds of Capitalism: Advertising, Music, and the Conquest of Culture*. Chicago: University of Chicago Press.

Titon, Jeff Todd. 2013. "The Nature of Ecomusicology." *Música e Cultura* 8 (1): 8–18.

Von Glahn, Denise. 2013. *Music and the Skillful Listener: American Women Compose the Natural World*. Bloomington: Indiana University Press.

White, Lynn. 1967. "The Historical Roots of Our Ecologic Crisis." *Science* 155: 1203–1207.

Windsor, W. Luke, and Christophe de Bézenac. 2012. "Music and Affordances." *Musicae Scientiae* 16: 102–120.

11 Critical Theory in Ecomusicology

James Rhys Edwards

Critical theory is an endeavor born of crisis. In the historical materialist tradition, which emerged in response to nineteenth-century social crisis, the critical theorist begins by taking account of the material conditions and mode of production that enable society to reproduce itself. She then moves outward to interrogate both the institutions that preserve this mode of production and the cultural practices that dissemble its inequities. The contemporary ecocritical theorist faces an even more multilayered undertaking. Whereas historical materialism has long recognized social and ecological problems as intertwined effects of the "human metabolism with nature," we have only recently come to realize the complexity and enormity of the "epochal crisis" that we have set in motion (Foster 2000, 2013). Ecomusicology is critical reflection upon music and sound, set against the backdrop of this epochal environmental crisis. My aim is to situate ecomusicology within the broader critical theory tradition, which I trace from the Frankfurt School to neo-materialist social theory and contemporary Marxian political ecology. In this essay, I explore intersections between these fields and recent work in ecomusicology, and I propose a hybrid mode of critical listening informed by my own research into listening practices in early modern Japan.

A TOXIC ACOUSTEMOLOGY

In his landmark essay "Echo-Muse-Ecology," Feld coins the term "acoustic epistemology" or "acoustemology" (1994, 11). Feld gives a compelling new name to the very old idea that acoustic experience can serve as a "grand metaphor" for relations among humans and between humans and nature (12). We find variations on this idea in the classical Greek, Chinese, Japanese, and Javanese traditions, to name a few.[1] In Europe, the Pythagorean notion that music offers "privileged insight" into the natural order persisted well into the Renaissance, and early modern music criticism and theory never lacked for references to nature (Tomlinson 1994, Clark and Rehding 2001). The aroma of proximity to nature even followed music into the age of positivist science. In 1885, for example, Adler portrayed the relationship between

music making and the new science of *Musikwissenschaft* in quaintly pastoral terms: "The artist builds his temple in the grove […] The theoretician of art tills the earth" (1981, 16).

What distinguishes contemporary ecomusicology from traditional incarnations of acoustic-ecological thought is its consciously critical vocation (Allen 2011, 393). As Horkheimer observes, "traditional theory" starts from normative premises and directs attention outward; its aim is to add detail to a pregiven model of reality, addressing problems and tweaking hypotheses on a piecemeal basis (1972, 190). Critical theory, on the other hand, directs attention back toward the premises themselves (207). It is born of the realization that certain seemingly discrete problems can only be credibly addressed as interlinking effects of obscured structural contradictions. Which is to say: Critical theory is a response to the recognition of systemic crisis. Ecocritical theory recognizes that our current environmental crisis is the effect of harmful patterns of social action that have calcified over the centuries into pervasive traditions and institutions. In the long view, every aspect of daily life in the developed and developing world is complicit in this crisis.

Ecocriticism also inherits the old question of how awareness of systemic crisis should affect our interpretation of culture. Building on ecocritical theory, Allen follows this question toward disciplinary self-critique, asking whether dominant discourses on music "adapt us better to life on earth, or [if they] sometimes estrange us from life" (2011, 392). Adorno offers a characteristically grim answer: Since early modernity, European composers and theorists have striven "to seize all that sounds in a regulatory grasp and dissolve the magic of music in human reason" (2006, 52–53). This trend mirrors the society-wide rise of instrumental consciousness, which views things in the world as impediments or controllable expedients to the maximization of human self-interest. In its utopian incarnation, instrumental reason promises to negate nature's seemingly arbitrary limiting power and remake the world in its own image. Musical modernism embraces this technocratic project, promising "the emancipation of the human being from the constraint of nature in music" (53). History, of course, has proven these twinned promises to be fraudulent: the hegemony of instrumental reason has profoundly alienated us from both our world and ourselves, while subjugating us to institutions more dehumanizing and irrational than the natural law they purport to supplant (Horkheimer and Adorno 2002). Its acoustic legacy is a soundscape that is as "alienated, hostile, and dominating" as late modern society itself (Adorno 2006, 117).

Adorno, then, interprets musical modernism in diagnostic terms as a symptom of a particular social pathology: the metastasis of instrumental rationality. Symptomatic and allegorical readings of particular configurations of sound have become prevalent in extra-musicological sound studies (Attali 1985, Kahn 1999, Goodman 2010).[2] We also find resonances of Adorno in

some of Titon's recent thinking on ecomusicology. Titon argues that current writing on music and nature often remains bound to "the epistemology of scientific realism [... and] 'economic rationality'" (2013, 11). "Economic rationality" closely parallels the Frankfurt School conception of instrumental rationality.[3] We can synthesize scientism and instrumentality under the heading of "the logic of domination" (Marcuse 1964, 93). Titon hears the logic of domination run amok in postindustrial soundscapes, the market-optimized output of the global music industry, and even traditional musical practices that have been reimagined as monetizable cultural resources (2013, 17). He goes so far as to ask whether we can expect a culture founded in positivism and economic rationality to foster "music worth sustaining."

The implication here is that modern musical aesthetics and acoustic epistemology are themselves "toxic." (cf. Buell 1998). This toxicity, which threatens our ecological and sociocultural viability, congeals in our quasi-canonical definition of music as "humanly organized sound" (Blacking 1973, 32). This definition implies a straightforward subject-verb-object relation, in which a human agent acts upon sonic material. Dualism and instrumentality appear coded into its very syntactic structure. These features are problematic because they open an ontological rift between mind and material, culture and nature, humanity and the non-human world. As Evernden observes, "the presumption of dualism […] removes all *subjects* from nature. If subjectivity, willing, valuation, and meaning are securely lodged in the domain of humanity, the possibility of encountering anything more than material objects in nature is nil" (1992, 108).

FROM DOMINATION TO CO-PRESENCE

Following this line of argument to its extreme conclusion, one could argue that music, at least as commonly understood in the modern West, merely gives voice to the "logic of domination" (ironically, Blacking himself might agree). A compelling trend in contemporary social theory is to confront the logic of domination on an epistemological and ontological level. I am thinking here of the recent "material turn" in ecocriticism, which is less influenced by the historical materialist tradition than by advances in the history and philosophy of science (Iovino 2012, 450). Barad, who is a physicist as well as a cultural theorist, notes that the classical physical sciences presume an "inherent or Cartesian cut" between the observing subject and the observed object (2007, 320). In this view, objects are taken for ontologically distinct entities that can be known and schematized through a "geometric optics" of representation (135). Post-classical physical sciences (e.g., quantum mechanics), on the other hand, point toward a gradated image of reality in which "the primary ontological unit is not independent objects with inherent boundaries and properties but rather phenomena," or "relations without preexisting relata" (139). In Barad's post-classical framework, "empirical claims do

not refer to individually existing determinate entities, but to phenomena-in-their-becoming"—i.e., to "the world worlding itself" (2011, 148). This framework allows us to rethink basic relational concepts such as autonomy and heteronomy, contingency and causality, and linear development. It also unsettles anthropocentric conceptions of agency and mastery: "There is no outside of nature from which to act; there are only 'acts of nature' (including thinking and language use), which is not to reduce culture to nature [... but] to understand culture as something nature does" (150).

Although rooted in quantum theory, Barad's ideas are equally relevant to macroscopic phenomena. Following Barad, Iovino and Oppermann suggest thinking of the world as "a field of distributed agency" which humans share with a range of non-human actants: animals, forests, watersheds, corporations, infrastructure projects, treaties and international agreements, texts and works of art, etc. (2012, 451). Barad calls these actants "queer co-workers," emphasizing that humans do not act upon them so much as among them (2011, 126). The posthumanist concept of distributed agency equips us for late modern ecological realities in a way that classical epistemology does not—particularly when we face "hyperobjects" such as global warming and nuclear radiation, which are massively distributed byproducts of multigenerational social action that have slipped their bonds and initiated systemic cascade effects (Morton 2011, 80).

What might a posthumanist or neo-materialist (eco)musicology look like? Titon's consideration of Thoreau offers a preview by embracing a "relational ontology" exemplified by sound and the phenomenon of hearing (chapter 5). This portrayal of sound interfaces with Barad and Iovino's posthumanist critiques of dualism and representationalism. Whereas the geometric optics of representation presumes an ontological distinction between subject and object, the "resonance" of sound presumes co-presence and permeability (cf. Erlmann 2014). Borrowing from Pickering: If the former (representational) epistemology evokes "a dualist movement of human detachment from the world," the latter (relational) epistemology evokes "a constitutive engagement with it" (2008, 2). Listening discloses our potential to inhabit our own bodies not as ontologically discrete entities, but as instances of "the world worlding itself" (Barad 2011, 148). An ecomusicology attuned to this potential, according to Titon, opens onto a "holistic relational epistemology of interconnectedness, based in ecology and fundamentally different from that arising from scientific reductionism and economic rationality." The upshot of such an epistemology is no less than a "pathway to a more sustainable concept of nature, music, and the environment" (2013, 9).

OVERCOMING "OVERCOMING MODERNITY"

In addition to the history and philosophy of science, posthumanism and neo-materialism are intellectually indebted to Heidegger, who argues that

since early modernity, the artisanal logic of "bringing forth" has lost ground to an industrial logic of "setting-upon" (2007, 15; cf. Dolphijn and van der Tuin 2012). This has qualitatively altered the way we see the world:

> In the context of the interlocking processes pertaining to the orderly disposition of electrical energy, even the Rhine itself appears as something at our command. The hydroelectric plant is not built into the Rhine River as was the old wooden bridge that joined bank with bank for hundreds of years. Rather the river is dammed up into the power plant. What the river is now, namely, a water power supplier, derives from out of the essence of the power station. (Heidegger 2007, 16)

Heidegger calls this quintessentially modern mode of vision "enframing," which "demands that nature be orderable as standing-reserve" (23). The hydroelectric plant is an apt example, as it quite literally enframes the river. Applied to the world as a whole, the instrumental logic of enframing overturns the ontological preeminence of Being over beings. Forgetting that we ourselves dwell within the presence of the world, we demand that the world *present itself to us* as a standing-reserve "on call for a further ordering" (17).

I bring up Heidegger here because his idiosyncratic brand of anti-modernism is at once compelling and problematic. It is compelling in its poetic force and clarity of vision. It is problematic for the same reason, as it owes its vehemence largely to what Adorno calls "the jargon of authenticity"—talk of essences, origins, destinies, the primordial, and the unconcealed (1973). Of course, this talk is not unique to Heidegger. We construct "modernity" against images of the past; when modern ills confront us, we instinctively recall and reimagine the things we left behind. Our looking to the past need not be regressive, however, and ecomusicological theorists have provided some examples in this regard. Rehding argues that our "nostalgic imagination" can act as "an adaptation of the complex temporality of cultural memory […] whereby we remember the greatness of the past with an urgent ethical imperative to preserve and perpetuate it for future generations" (2011, 413). Similarly, Ingram links the concept of "radical nostalgia" to the ethos of topophilia—a sense of bioregional belonging that can help thwart the homogenizing drive of global capital (chapter 16). Rehding and Ingram, as well as Titon, inherit the Heideggerian (and posthumanist) insight that "detached observation" only captures a sliver of humanness; if we wish to check the excesses of instrumental reason, we must renounce the hubris of standing apart from Being and, instead, rediscover our co-presence within it.[4]

As we have seen, then, anti-modernist nostalgia need not necessarily lead to "apolitical passivity or right-wing quietism" (Curry 1998, 55; cited in Ingram chapter 16). This being said, it certainly *can* lead to these things. A topical example is modern Japanese discourse on cricket song. Since the Meiji period (1868–1912), cricket song has been used to index Japanese-Western cultural

difference. Nineteenth-century essayist Lafcadio Hearn, for example, lauds the Japanese practice of keeping "insect-musicians" as proof of "a popular and universal comprehension of things divined in the West, only by our rarest poets," and laments the possibility that "blind aggressive industrialism" might bring its end (1922, 63; cf. Lurie 2005). Praise for cricket song in Japan reappears—alongside diffuse anti-modern sentiment—in the ethnic-nationalist Romantic literature of the 1930s and 1940s. Watsuji Tetsurō's 1935 work *Climate: A Philosophical Study (Fūdo: Ningengakuteki kōsatsu)* makes the odd claim that the Western European climate is comparatively inhospitable to singing insects (1961). Similarly, Ōmachi Fumie's 1943 *Record of Japanese Insects* (*Nihon konchū ki*) declares that no other country in the world is "blessed to the degree that Japan is with insects endowed with a beautiful singing voice"; Ōmachi goes on to exalt the Japanese people for their "refined national character [inherited] from high antiquity down to the present day, with its deep fondness for these singing insects" (cited in Dale 1993).

Works such as these paved the way for the contemporary pop-academic genre of *Nihonjinron* or "theories of Japanese identity," which includes a number of works on music (Shepherd 1991). One example is physician Tsunoda Tadanobu's best-seller *The Japanese Brain* (*Nihonjin no nō*), which proposes that the Japanese process natural sounds such as insect song in the left brain alongside music and language, whereas Westerners process them in the right brain alongside mechanical noise (1978). Like his intellectual forebears, Tsunoda argues that there is an implicit connection between Japanese listening practices and "harmony with nature, the cultivation of emotion and the acceptance of irrationality" (1987, 105). Although his work made a momentary impact in Japanese musicology (garnering attention from influential scholars such as Kikkawa Eishi), recent empirical studies have cast Tsunoda's findings into doubt (Miyake et al. 2010).

Watsuji, Ōmachi, and Tsunoda offer valuable insight into the aesthetic dimension of eco-communitarianism and eco-nationalism, which are phenomena that crosscut the traditional Left-Right political spectrum (Clark 1997, Hannigan 2011). Imperial Japan provides an example. In 1942, leading nationalist intellectuals and artists convened in Tokyo for a much-hyped symposium on the subject of "Overcoming Modernity" (Calichman 2008).[5] One intriguing aspect of this conversation is its rhetorical resonance with contemporary ecocriticism. In both discourses, "we find on one side the forces of mechanization, power, domination, and division, and, on the other, the impulse toward organism, creativity, love, and unification" (Clark 1997, 7). We also find analogies between "'excluded, exploited, and oppressed' people and 'excluded, exploited, and oppressed' nature," which are paired with "charges of complicity" against cultural formations associated with the Eurocentric and anthropocentric status quo (Cilano and DeLourey 2007, 75). Finally, both discourses maintain that to overcome this status quo, we must reject Cartesian dualism and rediscover ourselves "in a state of *ex-sistere*," "already outside" in the world (Watsuji 1961, 4; cf. Clark 1997, 14).

Japanese leftists have long been well aware of the risk inherent in Romantic anti-modernism: As pre-war critical theorist Tosaka Jun observes, ceding univocal authority to premodern "nature" or "Being" often works to retrench "customs and institutions *given the appearance of naturalness by history*" (2001, 15). Following Habermas' critique of postmodernism, one could also argue that the imperative to "overcome modernity" enacts a performative contradiction (1990). This imperative attaches the name "modernity" to a particular set of concepts (such as subject/object dualism, critical distanciation, and instrumental rationality); it then exteriorizes this set of concepts as a quasi-object that the subjectivized collective must overcome through decidedly instrumental measures (such as the imposition of social sanctions). Which is to say: Translating the discourse into action requires violating its regulative ideas. This maneuver indulges the myth of radical identity, while tacitly trading on the pleasures of abjection and domination.

NEW AND OLD MATERIALISMS

My point here is not merely to divest particular acoustic epistemologies of their auras, but to unfold them as constellations of historically sited interests and desires. Because hearing can seem to collapse the distance between the subject and the environing world, it imparts a feeling of immanence that vision seeks to lack. As Scrimshaw notes, the "rhetoric of acoustic immanence" tends to privilege invocations of Being over inquiries into becoming, inviting a "transhistorical idealisation of mediums and senses" (2011). Like the concept of nature in general, this rhetoric can easily be drawn upon to graft aesthetic charisma and moral authority onto ideologies and practices irrespective of their historical provenance or substantive content (Daston and Vidal 2004). A salient example is Tsunoda's use (above) of what I might call acoustic eco-communitarian imagery to legitimize an ethnic-nationalist model of Japanese identity.

We can mitigate this risk by balancing neo-materialist speculative ontology with historical materialist attention to process and substructure. Again, Japanese cricket song provides an example. Although insect song has appeared in Japanese poetry for centuries, many of the listening practices fetishized today took shape during the Edo period (1603–1868). Edo period interest in insects was broad-based, and driven in part by pressing socioeconomic concerns. The seventeenth and eighteenth centuries saw crop shortages, which brought on famines and rice riots. Although historians attribute these crises largely to agronomics and demographics, at the time they were often blamed on insects (Walker 2007, 123). Edo period natural compendiums (*honzōsho*) meticulously catalogue the features of various insects—particularly those deemed harmful—and include transcriptions of insect noises (Kanō 2011, 30–48). Around the same time that insects emerged as objects of scientific knowledge, they emerged as objects of commercial

practice. We first find the "shrilling booth of the insect-seller" in historical records in the Kansai region in the late seventeenth century (Hearn 1922, 64; Kanō 2011, 64). By the late eighteenth century, Japanese entrepreneurs had begun breeding crickets in captivity. Cricket-sellers filled their increased demand for cages through subcontracting. Of course, more crickets and cages meant lower prices. Insect-sellers responded by attempting to monopolize insect breeding and sale. Although the monopoly was eventually broken up, the singing insect industry flourished well into the twentieth century (Kanō 2011, 74–78). Insect song also played into the Edo period boom in domestic travel. As interregional transportation infrastructure improved and travel took root in urban bourgeois culture, publishers churned out guides to various famous places (*meisho*). These included places famed for seasonal perceptual practices such as cherry blossom viewing, moon viewing, and listening to insect song (*mushikiki*) (52–63).

Examining this situation in Japan from a distance, we see typologically familiar processes at work. Wealth gradually shifts from a hereditary aristocracy to an urban merchant class, which adopts and modifies a formerly status-contingent high culture. Urbanization drives agricultural crises, new patterns of production and consumption, and new regulatory mechanisms. Natural phenomena are re-apprehended as objects of scientific knowledge, public policy, and commercial practice. Increased mobility and nostalgia for the pastoral incubate an urban bourgeois interest in nature tourism, which the state facilitates by cutting across nature with roads. These are all textbook symptoms of the global process of modernization, here as articulated in Japan. Following singing insects through the *longue durée* of Japanese early modernity makes for a rather austere complement to Hearn's Romantic characterization of the Japanese as "a people in whose mind the simple chant of a cricket can awaken whole fairy-swarms of tender and delicate fancies" (1905, 63). Instead of hearing "the simple chant of a cricket," we begin to hear a historically dynamic web of "metabolic relations" linking insects and humankind (Foster 2000). Its vibrations tell of the rise of economic reason.

This being said—and here I would like to emphasize my proposed hybrid mode of critical listening—there is no reason why these different modes of acoustic experience cannot be held in tension. Consider Ricoeur's critical hermeneutic exposition of representation (1977). We are used to thinking of representation or *mimesis* as the reproduction of sensory objects in the theater of the imagination. The aesthetic imagination, however, is not merely reproductive but productive. Its productive capacity emerges in "poetic transposition," the reconfiguration of ideas and affective states as symbols (1977, 154; cited in Savage 2006, 128). Poetic transposition invites the imagination to break with reality by "holding two moments in equilibrium: suspending the reference of ordinary language and releasing a second-order reference, which is another name for […] the world opened up by the work" (2007, 300). Nothing prevents us from applying this concept of aesthetic suspension, or *epoché*, to an acoustic event or a distinct space

of acoustic experience as readily as to a linguistic or musical text (Revill 2013). The unique political significance of aesthetic experience is inherent in this *epoché*, which Rancière calls "dissensus": the simultaneous staging of "two regimes of sense, two sensory worlds" (2008, 4).[6] By affecting a "redistribution of the sensible," dissensus invites a potentially revolutionary "recomposition of the relationship between doing, making, being, seeing, and saying" (2011, 45).

For a final example I turn again to Japan. In 1996, the Ministry of the Environment inaugurated a unique project called "100 Soundscapes of Japan" (*Nihon no oto-fūkei 100-sen*). Its mission was to act as "a kind of trigger for others to become aware of the many aspects of their own surrounding soundscapes" (Torigoe 2005, 9).[7] Of the soundscapes selected for inscription, around half feature consummately "natural" sounds such as birds, insects, frogs, flowing water, grinding icecaps, and ocean waves. Others feature "sounds of everyday life" such as bells, festival music, and street chatter. Twelve are listed as "complex environments," such as the intermixed sounds of crickets and a time-bell at Hikone Castle in Shiga Prefecture. Emphasizing such complex acoustic environments provokes curiosity about the changing social structural conditions that enable particular distributions of the sensible to take shape. However, far from degrading our experience of co-presence in the given soundscape, the movement of consciousness from immersion to critical distanciation and back again augments the historical texture of this experience. To paraphrase Titon, this dialectical approach to listening enables us to construct a world of nature and culture that is available to reasoned critique, yet ultimately still worth wanting and still worth keeping.

NOTES

1. These are examples that I am familiar with; my guess is that there are many others (Indian, Arabic, etc.). On China, see Cook (1995). On Japan, start with Harich-Schneider (1973) and Kikkawa (1980, 1984). On Java, see Becker and Feinstein (1999).
2. Take, for example, Kahn's symptomatic/allegorical interpretation of the use of water in sound art: "Since the 1960s, innumerable artists have combined sound, fluidity, and water in every way imaginable, and they have done so concurrently with the rise of environmentalism, which politicized the naturalism and poetics of materiality. [...] However, there is nothing intrinsically positive about the flows and dissolutions of the 1950s, for it could apply just as well to the increased flows of information and military communications, the pumping of petroleum economies, the profusive exchange of commodity culture, among other systems" (1999, 288).
3. "Economic rationality" is a term borrowed from post-Marxian theorist André Gorz. For Gorz, economic rationality comprises the imperative to grasp the environing world as a constellation of raw materials—i.e., potential factors of

production—and "to economize, that is, to use [these] factors of production as efficiently as possible" (1989, 2–3). Echoing Horkheimer and Adorno, Gorz argues that this manifestation of reason is well suited to the task of calculating efficient means to determinate ends, but not to the task of evaluating what ends should be pursued (1994, 7; cf. Horkheimer 1972, 200–201).

4. See also Drott (chapter 17), Von Glahn (chapter 19), and Windsor (chapter 12).
5. The question of music arose at the symposium. Composer Moroi Saburō opined that "Modern music forms one wing of modern Western culture, and while it possesses its own particularity as music, its basic character is the same as modern culture in general"—i.e., in Kawakami's words, the character of "torturing nature so that it reveals its secrets" (Calichman 2008, 64; 165).
6. For more on dissensus in an ecomusicological context, see Drott (chapter 17).
7. See the online supplement (http://www.ecomusicology.info/cde).

WORKS CITED

Adorno, Theodor. 1973. *The Jargon of Authenticity*. Edited and translated by Knut Tarnowski and Frederic Will. Evanston: Northwestern University Press.

———. 2006. *Philosophy of New Music*. Edited and translated by Robert Hullot-Kentor. Minneapolis: University of Minnesota Press.

Allen, Aaron S. 2011. "Ecomusicology: Ecocriticism and Musicology." *Journal of the American Musicological Society* 64 (2): 391–394.

Attali, Jacques. 1985. *Noise: The Political Economy of Music*. Minneapolis: University of Minnesota Press.

Barad, Karen. 2007. *Meeting the Universe Halfway: Quantum Physics and the Entanglement of Matter and Meaning*. Durham: Duke University Press.

———. 2011. "Nature's Queer Performativity." *Qui Parle: Critical Humanities and Social Sciences* 19 (2): 121–158.

Becker, Judith, and Alan H. Feinstein. 1999. *Karawitan: Source Readings in Javanese Gamelan and Vocal Music*. Ann Arbor: University of Michigan Press.

Blacking, John. 1973. *How Musical is Man?* Seattle: University of Washington Press.

Buell, Lawrence. 1998. "Toxic Discourse." *Critical Inquiry* 24 (3): 639–665.

Calichman, Richard, ed. 2008. *Overcoming Modernity: Cultural Identity in Wartime Japan*. New York: Columbia University Press.

Clark, John. 1997. "A Social Ecology." *Capitalism Nature Socialism* 8 (3): 3–33.

Clark, Suzannah, and Alexander Rehding, eds. 2001. *Music Theory and Natural Order from the Renaissance to the Early Twentieth Century*. Cambridge: Cambridge University Press.

Cook, Scott. 1995. "'Yue Ji' – Record of Music: Introduction, Translation, Notes, and Commentary." *Asian Music* 26 (2): 1–96.

Curry, Patrick. 1998. *Defending Middle-Earth: Tolkein: Myth and Modernity*. London: Harper Collins.

Dale, Peter. 1993. "The Voice of the Cicadas: Linguistic Uniqueness, Tsunoda Tadanobu's Theory of the Japanese Brain and Some Classical Perspectives." *Electric Antiquity: Communicating the Classics* 1 (6). Accessed August 10, 2014. http://scholar.lib.vt.edu/ejournals/ElAnt/V1N6/dale.

Daston, Lorraine, and Fernando Vidal, eds. 2004. *The Moral Authority of Nature*. Chicago: University of Chicago Press.

Dolphijn, Rick, and Iris van der Tuin. 2012. *New Materialism: Interviews and Cartographies*. Ann Arbor: Open Humanities Press.

Erlmann, Veit. 2014. *Reason and Resonance: A History of Modern Aurality*. New York: Zone Books.

Evernden, Neil. 1992. *The Social Construction of Nature*. Baltimore: The Johns Hopkins University Press.

Feld, Steven. 1994. "From Ethnomusicology to Echo-muse-ecology: Reading R. Murray Schafer in the Papua New Guinea Rainforest." *Soundscape Newsletter* 8: 9–13.

Foster, John Bellamy. 2000. *Marx's Ecology: Materialism and Nature*. New York: Monthly Review Books.

———. 2013. "The Epochal Crisis." *Monthly Review* 65 (5). Accessed October 25, 2014. http://monthlyreview.org/2013/10/01/epochal-crisis/.

Goodman, Steve. 2010. *Sonic Warfare: Sound, Affect, and the Ecology of Fear*. Cambridge: The MIT Press.

Gorz, André. 1989. *Critique of Economic Reason*. London: Verso.

Habermas, Jurgen. 1990. *Moral Consciousness and Communicative Action*. Cambridge: The MIT Press.

Hannigan, John. 2011. "Implacable Foes or Strange Bedfellows? The Promise and Pitfalls of Eco-Nationalism in a Globalized World." In *Against Orthodoxy: Studies in Nationalism*, edited by Trevor W. Harrison and Slobodan Drakulic, 314–332. Vancouver: University of British Columbia Press.

Harvey, David. 2001. *Spaces of Capital: Towards a Critical Geography*. New York: Routledge.

Harich-Schneider, Eta. 1973. *A History of Japanese Music*. London: Oxford University Press.

Hearn, Lafcadio. 1922. *The Writings of Lafcadio Hearn, Vol. IX*. Boston: Houghton Mifflin Company.

Hegel, G.W.F. 1991. *Elements of the Philosophy of Right*. Cambridge: Cambridge University Press.

Heidegger, Martin. 1977. *The Question Concerning Technology and Other Essays*. London: Garland Publishing, Inc.

Horkheimer, Max. 1972. *Critical Theory: Selected Essays*. New York: Continuum.

Horkheimer, Max, and Theodor Adorno. 2002. *Dialectic of Enlightenment*. Stanford: Stanford University Press.

Iovino, Serenella, and Serpil Oppermann. 2012. "Theorizing Material Ecocriticism: A Diptych." *Interdisciplinary Studies in Literature and Environment* 19 (3): 448–475.

Kahn, Douglas. 1999. *Noise, Water, Meat: A History of Sound in the Arts*. Cambridge: The MIT Press.

Kanō Yasutsugu. 2011. *Naku mushi bunkashi: Mushikiki, meisho to mushiuri*. Tokyo: HSK.

Kikkawa Eishi. 1984. *Nihon ongaku no biteki kenkyū*. Tokyo: Ongaku no Tomosha.

Lurie, David B. 2005. "Orientomology: The Insect Literature of Lafcadio Hearn (1850–1904)." In *JAPANimals: History and Culture in Japan's Animal Life*, edited by Gregory M. Pflugfelder and Brett L. Walker, 245–270. Ann Arbor: The University of Michigan Center for Japanese Studies.

Marcuse, Herbert. 1964. *One-Dimensional Man*. Boston: Beacon Press.
Morton, Timothy. 2011. "Zero Landscapes in the Time of Hyperobjects." *Graz Architektur Magazine* 7: 79–87.
Miyake et al. 2010. "Naku mushi go-shū ni tai suru Nihonjin to gaikokujin he no 'suki' 'kirai' chōsa: 2009-nendō yōsen chōsa kekka." *Kobe College Studies* 57 (1): 125–131.
Mugglestone, Erica, and Guido Adler. 1981. "Guido Adler's 'The Scope, Method, and Aim of Musicology' (1885): An English Translation with an Historico-Analytical Commentary." *Yearbook for Traditional Music* 13: 1–21.
Pickering, Andrew, and Keith Guzik, eds. 2008. *The Mangle in Practice: Science, Society, and Becoming*. Durham: Duke University Press.
Rancière, Jacques. 2008. "Aesthetic Separation, Aesthetic Community: Scenes from the Aesthetic Regime of Art." *Art & Research* 2 (1): 1–15.
———. 2011. *The Politics of Aesthetics: The Distribution of the Sensible*. London: Continuum.
Rehding, Alexander. 2011. "Ecomusicology between Apocalypse and Nostalgia." *Journal of the American Musicological Society* 64 (2): 409–414.
Revill, George. 2013. "Points of Departure: Listening to Rhythm in the Sonoric Spaces of the Railway Station." *Sociological Review Monograph* 61: 51–68.
Ricoeur, Paul. 1977. *The Rule of Metaphor*. Toronto: University of Toronto Press.
———. 2007. *From Text to Action: Essays in Hermeneutics II*. Evanston: Northwestern University Press.
Savage, Roger W.H. 2006. "Is Music Mimetic? Ricoeur and the Limits of Narrative." *Journal of French Philosophy* 16 (1–2): 121–133.
Scrimshaw, Will. 2011. "Auditory Immanence and Affective Intensity." Accessed September 5, 2014. http://willschrimshaw.net/subtractions/auditory-immanence-and-affective-intensity/.
Shepherd, Gregory. 1991. "'*Nihonjinron*:' Challenge to Academia." *International Review of the Aesthetics and Sociology of Music* 22 (2): 187–92.
Titon, Jeff Todd. 2013. "The Nature of Ecomusicology." *Música e Cultura* 8 (1): 8–18.
Tomlinson, Gary. 1994. *Music in Renaissance Magic: Toward a Historiography of Others*. Chicago: University of Chicago Press.
Tosaka Jun. 2001. *Shisō to fūzoku*. Tokyo: Heibonsha. Original edition, 1936.
Torigoe Keiko. 2005. "Insights Taken from Three Visited Soundscapes in Japan." *Soundscape* 6 (2): 9–12.
Tsunoda Tadanobu. 1987. "The Difference in the Cerebral Processing Mechanism for Musical Sounds Between Japanese and non-Japanese and its Relation to Mother Tongue." *Contemporary Music Review* 1 (2): 95–117.
Tsunoda Tadanobu. 1978. *Nihonjin no nō*. Tokyo: Taishukan.
Walker, Brett L. 2007. "Sanemori's Revenge: Insects, Eco-System Accidents, and Policy Decisions in Japan's Environmental History." *The Journal of Policy History* 19 (1): 113–144.
Watsuji Tetsurō. 1961. *Climate: A Philosophical Study*. Tokyo: Japanese Government Printing Bureau. Original edition, 1935.

12 Nature and Culture, Noise and Music

Perception and Action

W. Luke Windsor

This brief essay has three goals: 1) to introduce some ideas from ecological psychology into ecomusicology; 2) to use these to expose and critique assumptions we may have about the distinctions to be made between nature and culture, noise and music; and 3) to apply this ecological thinking to how we teach music, particularly in higher education.

A number of writers and musicians have helped highlight and critique the sharp distinctions between music and noise made in folk and academic aesthetics, or to show how such distinctions rest upon and indeed mirror wider sociological issues (Cage 1961, Schaeffer 1966, Shafer 1977, Attali 1985, Truax 2001). The idea of noise and its relationship to music have been brought to the forefront of writing on music (Hegarty 2007). I aim to critique this opposition by exploring how artistic and everyday modes of perception and action rest upon identical processes of sensitivity to information, thus questioning our assumptions about culture and nature as objects of study (Windsor 2004, Windsor and de Bézenac 2012). This *ecological* approach to music (Clarke 2005, Reybrouck 2005) embeds musicology within a semiotics bounded by the physicality of action and perception, and it provides a neat counterpoint to the relativism that Cook finds troubling (Cook 2000, Dibben and Windsor 2001).

IN THE BEGINNING WAS THE NOISE

Thoreau (1961) expressed puzzlement at the way most writers on music of his time begin their accounts with musical history rather than the sounds of nature (see also Titon chapter 5).[1] The re-grounding of musical study in the sounds of the world can take many forms. One version of this rewriting of musical "history" comes from Troup, who claims that in order to have meaning, music refers to its source in nature not just to the domain of culture; moreover, natural and cultural influences on musical experience are in constant dialogue (1971, 5). Since then, many psychologists have explored evidence for a pre-musical, pre-linguistic source of later communicative sophistication (Dissayanake 2000), even pushing this back to pre-natal experience (Parncutt 2009). For Troup nature was not just inhabited by humanity.

The cry of the baby, the sounds of the body are *part* of nature and become culture through their repetition and supplementation by the technologies of instrumentation, notation, and recording. Yet at the same time as nature and culture seem to collapse into one another, they remain in tension.

Many other contributions to this volume find different and complementary perspectives on the nature-culture binary. Edwards (chapter 11), in common with the view I present below, finds problematic the collapse of the dialectic between nature and culture (noise and music) that Troup implies, and Edwards reminds us of the need and potential within this binary for *critique*. Similarly, and more specifically, Hui writes of the contingency of the boundary between noise and music, how legal and behavioral responses to canned music illustrate the individual and collective ways we engage or not with sound (chapter 13). Most pertinently, though, both Boyle and Waterman (chapter 2) and Guyette and Post (chapter 3) relate to my attempt to provide an interface between what might be thought of as the science of ecology and its (ethno)musicological counterpart. Unlike them, however my theoretical and empirical sources are drawn from the field of ecological psychology and, to a lesser extent, critical theory. Before returning to the aesthetic and pedagogical consequences of interrogating the boundary between noise and music therefore, I will provide a very brief overview of the relevant contribution of ecological psychology to the study of music.

ECOLOGICAL PSYCHOLOGY AND MUSIC

Two psychological traditions underpin the ideas in this essay, both in different ways representing attempts by psychologists to study our perceptions and actions within the context of the environment. Both are far from mainstream and rest upon what has been termed the "radical empiricism" of William James (Heft 2001): 1) the eco-behavioral science associated most often with the work of Barker (1968, 1978), and 2) the ecological psychology associated most strongly with Gibson (1966, 1979). Both of these traditions, unlike the more dominant approaches of cognitive psychology, seek to study human behavior in relation to the environments in which it occurs—locating the processes that determine our behavior not in the mind but in the interactions between organism and environment.

Gibson's ecological psychology has been applied to music by a number of scholars, most notably Clarke (2005). Such work highlights the richness of the information furnished by objects and events in the environment and how these inform our perceptions. The idea that much of perception is "direct" and unmediated by social or cultural cognition is Gibson's most crucial (and most criticized) contribution to psychology. Others have attempted to study this empirically (Dibben 2001), discovering that some aspects of musical perception, and not just lower order properties such as timbre and texture, rely on direct rather than mediated perception. Gibson's

theory of perception became increasingly relational as it developed: In order to explain how different organisms would perceive the same object or event to have different properties he proposed that we perceive "affordances," or possibilities for action (1979). While these ideas have not been extensively applied to music, they nonetheless help us to understand how the possibilities for action offered by instruments interact with our developing bodies to constrain and guide music-making (Windsor and de Bezenac 2012).

The potential of Barker's work to inform musicology is ripe (although it is discussed only briefly in Windsor and de Bezenac 2012): His approach was not just to study human behavior in the environments in which it occurs—such as schools or even whole towns (Barker 1968, 1978)—but rather was an attempt to quantify the extent to which these environments determine behavior. Applied to musical improvisation, for example, such an approach seeks to define "behavior settings" (features of an environment that constrain and stimulate behavior, Heft 2001) and to show how these constrain and indeed stimulate the choices that musicians make (Burland and Windsor 2014). This approach is closest in method and outlook to Boyle and Waterman (chapter 2), and below I show how Barker's eco-behavioral approach, as developed by Heft (2001), provides a complementary theoretical approach.

MUSICAL SETTINGS AND BEHAVIORS

From an ecological perspective, an understanding of music on an individual level results from studying the relationships between behaviors we judge to be musical and the settings in which they occur. A behavior setting is not just a physical environment, although physical properties of the environment are indeed relevant. It includes all the sources of information that constrain or afford behavior. Heft (2001, 292–294) divides these sources into three aspects of the setting: sociocultural practices, topographical features, and climatological properties. Information about *sociocultural practices* is available from the following: other musical actors and their movements (whether sounding or not), audience members, objects and tools (instruments and associated technology), and instructions such as notated music. The *topographical features* of a behavior setting might include the absence or presence of raked seating, a stage, or a bar. *Climatological features* might seem less pertinent, but the temperature or lighting of a space can significantly impinge on the course of a musical performance.

Rather than describe a real performance here in these terms (the subject of Burland and Windsor 2004), it is instead helpful to consider a briefer example before returning to issues of nature and culture, and hence noise and music. Consider the behavior setting of a wedding: Here the performers work in a mutual relationship by attempting to optimize the fit between their own musical choices and those of their employers and the guests. This

might extend from repertoire to tempo: Some of the information they use is available immediately (requests, failure to dance), some more distantly influential (some musicians would never play in a wedding band). The band might not be able to see the guests, due to poor lighting, and might find themselves unable to use all of their equipment due to cramped conditions. The crucial point here is that such environmental constraints are the factors that distinguish one performance from another (as in sport) and that provide the context for creativity:

> It is the existence of these constraints that create opportunities for invention and creativity. No two baseball games are identical. Throughout the unfolding of each game, the participants are presented with problems to address and ways available within the rules for addressing them. (Heft 2001, 256)

NATURE-CULTURE; EVERYDAY AND MUSICAL

So, if ecological psychology helps us to locate and understand musical behaviors as an interaction between organism and environment, might it also help us to understand what is *musical* about music and how it differs from noise? Gibson's writing on aesthetic perception is understandably weak given his focus on affordances of objects and events. He characterizes artistic perception as attention to "information as such" (Gibson 1966, 255), as opposed to attention to information that informs action (attention to *affordances,* see Gibson 1977, 1979). For Gibson, perception is an active process of gathering information to guide action, and paying attention to the sensory qualities of objects and events is regarded as unnecessary, even somewhat luxurious. Such a position on art is congruent with a tension between everyday and aesthetic perceptions that is a common assumption in academic aesthetics; it is also an assumption used in folk aesthetics to dismiss art that plays with this tension (such as in the works of Marcel Duchamp or John Cage). Within this view, music is differentiated from noise by the intention of the perceiver, not by the interactions between perceiver and perceived: Gaver (1993a, 1993b) contrasts *everyday* listening (a mode of listening in which we attend to the potential functions of sounds) with attention to sensory qualities of frequency and time or even to higher order constructs such as timbre or tonality. The idea that we listen either musically or with everyday ears is more advanced than a position that objectifies distinctions between music and noise, but that idea does not capture the subtle dialectic between the natural and cultural dimensions of a musical sound. Adorno (leaving aside his assertions about "second nature") captures this tension most wonderfully in the dialectic of mimesis and rationality: Musical sounds come from objects (instruments) and events (playing actions) but are organized in ways that signal the rationality of musicians (Adorno 1984).

In psychological terms, when we hear music we attend not only to information about the physical sources of sounds but also to information about the human agency that structures them.

Consider the difference between theories of noise that rest upon intentional framing and those that rest upon a more ecological approach; this difference is highlighted when one considers music that is constructed from everyday sounds. Schaeffer (1966), in his attempts to formalize *musique concrète*, proposed a way of listening that bracketed off the sources and significance of sounds from their consideration as sonic objects. In other words, he proposed a reduced listening that, for composers at least, was intended to distinguish *musique concrète* from a more generalized art of noises. Schaeffer investigated three further modes of listening (symbolic, indexical, and attentional aspects of sound) in great detail in his theoretical writing, but he ultimately proposed that composers should attempt to dislocate sound from reference, thereby mimicking the abstract aspirations of conventional instrumental and vocal music. The notion of a purely acousmatic music, in which the sources of sound are hidden by the loudspeaker, rests upon the active application of phenomenological bracketing: We can try to ignore the sources of sounds, but the sounds retain information about their sources (Windsor 2000). Moreover, even in such supposedly disembodied music, the compositional gestures that create music, and the behavior settings in which these gestures play out, are crucial to our perceptions (Windsor 2011, 2013).

In conventional vocal and instrumental music, the recording process thus serves at the same time to distort, conceal, and attract attention regarding the perceived origins of sounds. Our knowledge that recorded sounds originate in places and are produced by people is crucial to our perception that they are meaningful. Even in extreme examples in which we may misattribute such origins, and even when led to do so by skillful musicianship (such as in the work of John Oswald), our perceptual systems hunt for information that resolves uncertainty (Gibson 1979), whether we like it or not. Music, therefore, is not a polar opposite of noise, nor is it simply the result of a Cageian intentional reframing of noise *as* music. Such phenomenological trickery is just that: The sounds of my body are *potentially* musical, and my response to them depends upon the behavior setting within which they are heard (such as the infamous anechoic chamber, or even just my having read about it in Cage 1961).

MUSIC EDUCATION—SONIC EDUCATION

How might this conceptual reframing—that is, of noise and music as outcomes of interactions with the environment—influence our thoughts on music education? At the start of my studies at City University, the first lecture I attended was delivered by Malcolm Troup. He began with the recorded sound of a baby crying, which was for Troup the origin of music,

a proto-musical utterance. My first assignment was to adopt the persona of a "phononaut": to record environmental sound and present it to the group with a narrative. My first piece of assessed work was to write about the boundaries between noise and music.

The curriculum I followed in the 1980s was split into two halves: music in nature (acoustics, psychology, recording, etc.) and music in culture (ethnomusicology, music history, performance, composition, etc.). Troup's intention was to revisit the origins of musical culture in natural processes. Our first musicological course was an introduction to the different ways in which musical cultures had responded to their environments. Although this course was part of the "cultural" portion of the curriculum, many of the topics we studied highlighted the problem with this binary: the baby's cry was presented not just as proto-musical natural sound, but also as the biological basis for our cultural obsession with musical communication. The entire curriculum reflected Troup's belief that music was a polyvalent activity that overlaid cultural and technical constraints upon a set of ever-present biological and pre-conscious imperatives.

This is not the way most students at universities learn about music, although such an approach might conform to national benchmarks in the United Kingdom (see HEFCE 2008). Most university music courses assume that music is a cultural phenomenon and train students to develop skills and knowledge that conform to or challenge cultural norms. Even at City University, with a curriculum designed to foreground music's situated nature, most study was focused around historical or geographical loci, and there was little explicit work to integrate knowledge synoptically. Students tended to focus on practical needs (such as the desire to acquire technical skills in performance or sound recording) or to choose options based upon the personalities of teachers. The continuity between music in culture and in nature was often lost very quickly as individual students found their own learning pathways. In many ways this is unproblematic, as long as such pathways are taken in an informed and independent manner. However, more often than not such narrowings of focus were the result of tastes developed during pre-primary, primary, and secondary education. The intention of that first lecture was to challenge such tastes, although it probably served to alienate as much as it stimulated.

How then might one better achieve an advanced musical education that better represents an ecological approach to making and listening to sounds? The key might come from the writings of Reed (1996), who draws on the work of Gibson as well as Dewey. Dewey's insistence that education should be based in experience is often associated with the world of early education, but he saw its value at all stages of development:

> The amount of external freedom which is needed varies from individual to individual. It naturally tends to decrease with increasing maturity, though its complete absence prevents even a mature individual

> from having the contacts which will provide him with new materials upon which his intelligence may exercise itself. *The amount and quality of this kind of free activity as a means of growth is a problem that must engage the thought of the educator at every stage of development*. (Dewey 1938, 63, italics added)

Reed takes this further by placing the importance of first-hand, direct perception and action in the context of an increasingly mediated world:

> Any skill, from driving a car to playing an instrument to painting or acting, requires the ability to master one's experience. […] Clear, careful thinking begins with the ability to evaluate experience, to make distinctions, identify causes, and watch for patterns and trends. Moreover, doing any of these things well requires considerable time, effort and opportunity. In sum, it is not too much to say almost everything that makes life worth living begins in experience and grows with it. (Reed 1996, 159)

Such an insistence upon naïve engagement with sound and sound-making seems at odds with tertiary education: One might normally expect that university students are beyond such direct engagement with the sounding world, and that they should be concerned with abstract, conceptual engagement with music. The dominant idea is that a musical education—whether in performance, composition or listening—becomes increasingly abstract as one develops. For example, the Piagetian approach of Swanwick (1988) stresses the developmental journey toward meta-cognitive, critical thinking that accompanies maturation and the need for educators to match their interventions to such development. Swanwick and Tillman's (1986) empirical work suggested that as we develop we engage with sound in increasingly meta-cognitive, instrumentally sophisticated, and abstract ways.

However, even Swanwick (1988) acknowledges the need for direct and unmediated contact with the new in education at higher levels, although he arguably underplays the role of musical education in stunting (as well as developing) such opportunities and sensitivities. Swanwick (1988, 81–82) recounts and analyses the experience of a 17-year-old, exposed for the first time to Indian classical music; even for this sophisticated listener the developmental spiral from "sensory" to "evaluative" is recapitulated during the course of a performance. It is nevertheless unclear that conventional musical education prepares young people to refresh their sensitivities; a paradigmatic study by Pollard-Gott (1983) is but one example of empirical research that shows how musical training narrows and focuses our attention to sound in ways that may be difficult to redress (but see also Krumhansl 1979). Of course, it would be surprising if musical training did not narrow and constrain the cultural boundaries of music in a given setting, but at the level of tertiary education there is still a need to challenge and refresh our

engagement with sound, whether as a listener or music maker. Otherwise it is hard to see how such education can go beyond the "mosaic" that Nettl identifies in order to become more of a "melting pot" where musics interact and develop through individual moments of unmediated contact (Nettl 1995, 82–111).

But how should such a direct relationship with sound be recovered in young adults? Enculturation is only partly a result of explicit instruction; much of our development of musical sensitivity is implicit and tacit (Pollard-Gott 1983). One method advocated in tertiary education is that of the eclectic and challenging curriculum, as exemplified by Troup (see above), which does not start with conventional musical history. But such conscious engagement may do little to overlay the perceptual biases developed through engagement with a particular musical environment prior to tertiary education.

One alternative to a didactic approach is engagement with so-called "free" (and often collective) improvisation in higher education (Clarke 1992, Ford 1995, Lewis 2000). Clarke sees in improvisation:

> The potential to act as a very powerful tool in musical development for a number of different reasons. First, it adds an active, procedural approach towards musical understanding to the potentially arid academicism of some kinds of traditional musicology. Second it encourages an active and questioning approach to musical performance, in contrast to the excesses of the conservatoire approach too concerned with technical excellence. Third, it brings together the skills of performing, listening and creating in contrast to the "deep division of labour" that exists within the culture of Western classical music. (Clarke 1992, 797)

Improvisation—or at least the non-idiomatic variety with which these authors engage (a broader vision for improvisation education is Lewis 2000)—is an opportunity to refresh our direct engagement with the objects, events, and settings of music. Instruments can be re-explored or visited for the first time in order to discover new affordances (Windsor and de Bézenac 2012); forms can be allowed to emerge from individual interactions (Borgo 2005, 2007); and spaces can be allowed once more to stimulate exploration and investigation of locations through active listening (Blesser and Salter 2007).

In conclusion I would like to suggest that a musical education should engage and re-engage with the boundary between musical and everyday listening and activity, and it should actively challenge students through tasks that provide opportunities to experience directly the sonic dimensions of events, objects, and spaces. In this way, musical education regains an active role in the arts and humanities, one that is not content to work within traditions. This is not to say that traditions are unimportant: They are important constraints and thus triggers for creativity, constituting the sociocultural practices that bound artistic practice. Nonetheless, it is through challenging

such practices that education becomes more than instruction. To adapt Reed (1996, 163): "The meaning of our lives will be found only when we make the effort to [*listen*] for ourselves." If one adds to this the link between such purposeful looking and listening (and touching) and the actions that result, and indeed the mutual relationships that pertain between action and perception—all of which can help higher education students understand the boundaries between culture and nature—then my call here is for active engagement within the world, not passive and mediate instruction about it.

NOTE

1. In his journal entry for March 8, 1842, Thoreau wrote, "Most lecturers preface their discourses on music with a history of music, but [they might] as well introduce an essay on virtue with a history of virtue. As if the possible combinations of sound, the last wind that sighed, or melody that waked the wood, had any history other than a perceptive ear might hear in the least and latest sound of nature!"

WORKS CITED

Adorno, Theodor W. 1984. *Aesthetic Theory*. London: Routledge and Kegan Paul.

Attali, Jacques. 1985. *Noise: The Political Economy of Music*. Minneapolis: University of Minnesota Press.

Barker, Roger G. 1968. *Ecological Psychology: Concepts and Methods for Studying the Environment of Human Behavior*. Stanford: Stanford University Press.

———. 1978. *Habitats, Environments, and Human Behavior: Studies in Ecological Psychology and Eco-Behavioral Science from the Midwest Psychological Field Station, 1947–1972*. San-Francisco: Jossey-Bass.

Blesser, Barry, and Linda-Ruth Salter. 2007. *Spaces Speak, Are You Listening? Experiencing Aural Architecture*. Cambridge: The MIT Press.

Borgo, David. 2005. *Sync or Swarm: Improvising Music in a Complex Age*. New York: Continuum.

———. 2007. "Free Jazz in the Classroom: An Ecological Approach to Music Education." *Jazz Perspectives* 1 (1): 61–88.

Burland, Karen, and W. Luke Windsor. 2014. "Moving the Gong: Exploring the Contexts of Improvisation and Composition." In *Coughing and Clapping: Investigating Audience Experience*, edited by Stephanie Pitts and Karen Burland, 101–114. Farnham: Ashgate.

Cage, John. 1961. *Silence: Lectures and Writings*. Middletown: Wesleyan University Press.

Clarke, Eric F. 1992. "Improvisation, Cognition and Education." In *Companion to Contemporary Musical Thought, Vol. 2*, edited by John Paynter, Tim Howell, Richard Orton and Peter Seymour, 787–802. London: Routledge.

———. 2005. *Ways of Listening: An Ecological Approach to the Perception of Musical Meaning*. Oxford: Oxford University Press.

Cook, Nicholas. 2000. *Music: A Very Short Introduction*. Oxford: Oxford University Press.

Dewey, John. 1938. *Experience and Education*. New York: Touchstone.
Dibben, Nicola J. 2001. "What Do We Hear When We Hear Music? Music Perception and Musical Material." *Musicae Scientiae* 5 (2): 161–194.
Dibben, Nicola J., and W. Luke Windsor. 2001. "Constructivism in Nicholas Cook's Introduction to Music: Tips For a 'New' Psychology Of Music." *Musicae Scientiae* 5 (2): 43–50.
Dissayanake, Ellen. 2000. "Antecedents of the Temporal Arts in Early Mother-Infant Interaction." In *The Origins of Music*, edited by Nils L. Wallin, Bjorn M. Merker, and Steven Brown, 389–410. Cambridge: The MIT Press.
Ford, Charles C. 1995. "Free Collective Improvisation in Higher Education." *British Journal of Music Education* 12: 103–112.
Gaver, William W. 1993a. "What in the World Do We Hear? An Ecological Approach to Auditory Event Perception." *Ecological Psychology* 5: 1–29.
———. 1993b. "How Do We Hear in the World? Explorations in Ecological Acoustics." *Ecological Psychology* 5: 285–313.
Gibson, James J. 1966. *The Senses Considered as Perceptual Systems*. Boston: Houghton Mifflin.
———. 1977. "The Theory of Affordances." In *Perceiving, Acting, and Knowing: Toward an Ecological Psychology*, edited by Robert Shaw and James Bransford, 67–82. Hillsdale, NJ: Lawrence Erlbaum Associates.
———. 1979. *The Ecological Approach to Visual Perception*. Boston: Houghton Mifflin.
HEFCE (Higher Education Funding Council for England). 2008. *Subject Benchmark Statement: Music*. Gloucester: HEFCE.
Heft, Harry. 2001. *Ecological Psychology in Context: James Gibson, Roger Barker and the Legacy of William James's Radical Empiricism*. Mahwah, NJ: Lawrence Erlbaum.
Hegarty, Paul. 2007. *Noise/Music: A History*. New York/London: Continuum.
Krumhansl, Carol L. 1979. "Quantification of the Hierarchy of Tonal Functions Within a Diatonic Context." *Journal of Experimental Psychology: Human Perception and Performance* 5: 579–594
Lewis, George. 2000. "Teaching Improvised Music: An Ethnographic Memoir." In *Arcana: Musicians on Music*, edited by John Zorn, 78–109. New York: Granary Books.
Nettl, Bruno. 1995. *Heartland Excursions: Ethnomusicological Reflections on Schools of Music*. Chicago: University of Illinois Press.
Parncutt, Richard. 2009. "Prenatal and Infant Conditioning, the Mother Schema, and the Origins of Music and Religion." *Musicae Scientiae* 13: 119–150.
Pollard-Gott, Lucy. 1983. "Emergence of Thematic Concepts in Repeated Listening to Music." *Cognitive Psychology* 15: 66–94.
Reed, Edward S. 1996. *The Necessity of Experience*. New Haven: Yale University Press.
Reybrouck, Mark. 2005. "A Biosemiotic and Ecological Approach to Music Cognition: Event Perception between Auditory Listening and Cognitive Economy." *Axiomathes* 15: 229–266.
Schaeffer, Pierre. 1966. *Traité des objets musicaux*. Paris: Seuil.
Shafer, R. Murray. 1977. *The Tuning of the World*. New York: Random House.
Swanwick, Keith. 1988. *Music, Mind and Education*. London: Routledge.
Swanwick, Keith, and June Tillman. 1986. "The Sequence of Musical Development: A Study of Children's Composition." *British Journal of Music Education* 3: 305–339.

Thoreau, Henry David. 1961. *Journal*. Edited by Bradford Torrey and F. H. Allen. 2 volumes. New York: Dover.

Troup, Malcolm. 1971. "Music, the Magic of the First Environment." *The Guildhall School of Music and Drama Review*: 3–7.

Truax, Barry. 1984. *Acoustic Communication*. New Jersey: Ablex.

Windsor, W. Luke. 2000. "Through and Around the Acousmatic: the Interpretation of Electroacoustic Sounds." In *Music, Electronic Media and Culture*, edited by Simon Emmerson, 7–35. Farnham: Ashgate.

———. 2004. "An Ecological Approach to Semiotics." *Journal for the Theory of Social Behaviour* 34: 179–198.

———. 2011. "Gestures in Music Making: Action, Information and Perception." In *New Perspectives on Music and Gesture*, edited by Anthony Gritten and Elaine King, 45–66. Farnham: Ashgate.

———. 2013. "The Transforming Power of the Acousmatic: The Perceptual Traces of Compositional Gestures." In *François Bayle: Die Klangwelt der akusmatischen Musik*, edited by Marcus Erbe and Christoph von Blumröder, 143–150. Köln: Signale aus Köln.

Windsor, W. Luke, and Christophe de Bézenac. 2012. "Music and Affordances." *Musicae Scientiae* 16: 102–120.

13 Aural Rights and Early Environmental Ethics

Negotiating the Post-War Soundscape

Alexandra Hui

It was a cool, spring morning in 1952. The passengers of the Capital Transit bus could peer out the windows as it lumbered down M Street and see leaves starting to form and pedestrians leaning against the light drizzle, quickly striding to work. A tinny music played. After a time, the song finished and an announcer came on to present the commercials. At this moment, the radio transmitter clicked and, as advertised by Washington Transit Radio (the company that coordinated the broadcasting on the city buses), a supersonic note activated the "voice emphasis circuit" and raised the volume by twenty-five percent. As the bus lurched forward from an intersection, a passenger got up from his seat near the middle of the bus. He walked up to the front, glared at the transmitter, and began to beat on it with his umbrella ("He Who Rides" 1952).

This violent action against transitcasting, the recently introduced practice of broadcasting music and advertisements on public transportation via radio, was not the only one of its kind. Between 1948 and 1952 an increasing escalation of protests and public hearings would culminate in a legal case that resulted in a ruling by the United States Supreme Court. This essay examines what was at the time described as the largest and most startling outpouring of public opinion about a municipal issue in the history of Washington, D.C. The legality of the Capital Transit bus company to "soothe the soul" of its riders with light, inoffensive music, was contested in terms of rights to aural privacy in public spaces. The complainants invoked their constitutional right to freedom of listening, freedom *from* listening, and freedom of attention. The captive listeners demanded aural autonomy, not from noise but from music to which they had not consented to listen. The case demonstrates that background music was understood to be distinct from noise culturally, psychologically, and legally.

The Washington, D.C., transitcasting case is therefore an intriguing reflection of changing attitudes about the individual's relationship to the environment. Anticipating the critiques of what would become the environmentalism movement, this was an early instance of outrage and organized protest over the destruction of public space directed at both private corporations and government policies. Resonating with the conservationist ethics of Aldo Leopold, or even Henry David Thoreau before him, protesters called

for balanced aural autonomy, a freedom to engage their environment, and a freedom from having it forced upon them. The transitcasting case was a watershed moment politically, culturally, and ecomusicologically.

The transitcasting case is part of a larger narrative that ranges from early American ideas of conservation to the proto-environmental ethics of the 1960s. As such, it illustrates how old listening practices are altered and how new ones come into existence. These new listening practices fueled the development of what I call a sound commons ethic. This builds on Titon's call for the *res communes* to be extended to all living creatures in order to equitably respect all sonic niches (Titon 2012). The transitcasting case reveals the existence of a sound commons in the built environment that many were willing to defend. I hope this essay will reveal the benefits of applying an ecomusicological lens to historical analysis. And, reciprocally, I hope to demonstrate the benefits of historians' flexible understanding of nature for ecomusicology.

THE TRANSITCASTING CASE

Cities have hosted distinct, highly complicated, industrialized soundscapes since the nineteenth century. Despite the rise of noise control policies, the twentieth century heard the shouts of merchants, the clang of cars, and the roar of factories increase in volume and variety (Bijsterveld 2008, Thompson 2002). In the 1920s a new sound entered the din: background music. Carefully curated playlists were introduced into private homes, factories, workplaces, and public spaces such as bank lobbies and elevators (Hui 2014). As the transitcasting case shows, background music was different from noise. It was marketed (to consumers, to managers) as a means of improving the minds and bodies of its listeners—essentially the opposite of pollution.

In the years immediately following World War II, background music on public transportation was deployed in several midwestern cities. Transitcasting was the brainchild of a Richard Evans, an early convert to the FM bandwagon. He collaborated with Transit Radio Inc., local bus companies, and fledgling FM stations to play specially designed music programs, news, and local commercials. The loudspeakers distributed throughout the vehicles (six for buses, eight for streetcars) broadcasted music at six decibels and voice at a louder eight decibels ("Radios for Buses" 1949). Revenue for Transit Radio came from local commercial sales (not an increase in bus fares); St. Louis boasted $4,000 in weekly profits (Gold 1949a). Transit Radio paid bus and trolley companies either a monthly fee, a percentage of Transit Radio's gross advertising receipts, or a percentage of the radio station's profit. By 1949, nearly 3,000 vehicles in fifteen American cities were equipped with transitcasting capabilities.

A 1948 survey of passengers in Cincinnati and Wilkes-Barre found a whopping 95% enjoyed Transit Radio (Nicholson 1948). The music was a

mix of popular and semi-classical pieces; no "heavy stuff" or "jumping jive" would be included (Gold 1949a). Media coverage described passengers as a "'captive' audience that can't get away," which they considered a "happy result." The consensus, at least in 1948, was an ambivalence about whether transit radio would take off and whether passengers would continue to overwhelmingly embrace it.

In 1949 the worm began to turn. "Music Will Beguile Bus Riders Feb. 10" read the January 18 headlines; *The Washington Post* reported that twenty Capital Transit buses had been equipped with "music as you ride" gadgets to broadcast WWCD-FM's "tailor-made programs" of "soft melodic music," news, weather, and commercials. That same week, *The Washington Post* columnist Bill Gold raised the possibility that transitcasting invaded riders' privacy. Initial letters to the editor of *The Washington Post* in response to Gold's column (and following the introduction of transitcasting to D.C. buses) were critical of the music only, describing it as, say, "jazzed-up trash" that caused the writer violent indigestion (Russo 2009, 1; Osten 1949; Ryan 1949a). Though the summer and fall, however, an increasing flurry of letters expressed distress over the potential for passengers' civil rights to be infringed upon by transitcasting. Articles and op-ed pieces (as well as radio editorials by Edward R. Murrow, David Brinkley, and Elmer Davis) in *The New Yorker*, *The Christian Science Monitor*, and *The Washington Post* grew alarmed at the deliberate "forced listening." *The Evening Independent* explained that the "readers, dreamers, philosophers, and other people on the ragged edge of being driven nuts by modern civilization" found it to be "a dark plot against sanity" ("Radio Trolleys Put on Trial in Capital's Transit Squabble" 1949, 1).

There were of course defenders, usually offering declarations that radio was not a health danger or that individuals liked the music ("Trolley Jazz in Court Fight" 1951, Ryan 1949a, 1949c). But the main critique of transitcasting in Washington, D.C., shifted quickly from concerns about aesthetic offenses to passenger sensibilities and ultimately to a concern over the perceived imposition of listening. These criticisms reveal two trends worth highlighting. First, transitcasting was criticized for eliminating passengers' right to choose whether to listen or not. This was not an aesthetic argument about the right to choose *what* to listen to but rather whether to listen at all. Some version of "captive audience" was brought up repeatedly: "the individual is becoming the captive of the soundmakers," "the captive audience proves very attractive to the advertiser," and "a victim of sounds that he does not choose not to hear" ("The Talk of the Town: Notes and Comment" 1949a, "The Talk of the Town: Notes and Comment" 1949b).

Second, criticisms of Capital Transit, Transit Radio, and, once the legal battle began, the Public Utilities Commission (PUC), explicitly alluded to the fascist policies of the recently defeated Nazi regime.[1] Another warned of the insidious methods common to both marketers and politicians: "An audience captured for a toothpaste commercial is softened up for capture by an

ambitious politician with a political nostrum to sell. The captive who passively takes the one may find himself accepting of the other" (Childs 1950). Vigilance and protest were required.

And there were individual efforts at protest. One woman found the master switch for the loudspeakers and would turn them off ("Radio Trolleys Put on Trial in Capital's Transit Squabble" 1949). Another passenger apparently called local advertisers at 3 a.m. to complain about their commercials ("Transit Radio … gets the death blow" 1953). The manager of a language school, who felt he was getting positive results from his Transit Radio advertisements, eventually had them removed after some of his students began cursing him in seven languages (Stein 1953). And then there was the gentleman who assaulted the transmitter with his umbrella ("He Who Rides" 1952).

There were also organized efforts at protest. Bernard Tassler, a longtime member of the labor movement and managing editor of the AFL-CIO magazine at the time, helped found the National Citizens' Committee Against Forced Listening (NCCAFL, later expanded to NCCAFRFL to include Forced Reading). As Chairman, he organized efforts to use advertising and letters to newspaper editors and Congress to force the removal of the radio programs from the Capital Transit buses ("Trolley Jazz in Court Fight" 1951). By 1951 the NCCAFL's aims had broadened to include speeches broadcast to workers. They also lobbied the American Society of Composers, Authors and Publishers to refrain from allowing their music to be used on "captive audiences." Their critiques were framed in language of democracy and freedom, declaring forced listening to be "tyrannical, un-American and Communistic to the core" ("Congress Asked to Pass Law Against Compelled Listening" 1951, 7). A second protest group also formed. The Transit Riders Association (TRA) devoted most of their efforts toward raising money for litigation. Two lawyers who were also regular Capital Transit passengers, Franklin Pollack and Guy Martin, filed a protest with the PUC, the agency that granted Capital Transit their bus and streetcar service permits.

Newspapers reported that over 300 people attended the October 1949 PUC hearing.[2] It apparently repeatedly disintegrated into shouting matches between witnesses. The president of the TRA Raymond Seelig declared Transit Radio "an immoral, unwarranted invasion of personal liberty and privacy of those who do not want to listen but are forced to." Equating the "private chamber of the mind" with the privacy of one's home, he insisted that the thoughts of passengers could not be violated by majority action (Ryan 1949a). The crowd reportedly cheered for five minutes. While Seelig had presented three main critiques of transitcasting (it was an invasion of personal liberty, it was physically and mentally damaging, and it distracted the driver), the media coverage highlighted his and his followers' concern that it was the first step toward totalitarianism (Ryan 1949a).

Each side presented testimony by expert witnesses. Transit Radio's engineer claimed that transitcasting on buses introduced no measurable increase in the overall decibel level for passengers (Ryan 1949b). The captain of the

Police Traffic Division explained that less than 10% of the vehicles involved in accidents were radio-equipped, suggesting that transitcasting did not affect safety (Ryan 1949a). Civilian Defense officials mused that transitcasting would be helpful in an emergency. The medical testimony for the complainants' side noted that while individuals varied greatly in their reaction to music, so did individuals' ability to shut off their attention. Some could have violent, physical reactions to music; others could be completely oblivious of their sonic surroundings.

Upon the PUC's determination that transitcasting did not threaten public safety, Pollack and Martin appealed to the courts. The United States District Court dismissed the petition on the grounds that no legal right had been invaded. The United States Court of Appeals, however, ruled in June 1951 that the broadcasting of commercials and announcements on public transportation was "unconstitutional as depriving objecting passengers of liberty without due process of law, infringing upon their freedom from forced listening in a manner neither incidental nor inevitable to any proper purpose" (Beard 1968, 334). The defense explained that their opponents were attacking free enterprise and stifling technological innovation ("Notes: Transit Radio" 1950). But Transit Radio's explanation for increased advertisement volume was increasingly met with suspicion. The damning evidence in the appeals trial was a Transit Radio pitch to advertisers about this increased volume. Transit Radio had explained to potential advertisers that this technology, combined with the speakers mounted the length of the vehicle, meant that "if [passengers] can hear, they can hear your commercial." This, combined with the monopoly of access to a captive audience that allowed for censorship by Transit Radio was, the complainants charged, an invasion of personal liberty. The Court found the deprivation of liberty argument to be compelling enough that they did not rule on the arguments of censorship or due process (Beatty 1952). For the argument of personal liberty the Court found that the broadcasts "have replaced freedom of attention with forced listening" and therefore had deprived listeners of liberty (*Pollack v. PUC* 1951, quoted in Beard 1968, 333).

In 1952 the United States Supreme Court reversed the Appellate Court ruling, finding that neither the First nor Fifth Amendment rights of passengers were violated to such an extent as to override the interests of others (Beard 1968). According to the Court, passengers were still able to hold conversations so no freedom of speech was violated. And, because the right to privacy in public space was not equal to that of the individual in his or her home, the due process clause was not violated. Justice Felix Frankfurter, who was a regular Capital Transit passenger and claimed to strongly dislike transitcasting, recused himself. Justice Hugo Black concurred in part and dissented in part. Justice William Douglas dissented.

In his dissent Douglas argued that transitcasting was indeed forced listening, an invasion of privacy, and a dangerous first step from cultural coercion to political coercion. His concern about the slippery slope to

fascism echoes previous commentators: "The vice is inherent in the system. Once privacy is invaded, privacy is gone. Once a man is forced to submit to one type of radio program, he can be forced to submit to another. It may be but a short step from a cultural program to a political program" (*Pollack v. PUC* 1952, quoted in Beard 1968, 337).

On May 31, 1953, the speakers on all Capital Transit buses and streetcars went silent. While listener surveys suggested that transitcasting remained popular, sponsors became increasingly worried about alienating riders and began to pull their advertisements, further reducing the unmet profit margin Transit Radio had guaranteed to Capital Transit ("Transit Radio … gets the death blow" 1953). The notoriety of the case as well as the tactics of the NCCAFL and the TRA scared sponsors away. The head of Transit Radio would later lament that he had no explanation for the failure of Transit Radio ("Transit Radio … gets the death blow" 1953). He insisted that it was a sound business plan, and the Supreme Court had confirmed it was legal. But Transit Radio had not accounted for the power of public fury and had to end transitcasting as a public relations move.

DISCUSSION

In the few academic discussions of the transitcasting case, scholars have read passengers' reactions as rooted in concern about the slippery slope of government control of propaganda mechanisms and private companies' flagrant use of "forced listening" as a marketing practice (Beard 1968, Russo 2009, Sewald 2011). Indeed these anxieties are well demonstrated in the historical record. Instead, I would like to focus on the motivations for action taken by the plaintiffs. Their legal efforts were not simply attacks on creeping government-sanctioned corporate overreach; rather, they were defending the vanishing soundscape of public space, the sound commons.

Framed in this way, the transitcasting episode helps us better understand how individuals' and communities' understandings of their relationships to the environment can change, and it emphasizes the role that sound can play in such change. We might also think about how the transitcasting case suggests the birth of a new form of listening. It was the first critical response to background music not based on aesthetics. Instead background music was attacked because it disrupted the individual's listening experience in public space. This practice of private listening in public space had never before been presented as something worth defending, let alone even existing. Thus we can understand three results from this case: a new form of listening, conflicting efforts to shape listening practices into a profitable resource, and attempts to reclaim the urban soundscape.

In some ways, the transitcasting case is an outlier. It could be described as a petty municipal squabble that only proceeded to the United States Supreme Court because of the jurisdictional quirks of Washington, D.C. Further, the

plaintiffs lost the case. Nevertheless, the media coverage and rhetoric were substantial and fierce. The language echoed earlier writings on humans' relations to nature and—perhaps most relevant to ecomusicology—anticipated many arguments central to environmental ethics.

In this context, consider that the built environment of the postwar United States, complete with more reliable cars and cheap gasoline that allowed for recreational ramblings, was understood in relation to spaces that were comparatively natural. It is in this period that the distinction between built urban environments and pristine natural ones began to break down. Indeed, it was via aural experience that the distinctions between built and natural, urban and rural space began to collapse. Both included unfettered silent spaces worth defending and preserving.

Acknowledging this essay's placement in the "Critical Directions" section of this volume, I must note that, for the purposes of historical analysis, nature is culture. Historians of science and environmental historians have documented extensively the historicity of human understandings of nature: what nature is, how humans relate to it, and how these relations change over time and place (cf. Cronon 1995, Rudwick 2010). In contrast to Windsor (chapter 12), I would argue that zero distinction can be made between nature and culture, even if we take the most humble, de-anthropomorphized approach to the environment. As far as we can know as scholars—employing only our human perceptions and ideas—all environment is human-made: culture. Thus, perceived distinctions between built and natural spaces were breaking down in urban, postwar America, but, methodologically, we only know nature as it is culturally constructed.

In 1949, the same year transitcasting was unveiled in Washington, D.C., Aldo Leopold published *A Sand County Almanac*. Dwelling on the sounds and smells of the landscape, the shifting rhythms of the seasons, and the dwindling numbers of migratory birds, Leopold made his case that the landscape was not simply a collection of resources to be harvested by man. Leopold acknowledged that we could not prevent the eventual alteration, management, and economic self-interested use of the resources of the land. His proposed land ethic did, however, assert the right of the continued existence of species and "at least in spots, their continued existence in a natural state" (Leopold 1949, 204). Leopold called for informed and thoughtful wilderness management. He presented an ethic in which an individual was engaged with his or her surroundings as an equal, as an agent in control of his or her *relationship* with the environment but not in control of the environment itself.

Leopold's assertion—that the roots of the growing ecological crisis were philosophical and that we needed a more responsible relationship between humans and the land—made it one of the foundational texts for the environmental movement. Further, by arguing that human forces of change on the land could not be disentangled from natural ones, Leopold established what would become the central analytical framework employed by environmental historians. Prior to Leopold, American understanding of nature

was largely a romantic one, a religious one, or an economic one; whether venerating or commodifying it, the individual was understood to be separate from and in tension with nature, sometimes dominating and other times dominated (Sachs 2006). The writings of Thoreau seem to exemplify this; but by the end of his life Thoreau had moved away from understanding nature as a reflection of his spiritual life to using his own bodily experience to understand nature (Titon chapter 5). Thoreau's ontological and epistemological shift was rooted in his experience of sound, which, as Titon argues, fueled Thoreau's shift to understanding himself as co-present with a nature worth sharing and preserving.

In 1967 and 1968, two articles published in *Science* set the foundation for what would become the discipline of environmental ethics. White (1967) argued that the anthropocentrism of Judeo-Christian belief coupled with modern science and technology (reinforced by a faith in perpetual progress) fueled a human sense of superiority over and contemptuousness of nature. This belief in exploiting the land and its inhabitants was the root of contemporary environmental destruction (White 1967). Because the problem was with Western cultural values, White insisted that there could be no technological solution to the ecological crisis. Instead he proposed a religious remedy: to embrace the humility of Saint Francis of Assisi by accepting and protecting "the spiritual autonomy of all parts of nature" (1207).

Complimenting White's analysis was Hardin's 1968 essay, "The Tragedy of the Commons," which argued in part that, "the population problem has no technical solution; it requires a fundamental extension in morality" (Hardin 1968, 1243). Like White, Hardin located the source of the ecological crisis brought on by the population explosion as rooted in the dilemma of freedom in a commons. Common resources with few individual consequences for their destruction allowed "independent, rational, free-enterprisers" to foul the shared nest (1245). The only possible solution, according to Hardin, was to restrain the freedoms of the commons, most especially the freedom to breed. Echoing Leopold, Hardin called for a responsibly regulated commons.

In his conclusion, Hardin included a curious example: the lack of restriction on the proliferation of "mindless music" in public space, music that assaulted the public without consent (Hardin 1968, 1248). He saw this as an equivalent phenomenon to noise pollution though perhaps more sinister because it was motivated by advertising revenue; such impositions on the sound commons were protested as infringements on personal liberty and rights. (Regarding the sound commons, see Titon 2012, and below.) To invoke and insist upon a right to flood the sound commons with music was, for Hardin, as irresponsible as unchecked population growth.

The transitcasting case is a watershed that encapsulates the tensions of the transition from the romantic understanding of nature to Leopold's land ethic. The introduction of transitcasting, while profit-motivated, drew on two decades of goodwill toward background music. Anecdotal and experimental evidence had demonstrated positive effects on the minds and bodies

of listeners. The science and technology of background music would aid humans to control, even overcome, their mental and physical fatigue. Human innovation employed to dominate nature was understood to be an inherent good. And besides, who doesn't like cheerful music on their way to work?

The plaintiffs instead argued that the ears of bus riders were not a resource to be plundered. In this way the transitcasting case also anticipated critiques of modern democracy and market capitalism. Unregulated economic self-interests in the soundscape opened the door to an untenable sonic totalitarianism (rhetoric that would have held particular weight in the postwar years). The citizens of Washington, D.C., were inseparable from their urban environment, and each individual had an equivalent right to existence. They invoked the rights of the continued existence of all listeners through informed and thoughtful management, a soundscape ethic of sorts.

As such, the idea of the sound commons can help us better understand the importance of the transitcasting case. When threatened, the sound commons of public transportation suddenly became a shared place worth protecting. As Titon notes, sound "enables us to construct an idea of nature worth wanting" (Titon chapter 5, 76). The demands of aural autonomy in public space, unpestered by the cacophony of modernity, can be understood as an effort to protect the commons against those taking advantage of its freedoms to hoard resources and pollute. Note that this was not an effort to create sonic personal spaces but preserve certain elements of public space (Hagood 2011). As Rachel Carson would later shout through the silence: Those in power could not be trusted to protect the public from the interests of the well-connected few (Carson 1962). The free-enterprisers would be the undoing of the sound commons. And so the critics of transitcasting protested the corporate interests of Transit Radio, sponsors, and the PUC—and the government policies abetting them—for the deliberate destruction of the sound commons.

Echoing White and Hardin: The result of the transitcasting case was not technological change but instead a new ethic. Rather than a conflict over aesthetics or state-sponsored monopolies, the protest was framed ethically, as an issue of rights. Further, despite victory in the courts, the end to transitcasting infused background music with negative associations: It had been revealed as a means of preying on listeners who lacked the ability to consent or close their ears. Background music was no longer unquestioningly accepted as a technological improvement but instead eyed suspiciously as a tool of manipulation. An ethic of the sound commons had been born. Background music became the thing we love to hate.

R. Murray Schafer found two features of the modern, Western soundscape worrisome: 1) noise pollution and the use of sound to distract from the problem of noise, and 2) the disappearance of important human and nature sounds. As Schafer explained, "noises are the sounds we have learned to ignore" (Schafer 1994, 4). He proposed a positive aesthetics informed by ecology that led to acoustic design. His goal was to raise public awareness

of environmental sound. Schafer wanted people to listen actively, because the best way to eliminate noise was to listen to it: listen to noise, listen to nature, listen to silence. He later argued that the ecological crisis was due to humans' failure to listen to the environment (Schafer 2003). Thus, to preserve the sound commons, one must listen to it actively.

The individual has a right, a duty even, to engage with the soundscape. "Right" and "duty" are often associated with citizenship; they reinforce each other and, in the context of the transitcasting case justified (at least for a time) the breaking of a bus transmitter. Citizen listeners pushed back to reclaim their ears and soundscapes, demanding not just aural agency and autonomy but a sound commons. They did so by developing an ethic of responsibility and stewardship.

Many scholars have written about the social and cultural policing of listening behavior (e.g., Attali 2002, Bijsterveld 2008, Russo 2009, Sewald 2011). If ecomusicology considers, at least in part, how people listen to their environment (the point of intersection between non-human sound worlds and human sound worlds), then an ecomusicological analysis of a historical moment in which listening changed can provide some useful insights. My analysis of the various narratives—popular, political, legal—of the transitcasting case suggests that diverse attitudes about listening—one's right to hear or not to hear, and whether the tyranny of the majority included soft, melodic music or not—were in flux in the immediately post-war period. But if we understand listening as engaging one's environment, then this case study informs bigger questions about how and why individuals renegotiate their relationship to their environment. In the transitcasting case, we see the consequences of such renegotiations: the calls for a preservation of the sound commons, and the early strains of environmental ethics. The curious, fleeting episode of transitcasting, when considered through an ecomusicological lens, is most useful for our understanding listening practices and aural rights—and the ethical case for protecting the sound commons.

NOTES

1. An example: "Control of radio and TV can give those who wield the control power over men's minds […] Hitler had a captive audience" (Childs 1950). Similar language was used to critique of the New York City transitcasting system: "The captive audience proves very attractive to the advertiser—in the same way that a fly tangled in a web is attractive to the spider, or a frog immobilized by fear is attractive to the snake […] Hitler captured his audience and found it quite useful while it lasted" ("The Talk of the Town: Notes and Comment" 1949b).
2. In the lead up to the hearing, *The Washington Post* had done an informal poll asking readers to vote about whether to continue transitcasting service. The results of the nearly 6,000 respondents were 44.2% in favor and 55.8% opposed. This rather narrow margin might further explain some of the fierceness of the debate (Ryan 1949c).

WORKS CITED

Attali, Jacques. 2002. *Noise: The Political Economy of Music*. Minneapolis: University of Minnesota Press.

Beard, Richard. 1968. "The Short Unhappy Life of Transit Radio." *Journal of Broadcasting* 12: 327–340.

Beatty, William. 1952. "Freedom of Attention for Transit Riders." *Washington and Lee Law Review* 9: 46–54.

Bijsterveld, Karin. 2008. *Mechanical Sound: Technology, Culture, and Public Problems of Noise in the Twentieth Century*. Cambridge: The MIT Press.

Carson, Rachel. 1962. *Silent Spring*. Boston: Houghton Mifflin.

Childs, Marquis. 1950. "Washington Calling: Bus Broadcasting Row Heralded as Healthy Sign." *Pittsburgh Post-Gazette*, January 3.

"Congress Asked to Pass Law Against Compelled Listening." *Toledo Blade*, January 2.

Cronon, William. 1995. *Uncommon Ground: Toward Reinventing Nature*. New York: W. W. Norton and Company.

Franklin, Ursula. 2000. "Silence and the Notion of the Commons." *Soundscape* 1: 14–17.

Gold, Bill. 1949a. "The District Line: Here's What to Expect From 'Transit Radio'." *The Washington Post*, January 15.

———. 1949b. "The District Line: Radios Illegal, Except When They're Legal." *The Washington Post*, January 18.

Hardin, Garrett. 1968. "The Tragedy of the Commons." *Science* 162: 1243–1248.

Hagood, Mack. 2011. "Quiet Comfort: Noise, Otherness, and the Mobile Production of Personal Space." *American Quarterly* 63: 573–589.

"He Who Rides … Must Listen." 1952. *Business Week*, May 31.

Hui, Alexandra. 2014. "'Muzak-While-You-Work': Programming Music for Industry, 1919–1948." *Historische Anthropologie* 22: 364–383.

Karlsson, Henrick. 2000. "The Acoustic Environment as a Public Domain." *Soundscape* 1: 10–13.

Leopold, Aldo. 1949. *A Sand County Almanac and Sketches Here and There*. New York: Oxford University Press.

"Music Will Beguile Bus Riders Feb. 10." 1949. *The Washington Post*, January 18.

Nicholson, Arnold. 1948. "Straphangers' Radio." *The Saturday Evening Post*, April 24.

"Notes: Transit Radio." 1950. *Journal of the Federal Communications Bar Association* 11: 49–50.

Osten, William. 1949. "Letter to the Editor: Transit Radios." *The Washington Post*, February 19.

Pollack et al., v. Public Utilities Commission of the District of Columbia. 1951. U.S. App. 10777.

Pollack et al. v. Public Utilities Commission of the District of Columbia. 1952. 343 U.S. 451.

"Radio Trolleys Put on Trial in Capital's Transit Squabble." 1949. *The Evening Independent*, October 27.

"Radios for Buses." 1949. *Business Week*, February 4.

Rudwick, Martin. 2010. *Worlds Before Adam: The Reconstruction of Geohistory in the Age of Reform*. Chicago: University of Chicago Press.

Russo, Alexander. 2009. "An American Right to an 'Unannoyed Journey'? Transit Radio as a Contested Site of Public Space and Private Attention, 1942–1952." *Historical Journal of Film, Radio, and Television* 29: 1–25.

Ryan, Edward. 1949a. "'Twas 'Anvil Chorus' vs. 'Let the Band Play On' as 300 Jam Transit Broadcast Hearing." *The Washington Post,* October 28.

———. 1949b. "Transit Radio Sweet and Low." *The Washington Post,* November 1.

———. 1949c. "55.8% in Balloting Say 'No' to Streetcar and Bus Radio." *The Washington Post*, November 13.

Schafer, R. Murray. 1994. *The Soundscape: Our Sonic Environment and the Tuning of the World.* Rochester, VT: Destiny Books. Original edition, 1977.

———. 2003. "Open Ears." In *The Auditory Culture Reader*, edited by Michael Bull and Les Back, 25–39. Oxford: Berg.

Sewald, Ronda L. 2011. "Forced Listening: The Contested Use of Loudspeakers for Commercial and Political Messages in the Public Soundscape." *American Quarterly* 63: 761–780.

Stein, Sonia. 1953. "When Transit Radio Leaves the Air May 31, Will Silence Be Protested as Was Sound?" *The Washington Post*, May 19.

Thompson, Emily. 2002. *The Soundscape of Modernity: Architectural Acoustics and the Culture of Listening in America, 1900–1933*. Cambridge: The MIT Press.

"The Talk of the Town: Notes and Comment." 1949a. *The New Yorker* November 5, 24.

"The Talk of the Town: Notes and Comment." 1949b. *The New Yorker* December 10, 29–30.

Titon, Jeff. 2012. "A Sound Commons for All Living Creatures." *Smithsonian Folkways Magazine*, Fall/Winter.

"Transit Radio … gets the death blow in Cincinnati and Washington." 1953. *Business Week*, June 6.

"Trolley Jazz in Court Fight." 1951. *The Pittsburgh Press,* October 15.

White, Lynn. 1967. "The Historical Roots of Our Ecologic Crisis." *Science* 155: 1203–1207.

14 Music, Television Advertising, and the Green Positioning of the Global Energy Industry

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Over the past two decades, consumers in developed countries have been bombarded by advertisements for companies offering a wide array of "environmentally-sensitive" products and services (Hollander and Breen 2010, xvi). Building on nearly four decades of marketing research into the demographic profiles, attitudes, and behaviors of the so-called green consumer (Kinnear et al. 1974, Finisterra do Paço et al. 2009, Griskevicius et al. 2010, Koller et al. 2011), companies have appealed to consumers' concerns about the environmental health of their families, economic stability, their social status, and the global crises of pollution and climate change. As scholars have developed increasingly sophisticated understandings of who ecologically-concerned consumers are, business strategists have demonstrated that companies can increase profitability by tapping into the green marketplace and developing green business practices (Montoro-Rios et al. 2008; Bodger and Monks 2010, 285). At the same time, many commentators and trade consultants have warned corporations to be circumspect in making environmental claims and to avoid fabricating their environmental credentials. Known as "greenwashing," the use of such exaggerated claims is widely considered to be an unethical business practice (Bodger and Monks 2010, 285–293; Nair and Ndubudi 2011; Ottman 2011, xx).

How, then, might corporations that purvey environmentally problematic products and services—including especially transportation, chemicals, and genetically modified foods—deploy green marketing practices without drawing criticism? This question becomes especially pressing for the fossil fuel industry, which has been implicated as one of the primary contributing factors to climate change (Ottman 2011, 133; Rauber 2009; Hollander and Breen 2010, 23–24; Kenney 2006). In a study of a recent ExxonMobil advertising campaign, Plec and Pettenger have convincingly argued that ExxonMobil's "use of a didactic, greenwashed frame stifles criticism and discourages examination of ideologies of consumption" (2012, 460). The present study builds upon Plec and Pettenger's work to examine the ways in which music combines with imagery and rhetoric to aid in the greenwashing of the fossil fuel industry. In so doing, this study extends a long line of musicological scholarship exploring the interactions between music and image in television advertising (Fink 2005, Bode 2009,

Graakjær 2009, Klein 2009, Rodman 2009, Taylor 2012) to trace the histories of music in advertising and advertising's influence on music-making.

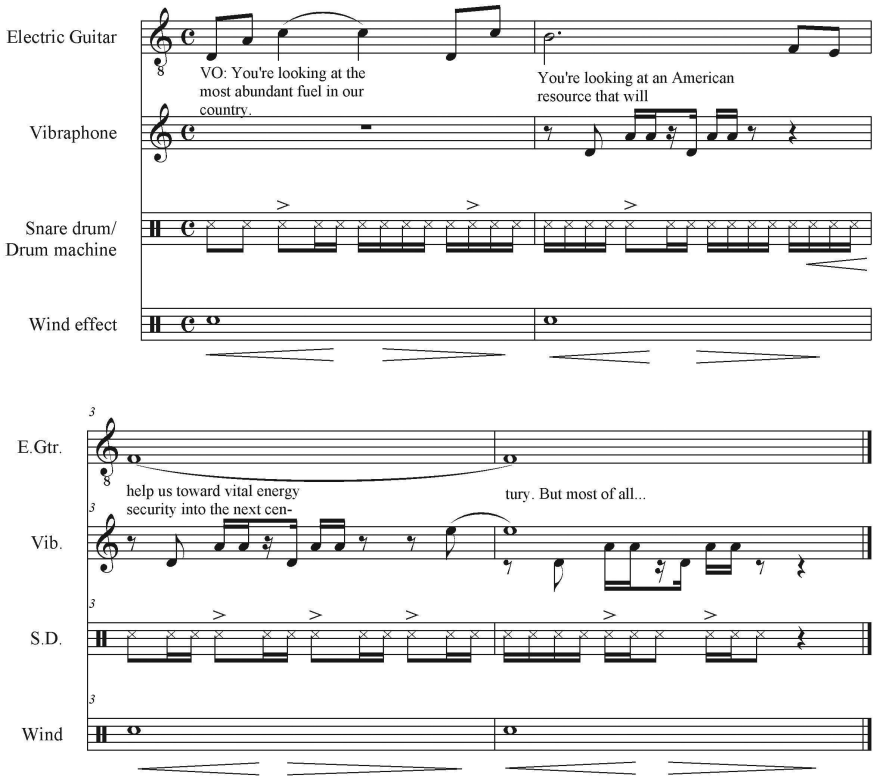
I explore three case studies drawn from energy-related marketing campaigns that have been deployed since 2000: Americans for Balanced Energy Choices' (later, the American Coalition for Clean Coal Electricity's) "clean coal" campaign from 2000, ExxonMobil's "Energy Choices" campaign,[2] and a 2009 campaign launched by Australian natural gas supplier Jemena. I chose these campaigns because they promote companies and lobbying organizations that advertise energy solutions grounded entirely in fossil fuels, but, it should be noted that the music and rhetoric of these campaigns are similar, although not identical, to those deployed by those organizations that support energy solutions that balance fossil fuels and renewable energy sources.[3] Moreover, these advertising campaigns use music composed specifically for the campaigns in question. I do not consider advertisements that deploy preexisting popular music because they raise a number of questions that are beyond my current scope (but see Pekklä 2009; Klein 2009, 101–115; Taylor 2012, 205–229). Through close readings of these advertisements, I argue that some advertising agencies have drawn upon musical minimalism and contemporary indie rock to imply that contemporary fossil fuel production is clean, safe, and vital to the survival of national economies. Moreover, the musical choices made in the production of these advertisements are far from arbitrary; rather, as the following case studies indicate, music directors appear to select musics that correlate strongly with a core segment of the green market: those who hold "green to be seen" attitudes (Griskevicius et al. 2010). Consequently, I will call for a deeper interrogation of the ethical considerations that should arise when music is used in television advertisements that promote the green credentials of known environmental polluters.

Reports indicate that, between 2000 and 2008, Americans for Balanced Energy Choices (ABEC), a pro-coal lobbying agency funded by coal companies and related industries (Center for Science in the Public Interest 2013), spent between US$8 and 9.1 million annually on advertising and grassroots marketing campaigns with the goal of shaping environmental policy (B.M. 2005, 20; Stone 2007a, 52; Frates 2012, 1). By 2008, the group—which merged that year with the Center for Energy and Economic Development (CEED) and changed its name to the American Coalition for Clean Coal Electricity (ACCCE)—had expanded its annual advertising budget to nearly US$38 million (Stone 2007b; Davenport 2009, 652; Frates 2012; ACCCE 2013a). In 2000, ABEC unveiled a "clean coal" lobbying campaign that, in the words of one spokesperson, "advance[d] a constructive public policy dialogue on issues relating to energy and environmental policy" and "supported continuous environmental improvements through the adoption of energy efficiency measures and the deployment of advanced technologies; access to affordable, reliable electricity as a means of promoting economic prosperity; and greater energy independence through the use of coal and other domestic energy resources" (Miller 2009). That is, as

lobbyists for the coal industry and the industries that depend on it, ABEC and ACCCE have focused their efforts on promoting carbon sequestration, chemical scrubbers at power plants, and coal gasification while lobbying for federal climate change legislation that preserves coal's place in the production of American energy (ACCCE 2013b).

ABEC's position on coal is especially clear in a 2008 television advertisement that addresses ways in which coal can assuage American concerns about energy security, the economy, and the environment (ABEC 2008). The ad begins with a close-up shot of a single lump of coal, revealing its rough textures. The camera slowly pans around the coal and pulls back to reveal its location on a clean black-and-white background, while a voiceover actor tells viewers that they are "looking at the most abundant fuel in our country [, ...] an American resource that will help us toward vital energy security into the next century." At this point—ten seconds into a thirty-second spot—a hand emerges from the left with an orange extension cord, which is plugged into the lump of coal as the voiceover reminds viewers that coal provides "fifty percent of our electricity." Although the advertisement does not make explicit claims as to the cleanliness of coal-generated electricity, the advertisement ends with two striking images: first, a father tucking his daughter into a canopy bed softly lit with a bedside lamp and second, the "Clean Coal" logo. Consequently, this brief spot articulates four key ideas: 1) coal is abundant, 2) coal is American, 3) coal supplies at least half of American electricity, and 4) coal is safe for our children and, presumably, will not exert negative environmental or public health impacts upon them.

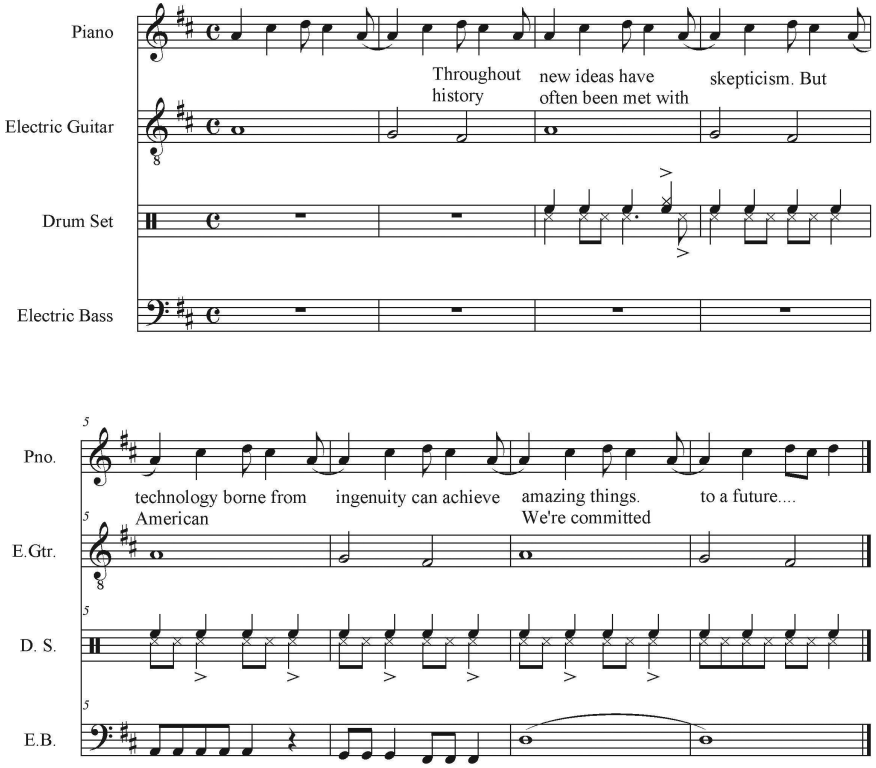
Yet, while the visual imagery and the voiceover might indicate the need for an editor to focus the advertisement's message, the music articulates a clear and coherent narrative that might be heard as the musical embodiment of coal's transformation from raw natural resource into the energy that drives the American economy and way of life.[4] During the opening eleven-second sequence, a clean, undistorted electric guitar plays a leaping D Dorian melody as a drum set plays a steady sixteenth-note groove, a vibraphone plays a short ostinato, and wind sound effects slowly swell. (See Example 1.) The guitar melody channels musical tropes representing American progress and the nation's "up from the bootstraps" mythology and might well be heard as a paraphrase on the striving ascending gestures in the opening bars of Aaron Copland's *Fanfare for the Common Man*. The accompanying drum and vibraphone groove further channel images of progress and modernity as the instruments' crisp timbres and forward-driving rhythm propel the rhythmically languid guitar melody ahead. When, at the eleven-second mark, the hand appears to plug coal into the electrical grid, the sparse textures of the preceding material abruptly become dense as the ensemble breaks into a steady rock groove and the frequency range is expanded through the addition of an electric bass and full-frequency mixing of the drums, musically transforming the humble lump of coal's potential energy into kinetic energy as images of busy highways, auto plants, and families enjoying television demonstrate the mineral's vitality.



Example 1 Americans for Balanced Energy Choices, "Clean Coal" advertisement (2008), reduction of 0:00–0:11.

Similar musical scoring can be heard in a thirty-second 2007 advertisement that ABEC released to combat criticism of the "clean coal" concept (ABEC 2007). The ad begins with a ten-second visual sequence highlighting the achievements of the Wright Brothers, the developers of the modern computer, and Thomas Edison interspersed with the positive long-term consequences of their inventions. During this sequence, a voiceover actor remarks that, "throughout history, new ideas have often been met with skepticism, but technology borne from American ingenuity can achieve amazing things." During the commercial's second half, images of chemists working in a laboratory, a busy lighted city, and trees against a clear blue sky flash past as the voiceover describes the coal industry's efforts to develop clean coal technologies and its commitment to environmental stewardship. The entire advertisement is underscored by another modal-inflected groove built around several ostinati and performed by a rock-pop ensemble comprised of piano, electric guitar, bass, and drums. Yet, whereas the musical narrative of the 2008 ABEC advertisement is built around a sudden and dramatic transformation of texture, timbre, and dynamics, the slow and measured addition of instruments and the increasing busyness of the drum groove in the 2007

ad offers a more subtle and sophisticated—but no less audible—narrative of progress, suggesting that, just as the inventors of airplanes, computers, and electric lights created pathways for American progress, so, too, can pioneering research in clean coal technologies carry the nation's culture and economy forward into the twenty-first century. (See Example 2.)



Example 2 Americans for Balanced Energy Choices, "Clean Coal Technology" advertisement (2007), reduction of 0:00–0:10.

Some of the musical choices heard in ABEC's ads are echoed in ExxonMobil's recent "Energy Choices" campaign. The campaign explores the ways in which ExxonMobil is leveraging technology to safely increase production of the Alberta oil sands and Marcellus shale natural gas, develop hydrogen fuel cell technologies, and improve fuel efficiency in the global car and truck fleet. Plec and Pettenger have argued that recent ExxonMobil advertisements use "two dominant discourses": "energy supply/security and the capitalist marketplace" (2012, 464). Yet, as they observe, ExxonMobil "has actively amplified a greenwashed frame that highlights the belief that climate change is not a threat and seeks to persuade consumers that oil companies will be the caretakers of our environment" (466). These accusations of greenwashing have been confirmed by a journalist's

exposé of corporate attitudes and practices at ExxonMobil, including some intended to combat climate research, among other things (Coll 2012, 67–92).

Largely missing from Plec and Pettenger's analysis is a deeper understanding of the powerful role that music plays in such framing, although they do make note of the use of "soft, soothing music" in an advertisement about algae production from this campaign (2012, 467). Two recent thirty-second ExxonMobil advertisements celebrating the company's natural gas exploration and development of Alberta's Kearl oil sands confirm Plec and Pettenger's discourse analysis. In one advertisement, ExxonMobil geologist Erik Oswald argues that the company has developed "safe" natural gas extraction techniques (ExxonMobil 2011a), contradicting popular perceptions that hydraulic fracturing—or "fracking," the technique commonly used to reach gas in previously undrillable geological formations—is damaging to water quality (Fischetti 2010, Marsa 2011). A second advertisement features ExxonMobil engineer Artis Brown, who proclaims that "we'll be able to produce these oil sands with the same emissions as many other oils" (ExxonMobil 2011b). It is not surprising that this ad ignores the concerns of First Nations peoples who have protested oil sand production for economic and environmental reasons (Narine 2011, 2012).[5] These messages are both underscored by a rock power trio of electric guitar, electric bass, and drums. The ad opens with the electric guitar undulating between B and E over a B pedal point played by the electric bass. The drums enter near the one-third mark (0:08) and are accompanied by strummed guitar chords that work to subtly increase the music's textural density and expand the score's frequency spectrum, as before creating a narrative of inevitable progress. ExxonMobil's advertisements conclude curiously with a plagal, or "amen," cadence in B major, offering the not-so-subtle suggestion that viewers should be grateful for the energy exploration that ExxonMobil is undertaking, as it will provide jobs and energy security while also protecting the environment from climate change and water pollution. Plec and Pettenger observe that, even if such messages seem disingenuous or altogether dishonest, "ExxonMobil can frame its activities as eco-friendly with few negative consequences" because of its immense "economic, political and social power derived from profit and product" (2012, 469).

A 2009 advertisement for the Australian natural gas supply Jemena offers an interesting musical counterpoint to ExxonMobil's campaign. According to the blog *The Inspiration Room* (2009), the campaign was intended to "[encourage] Australian householders and businesses in N[ew] S[outh] W[ales] and Victoria to switch to gas before the winter cold hits." Developed by composer Johnny Green for Nylon Studios, the New York- and Sydney-based "music and sound house" (Nylon Studios 2013), the song "Snap Dragon" accompanies a series of thirty- and sixty-second advertisements in which hot-air balloons travel across vast expanses of wide-open fields to provide heat, hot water, and other natural gas-based services to the

homes and businesses of Sydney and Canberra (Marketing Magazine 2009, AdNews 2011). In the campaign's debut sixty-second advertisement, images of gas-powered hot air balloons rising from the sea, the desert, and forests are accompanied by Green's voice singing of two people "passing by" in a "far from perfect world" that still has "a lot of life" over layered acoustic guitar riffs that are punctuated by a brief electric piano chord. The song's bridge, which features Green singing in harmony with himself, elaborates on the alienated relationships of the song's first verse by describing how "the smell of your hair makes me feel like summer's around," despite the autumnal conditions in the ad. During this segment, we see the balloons reaching the residents of towns and cities that benefit from natural gas during the change of seasons, including a woman drinking a hot beverage inside an office that, as her short-sleeved dress indicates, is comfortably heated. The final verse, in which the connection between natural gas and the snapping "little dragons" of the song's title is made clear, is accompanied by a steady sixteenth-note pulse played on the tambourine, again enacting a musical narrative of progress as the balloons congregate in the sky to provide heat and other services to Australia's urban residents. Moreover, Green's subdued vocal style and the reliance on predominantly acoustic instruments here convey a sense of intimacy and naturalness that, like the cozy spaces of our own homes, offers safety and security in the face of environmental dangers such as an approaching winter, as well as impending economic and climate challenges. Perhaps not surprisingly, the song quickly garnered public adulation; as *The Inspiration Room* (2009) noted, "Jemena and Pulse Marketing [, the company behind the marketing campaign, received …] many requests from the public about where to buy the song," prompting Jemena to offer a free download of the song on its website in 2009 and 2010.[6]

Advertisers have exploited music's power to promote consumer recall of a product and to engage our emotions since the 1930s (Taylor 2012). As David Huron has suggested, however, the associations between visual imagery, music, and demographics might allow marketers to use music to "assist in targeting a specific market," but it is challenging to "[establish] rigorous casual links" between music and target demographic (Huron 1989, 566–567). Yet, as ethnomusicologist Jonathan Pieslak proposes in a recent study of music's role in the United States' military recruitment, connections between visual imagery and music have the potential to become reified over time, allowing marketing agencies to draw upon familiar tropes to sell products and services (Pieslak 2009, 18). All of the advertisements examined in this study deploy musical gestures and narratives that have become associated with hip, young, middle-class consumers, including especially indie rock and minimalism. The motoric rhythms and ostinati deployed in the coal lobby's advertisements can be heard in such popular songs as the Postal Service's "Such Great Heights" (2003), as well as recent advertisements for auto maker Scion's "What Moves You" campaign that targeted middle-class consumers in their twenties and early thirties (Scion 2012).[7]

Such resonances should not come as a surprise, however. As cultural critic Thomas Frank has argued, the alignment of countercultural and hip imagery with advertising methods can be traced to the 1960s and has resulted in "the countercultural style [… becoming] a permanent fixture on the American scene, impervious to the angriest assaults of cultural and political conservatives, because it so conveniently and efficiently transforms the myriad petty tyrannies of economic life […] into rationales for consuming" (Frank 1997, 31). Informed by Frank's historical analysis, Robert Fink, in his study of minimalism, advertising, and consumer culture, argues that "musical minimalism works to create desire the way those advertisers [of the 1960s] then through mass-media advertising worked; in other words, process music is a specific midcentury construction *of the construction* of desire" (Fink 2005, 150, italics original). Similarly, Ryan Hibbett, in his exploration of the ways in which cultural capital accrues in indie rock, observes that, although

> indie rock claims for itself a kind of vacuous existence, independent of the economic and political forces, as well as the value systems and aesthetic criteria, of large-scale production [, ...] indie rock mystifies itself, its more literal meanings giving way to something both trendy and exclusive. (Hibbett 2005, 58)

All of this is to say: The hidden composers who have contributed to these "green energy" advertisements sometimes draw upon well-worn associations between musical gesture, genre, and audience values to imbue fossil fuel energy with freshness and a countercultural ethos.[8] Consequently, the music in these advertisements resonates with the "green to be seen" attitudes held by many green consumers, providing hip soundtracks that convince consumers to view fossil fuel energy as yet another product to be conspicuously consumed as they build their own (sub)cultural capital among their green peers (Griskevicius et al. 2010, 392).

The evidence presented here raises fundamental ethical questions concerning the use of music in advertisements that seek to "green" the fossil fuel industry. I agree with both Robert Fink (2005, 66) and Suzanne Cusick (2006), who both have argued that music itself cannot be implicated in ethical discussions. Yet, as James Deaville has suggested in his work on music in television news broadcasts, the "subliminal and thus 'natural' effects [that music exerts] upon audio-viewers" do challenge us to consider the possibility that composers, engineers, producers, and others involved in the production process might be using music to promote dishonest statements, at best, and to encourage insidious behaviors, at worst (Deaville 2006, 48). We must, therefore, consider how the deployment of these musical gestures by the many figures involved in the production of a television advertisement might mislead consumers and, consequently, contribute to the further degradation of air and water quality, biodiversity, and public health locally, regionally, and globally.

NOTES

1. Previous versions of this paper were presented at Ecomusicologies 2012, the 2013 Conference of the Popular Culture Association/American Culture Association, Northern Illinois University, and Bellarmine University. My thanks to Carrie Trimble for assistance in locating important marketing research.
2. The title for this campaign is in Plec and Pettenger (2012); I have been unable to confirm ExxonMobil's official title.
3. In fact, many of these musical tropes are also heard in agribusiness and chemical advertising, as well. See, for example, "The Story of Our Planet" (2008) from Dow Chemical's "The Human Element" campaign (Dow Chemical 2008).
4. In suggesting that advertising music can suggest a narrative, I follow many scholars of music in television advertising who argue that its "musical meaning is dependent upon this mutual implication [of music, voiceover, and visual imagery]" (Rodman 2009, 627). See also Bode (2009, 84) and Cook (1998, 22).
5. For an in-depth examination of the reasons that ExxonMobil began exploring the Alberta oil sands and the history of that development, consult Coll (2012, 55–57, 544–548).
6. Klein (2009, 59–60, 65) and Taylor (2012, 216–229) have argued that such synergies between advertising campaigns and popular music trends have become increasingly common in the past decade or more. Klein notes, however, that brands are the ultimate beneficiary of such cross-promotions; writing of cola campaigns, she asks readers to "bear in mind how many of the musicians who have been involved in cola campaigns are barely a blip on the popular culture radar today, while the names Coke and Pepsi remain in lights" (Klein 2009, 95).
7. Perhaps the most curious commercial using this scoring is a recent advertisement for SAS, a business analytics firm, that explicitly links the score to a rhetoric of progress, suggesting that increased knowledge about one's firm can lead to progress in the business world (SAS Software 2012).
8. Efforts to identify the composers of many of these scores have uncovered no information. This should not be surprising, though, as Sadoff (2004) and Taylor (2000, 163) have demonstrated.

WORKS CITED

Ad News. 2011. "The Natural Choice." Posted 14 April. http://www.youtube.com/watch?v=VcJ8ZjHuz6k.

American Coalition for Clean Coal Electricity (ACCCE). 2013a. "About Us." Accessed September 8, 2013. https://web.archive.org/web/20130908185410/http://cleancoalusa.org/about-us.

———. 2013b. "America's Power: Frequently Asked Questions." Accessed September 25, 2103. https://web.archive.org/web/20130925212104/http://www.americaspower.org/faq.

Americans for Better Energy Choices (ABEC). 2007. "Clean Coal Technology." Posted 31 October. http://www.youtube.com/watch?v=0bcRgnIcntI.

———. 2008. "Clean Coal Ad." Posted 29 October. http://www.youtube.com/watch?v=ZmVDu_gIpc4.

B.M. 2005. "Groups Pay $229M for TV Ads." *Broadcasting & Cable* 135 (12): 20.

Bode, Mattias. 2009. "Making Sense of Music in Advertising Research: An Interpretive Model of the Interaction between Music and Image," in *Music in Advertising: Commercial Sounds in Media Communication and Other Settings*, ed. Nicola Graakjær and Christian Jantzen, 75–98. Aalborg: Aalborg University Press.

Bodger, Amanda, and Melissa Monks. 2010. "Getting in the Red over Green: The Risks with 'Green' Marketing." *Journal of Sponsorship* 3 (3): 284–293.

Center for Science in the Public Interest. 2013. "Americans for Balanced Energy Choices: Integrity in Science: A CSPI Project." Accessed July 10, 2013. http://www.cspinet.org/integrity/nonprofits/americans_for_balanced_energy_choices.htm.

Coll, Steve. 2012. *Private Empire: ExxonMobil and American Power*. New York: Penguin.

Cook, Nicholas. 1998. *Analysing Musical Multimedia*. Oxford: Clarendon Press.

Cusick, Suzanne G. 2006. "Music as Torture/Music as Weapon." *TRANS: Tranculturel Music Review* 10, article 11.

Davenport, Coral. 2009. "Coal Industry Digs in with Lobbying Campaign." *CQ Weekly*, March 23: 652.

Deaville, James. 2007. "The Sounds of American and Canadian Television News after 9/11: Entoning Horror and Grief, Fear and Anger," in *Music in the Post-9/11 World*, ed. Jonathan Ritter and J. Martin Daughtry, 43–70. New York: Routledge.

Dow Chemical. 2008. "The Human Element: The Story of our Planet by The Dow Chemical Company." Accessed July 10, 2013. http://www.youtube.com/watch?v=QpydugTkt1U.

ExxonMobil. 2011a. "ExxonMobil: Unlocking a Century's Supply of Natural Gas." Posted 19 May. http://www.youtube.com/watch?v=XDfVycbnaBc.

———. 2011b. "Oil Sands: A Resource for Energy Security & Economic Growth." Posted 19 May. http://www.youtube.com/watch?v=5XQOJipRlJ8.

Finisterra do Paço, Arminda M., Mário Lino Barata Raposo, and Walter Leal Filho. 2009. "Identifying the Green Consumer: A Segmentation Study." *Journal of Targeting, Measurement and Analysis for Marketing* 17 (1): 17–25.

Fink, Robert. 2005. *Repeating Ourselves: American Minimal Music as Cultural Practice*. Berkeley: University of California Press.

Fischetti, Mark. 2010. "The Drillers Are Coming." *Scientific American* 303 (1): 82–85.

Frank, Thomas. 1997. *The Conquest of Cool: Business Culture, Counterculture, and the Rise of Hip Consumerism*. Chicago: University of Chicago Press.

Frates, Chris. 2012. "Paid to Juggle." *National Journal*, April 7: 1.

Graakjær, Nicolai. 2009. "Music in TV Commercials: Formats, Frequencies, and Tendencies," in *Music in Advertising: Commercial Sounds in Media Communication and Other Settings*, ed. Nicola Graakjær and Christian Jantzen, 53–74. Aalborg: Aalborg University Press, 2009.

Graakjær, Nicolai, and Christian Jantzen. 2009. "Mapping Research on Music in TV Commercials," in *Music in Advertising: Commercial Sounds in Media Communication and Other Settings*, ed. Nicolai Graakjær and Christian Jantzen, 13–52. Aalborg: Aalborg University Press, 2009.

Griskevicius, Vladas, Joshua M. Tybur, and Bram Van den Bergh. 2010. "Going Green to Be Seen: Status, Reputation, and Conspicuous Conservation." *Journal of Personality and Social Psychology* 98 (3): 392–404.

Hibbett, Ryan. 2005. "What Is Indie Rock?" *Popular Music and Society* 28 (1): 55–77.

Hollander, Jeffrey, and Bill Breen, 2010. *The Responsibility Revolution: How the Next Generation of Businesses Will Win*. San Francisco: Jossey-Bass.

Huron, David. 1989. "Music in Advertising: An Analytic Paradigm." *The Musical Quarterly* 73 (4): 557–574.

Inspiration Room, The. 2009. "Jemena Natural Gas Balloons." Posted 19 March. http://theinspirationroom.com/daily/2009/jemena-natural-gas-balloons/#.UUsaQ1et_vE.

Kenney, John. 2006. "Beyond Propaganda." *New York Times*, August 14.

Kinnear, Thomas C., James R. Taylor, and Sadrudin A. Ahmed. 1974. "Ecologically Concerned Consumers: Who Are They?" *Journal of Marketing* 38: 20–24.

Klein, Bethany. 2009. *As Heard on TV: Popular Music in Advertising*. Farnham: Ashgate.

Koller, Monika, Arne Floh, and Alexander Zauner (2011). "Further Insights into Perceived Value and Consumer Loyalty: A 'Green' Perspective." *Psychology & Marketing* 28 (12): 1154–1176.

Marketing Magazine. 2009. "Pulse Gets Natural Gas Back into Consumers' Minds." Posted 1 March. http://www.youtube.com/watch?&v=rN2aABt_zy4.

Marsa, Linda. 2011. "Fracking Nation." *Discover* 32 (4): 62–70.

Miller, Steve. 2009. "Fraudulent Tactics by Clean-Energy Opponents," Testimony before Committee on House Select Energy Independence and Global Warming, *FDCH Congressional Testimony*, October 29.

Montoro-Rios, Francisco Javier, Teodoro Luque-Martinez, and Miguel-Angel Rodriguez-Molina. 2008. "How Green Should You Be: Can Environmental Associations Enhance Brand Performance?" *Journal of Advertising Research* 48 (4): 547–563.

Nair, Sumesh R., and Nelson Oly Ndubudi. 2011. "Stakeholder Influences on Environmental Marketing," *Journal of Management Research* 11 (2): 67–76.

Narine, Shari. 2011. "First Nations Critical of Newest Oil Sands Report." *Alberta Sweetgrass* 18 (2): 1.

———. 2012. "First Nations Push for Full Inclusion in Resource Development." *Alberta Sweetgrass* 19 (9): 1.

Nylon Studios. 2013. "About." Accessed March 21, 2013. http://www.nylonstudios/com.

Ottman, Jacquelyn A. 2011. *The New Rules of Green Marketing: Strategies, Tools, and Inspiration for Sustainable Branding*. San Francisco: Berrett-Koehler.

Pekklä, Erikki. 2009. "Music Videos and TV Commercials: Similarities and Differences," in *Music in Advertising: Commercial Sounds in Media Communication and Other Settings*, ed. Nicolai Graakjær and Christian Jantzen, 121–140. Aalborg: Aalborg University Press.

Pieslak, Jonathan. 2009. *Sound Targets: American Soldiers and Music in the Iraq War*. Bloomington: Indiana University Press.

Plec, Emily, and Mary Pettenger. 2012. "Greenwashing Consumption: The Didactic Framing of ExxonMobil's Energy Solutions" *Environmental Communication: A Journal of Nature and Culture* 6 (4): 459–476.

The Postal Service. 2003. "Such Great Heights." *Give Up*. Sub Pop SP595.

Rauber, Paul. 2009. "The Sizzling Sex Appeal of … Coal." *Sierra* 94 (3): 39.

Rodman, Ronald. 2009. "Advertising Music: Strategies of Imbuement in Television Advertising Music," in *Sound and Music in Film and Visual Media*, ed. Graeme Harper, Ruth Doughty, and Jochen Eisentraut. 617–632. New York: Continuum.

Sadoff, Ronald D. 2004. "Composition by Corporate Committee: Recipe for Cliché," *American Music* 22 (1): 64–75.

SAS Software. 2012. "Know All the Possibilities with SAS® High-Performance Analytics." Posted 22 September. https://www.youtube.com/watch?v=wjZJDbq-DAw.

Scion. 2012. "Scion | What Moves You – Anthem (New Commercial)." Posted 27 September. http://www.youtube.com/watch?v=xrrmTXAZHk0.

Stone, Peter H. 2007a. "King Coal Pours It On." *National Journal* 39 (36): 52.

———. 2007b. "Plugging Coal." *National Journal* 39 (41): 54.

Taylor, Timothy. 2000. "World Music in Television Ads." *American Music* 18 (2): 162–192.

———. 2012. *The Sounds of Capitalism: Advertising, Music, and the Conquest of Culture*. Chicago: University of Chicago Press.

15 Pop Ecology
Lessons from Mexico

Mark Pedelty

Popular music rarely features environmental themes. Mexican pop is no exception. However, a handful of Mexican artists have recorded and performed compelling songs with critical environmental messages. I examine two cases here: Maná's "Cuando los ángeles lloran" (1995) and Belinda's "Gaia" (2010). These are rare examples, chosen from a handful of Mexican popular songs that communicate explicit environmental messages.

In addition to expanding ecomusicological analysis to Mexican popular music, this project was driven by a pragmatic goal. I discovered during previous fieldwork in Mexico City just how much there is to learn from Mexico's rich popular music world (Pedelty 2004). That fieldwork helped propel subsequent ethnographic research in the United States (Pedelty 2012). As I move back into the messy business of performance-based fieldwork conducted in hyperlocal contexts, I find myself looking toward Mexican musical icons for new ideas and, more important, for inspiration. Hopefully, readers will find these cases interesting as well, if not for musical ideas and inspiration, then for what they indicate about the present and future of pop when it comes to communicating environmental themes. Maná and Belinda's songs point toward a potential future of environmentally infused music while providing a new palette of "possible selves" (Fisherkeller 1999, Schnare et al. 2012) for young musicians struggling to integrate ecopolitical themes into their compositions and performances.

MANÁ, "Cuando los ángeles lloran" ("When the Angels Cry")[1]

A Chico Mendes lo mataron	They killed Chico Mendes.
Era un defensor y un ángel de toda la amazonia	He was a defender and an angel of the entire Amazon.
Él murío a sangre fría	He died in cold blood,
Lo sabía Collor De Melo y también la policia	And Collor de Mello and the police knew it.
Cuando los ángeles lloran	When the angels cry
Lluvia cae sobre la aldea	Rain falls on the village,
Lluvia sobre el campanario	Rain falls on the bell tower.
Pues alguién murió	Someone died.

Un ángel cayó	An angel fell.
Un ángel murio	An angel died.
Un ángel se fue	An angel went away
Y no volverá	And won't return.
Cuando el asesino huía	When the assassin fled and
Chico Mendes se moría	Chico Mendes died,
La selva se ahogaba en llanto	The jungle drowned in tears.
Él dejó dos lindos crios	He left two beautiful children,
Una esposa valerosa	A courageous wife,
y una selva en agonia	And a jungle in agony.
Cuando los ángeles lloran	When the angels cry
Es por cada árbol que muere	It is for each tree that dies,
Cada estrella que se apaga, oh no	A star burns out.
Un ángel cayó	An angel fell.
Un ángel murio	An angel died.
Un ángel se fue	An angel went away
Y no volverá	And won't return.
Un ángel cayó	An angel fell.
Un ángel murio	An angel died.
Un ángel se fue	An angel went away,
Se fue volando en madrugada	Went flying away in the daybreak.
Cuando los ángeles lloran	When the angels cry,
Cuando los ángeles lloran, lloverá	When the angels cry, it will rain.

"Cuando los ángeles lloran" goes beyond abstract environmental issues toward specific events, people, institutions, and places. The song deals with the life and death of Chico Mendes, a Brazilian rubber tapper, labor organizer, and environmentalist who was assassinated on December 22, 1988, at the age of 44. Chico Mendes' life and Maná's song serve as reminders that environmental issues are inevitably political and that environmental politics span borders and biomes. Méndes was a patriot, of sorts, but his *patria* was place and planet rather than nation per se.

However, "Cuando los ángeles lloran" speaks in a regional idiom as well. There is a deeply Catholic spirituality to the lyrics and music, including the sound of church bells during the lead-in. Language evoking angels, blood sacrifice, and martyrdom pepper the piece. Conversely, songs about environmental politics are rarely presented in religious language in the Anglophone world, especially pop songs. In equating Méndes to an angel, and trees to angels, Maná builds a spiritual ecosystem that speaks in a distinctly Latin American vernacular.

Lead singer and songwriter Fernando Emilio "Fher" Olvera has repeatedly made that regional connection clear. For example, while introducing "Cuando los ángeles lloran" at a performance for the Viña del Mar

International Song Festival in Chile, he pointed at Greenpeace banners in the audience and stated that Latin America is a region of "peaceful" people. He then explained that Méndes represents a hope for peace and justice in Latin America.[2]

"Cuando los ángeles lloran" is a Pan-American appeal, fusing religion, sense of place, and song within a regional tradition that includes Mexican *corridos* and the *nueva cancion* movement. "Cuando los ángeles lloran" is a rearticulation of space and place on a regional scale, representing Méndes as an ecosystemic saint. Maná has used the song to promote habitat conservation, make claims for environmental justice, and oppose neoliberal development throughout Latin America.

Maná chose a plaintive, understated tone rather than the harshly condemnatory rhetoric one might expect given the subject matter. It is as much a celebration of Méndes life as it is a mournful recognition of his unnecessary death. In concert performances and recordings, the song begins with a plaintive, folkloric guitar solo. The solo is extended in concert, offering a pop-rock homage to Latin American *nueva cancion* and *musica protesta*. It is a genre-bound signal that the song is serious and topical, to be listened to differently than the average rock tune.

The long folkloric introduction also refocuses the fans' attention, similar to the way Billie Holiday used vocal cues to turn club audiences' attentions to "Strange Fruit," even if it required scolding them, or how Bruce Springsteen (2001) continues to hush his fans so that they will listen more closely to "American Skin (41 Shots)" with the reverent attention such a song deserves. Not coincidentally, these three songs are about individuals whose untimely and unnatural deaths symbolize injustice on a much wider scale. Yet, unlike Holiday's and Springsteen's songs, the initial, mournful tone of "Cuando los ángeles lloran" soon gives way to syncopated rhythms, riffs, and instrumental lines that evoke a sense of celebratory determination in the face of destructive opposition. The guitar line develops into an electro-acoustic riff around which the entire song takes shape. As the song advances it becomes increasingly celebratory in the mold of Latin American resistance songs, signaled by a prominent flute line, reminiscent of the Salvadoran rebel tune "Vamos" and similar Latin American protest anthems. A feeling of joyous victory is experienced in the world of the song, even if a long way off in reality. In "Cuando los ángeles lloran" the success of Méndes' environmental and labor movements seem as certain as the fact of his assassination. One inevitably leads to the other, just as angels' tears become life-giving rain at the end of the lyrics.

Lyrical content is extremely important to topical song, particularly for biographical narratives like "Cuando los ángeles lloran." In Olvera's lyrics, the martyr's quiet heroism is contrasted with the hateful hypocrisy of individuals and institutions that exploit rubber tappers, miners, and farmer laborers and destroy surrounding ecosystems. There is a shaming aspect to the song. Méndes upheld a cherished ideal, an ideal that is violated when we

destroy hardwoods in the Amazon or consume products bathed in the blood of distant others. To get that point across, Maná could have screamed out in anger, but chose a more self-reflective tone to start, and a celebratory, mobilizing tone to end. Maná invites the audience to move beyond self-righteous finger pointing toward collective action.

"Cuando los ángeles lloran" exemplifies what Petrilli refers to as "semioethics." She suggests that academic analysts should recognize "the implications, perspectives, risks, and responsibilities involved in semiosis" (Petrilli 2009, 344). It is not enough to pull language apart in the form of critical deconstruction. "A major issue for semioethics," argues Petrilli, "is 'care for life' from a global perspective" (344). That requires making links and understanding relationships rather than simply pulling apart others' discourses. Semioethics is, in a word, ecological. So is "Cuando los ángeles lloran." It completes a relational link between subject, place, singer, audience, event, and action. This is a hallmark measure of effective environmental communication.

The articulation of art to activism is central to Maná's ecopolitics. Their Selva Negra Foundation is one of the best examples of musical activism to date. Maná have transformed their musical success into effective environmental activism, work that has benefited endangered sea turtles and coastal communities, successfully advocated for the creation of wilderness areas that benefit people living within and along their borders, fostered environmental education curricula, and even instituted community-based music schools that integrate musical and environmental education. Jack Johnson's All at Once project is among a handful of similar examples.[3] However, Maná was at the leading edge of this still-developing trend. Their success in Latin America and Europe should be recognized, analyzed, and emulated. In order to better understand "Cuando los ángeles lloran" and draw insight from Maná's example, it is useful to compare it to another environmentally themed song from Mexico, Belinda's "Gaia."

BELINDA, "GAIA"

Hola planeta ¿cómo estás?	Hello planet, how are you?
Hoy pienso en ti con humildad	Today I think about you with humility.

Like many Mexican pop stars—Thalia, Lucero, Paulina Rubio, and others—Belinda is an attractive young woman who performs danceable pop, mainly for adolescent audiences. However, her unique voice, aesthetically compelling music videos, and willingness to explore topics beyond romance and relationships all mark her as somewhat distinct.

After an initial reply, Hal Leonard Publishing failed to respond to any queries regarding permission to reprint the lyrics to "Gaia." Nevertheless, many of her live performances and music videos are available online.[4] As is evident in

videos of Belinda in performance, her high-energy ensemble, light shows, and concert tours contradict the preservationist message presented in "Gaia." It is a song about neglecting, and then protecting, the Earth. She joins U2 (Grant 2009), Madonna (Simpson 2013), and other environmentally inflected pop performers in directly contradicting message with medium. If the medium is the message (McLuhan and Fiore 1967), then Belinda's message is to ignore crisis in favor of lyrical sex, romance, and partying, empowered by wasteful energy use (tour transport, light shows, sound systems, etc.) and the celebration of excessive consumption (e.g., commercials touting soft drinks). The contradiction is not merely one of word versus deed. Songs like "Dopamina" (Belinda 2010) quite literally encourage the audience to ignore serious matters like environmental justice. Therefore, we might find Belinda more sincere when she tells us to buy a Pepsi than when she laments having "failed" the Earth.

Nevertheless, Belinda shifts to acoustic instrumentation in order to assuage apparent contradictions between pop spectacle—high-powered sound and light systems, consumer product sponsors, unsustainable touring—and environmental claims. She seems to recognize that a pop show, a rite of spectacular excess, is inappropriate for communicating sustainability. Perhaps to avoid that contradiction, Belinda makes the switch to acoustic guitar or, in some cases, piano when performing "Gaia." The recording and performances also foreground the lyrical content of the song and feature less electronic embellishment of the voice. Yet in some ways Belinda's code switching simply heightens her contradictions. Pop remains at odds with ecopolitical aesthetics.

To understand Belinda's performances, however, we must pay attention to the relationship between political economy and pop. Global industries seek profit by every means possible, transforming biodiverse ecosystems into short-term profit mills. Forests, wetlands, and prairies become farms, mines, and strip malls. Consumers perform a central role in that capitalist ecology, purchasing, displaying, and consuming as many goods and services as possible. Consumption has been raised to a moral good, and consumers have largely replaced citizens as the central subjects of governance.

What does that have to do with pop music? Pop performs the soundtrack for overconsumption. Increasingly, musicians make a living by selling licensing rights to advertisers and entertainment media. A short walk through the mall or quick surf through TV channel line-ups reminds us that the primary marketing function of popular music is to sell products, services, and unsustainable lifestyles. Pop promotes consumption.

Throughout history, every regime has represented and reproduced itself through musical ritual. Consider Mexico's past (Pedelty 2004). For millennia, Mesoamerican musicians served empires and emperors. After the conquest, colonial Viceroys and Archbishops sought support and solace in the polyphonic mass. In the postcolonial era, secular *sones,* dances, and marches took center stage. After the Revolution of 1910, ranchera narratives effectively promoted the PRI (Institutional Revolutionary Party). Today, the

dominant musical soundscape, pop music, encourages Mexican citizens to think of themselves first and foremost as consumers, to literally buy in to the dominant system. Consumer capitalism and its musical accompaniment supply a level of disciplinary pleasure whose power no ideological, intellectual, or political economic challenger can yet match. Fun is freedom.

In other words, Belinda's internal contradictions reflect the cognitive dissonance of contemporary capitalism: a rhetoric of sustainability matched by unsustainable consumption. From U2 to Live Earth, world rock is the equivalent of corporate greenwashing. Think environmentally, consume radically. The dissonance between ideal and effect is ritually resolved and reproduced. We cry a musical tear for "Gaia" and perhaps sign a petition before moving on to the merchandise table and beer stand, where real life begins.

So what's a pop star to do? One answer to the pop conundrum is to forgo big tours and stadium concerts. The digital age promises to usher in greater proximity to artists without the wasteful energy use and pollution associated with live stadium concerts and tours. However, more than ever fans want to share physical space with their favorite musicians, to hear the music they love reproduced "live." Likewise, musicians measure their artistic worth through live performance. Furthermore, given lowered profit margins brought on by digital distribution, music companies need live concerts more than ever. Music producers' profit margins depend on the ad subsidies and merchandise sales concerts make possible. However, even that becomes less true with each passing year. Increasingly, direct licensing to advertisers, TV programs, and film producers pay the bills. Gone are the days when musical markets were disciplined by little more than the purchasing power of consumers. Mediating institutions, especially advertisers, become more important every year in determining which songs are bankable, and thus distributed more widely.

As Leppert has demonstrated, music tends to be a cultural force predicated upon "affirming political and economic policies" (1993, 116). That is as true for rock as other genres (Grossberg 1992). Of course, fans also use music to challenge "cultural hegemonies" (Vannini 2004, 47). Yet, ecomusicological analysis of unsustainable pop reminds us that popular music, like all industries, tends to reaffirm rather than challenge the status quo. Belinda, like most pop stars, aims to please. Today that means more than just pleasing an audience, it means being useful to marketers and, by all means, not challenging the hegemonic premise on which consumer lifestyles are based.

All of that might seem like a harsh condemnation of Belinda, and it is probably no surprise by now that Belinda's music publisher would refuse to offer reprint permission. However, my final conclusion is quite the opposite. Rather than run from such contradictions, Belinda has embraced them, and for that she is to be applauded. While most superstars shy away from creating environmentally critical music, or critical songs of any sort, Belinda dares to sing "Gaia." It is not a direct or specific challenge of the sort Maná offers with "Cuando los ángeles lloran," but the young pop star does dare to take on a taboo topic. Isn't a cathartic, dissociative ritual better than one that

simply gives in to genre and marketing disciplines completely? As Monsivais observed, we applaud the beast because "the most atrocious nightmare is the one that excludes us completely" (1995, 250). With "Gaia," Belinda braves ridicule by taking on the contradictory and anachronistic persona of the environmentalist. In some ways it is easier to be the critical outsider than the conflicted insider. Someone must speak to the *pop*ulace in ways that truly matter to them. Belinda's fans are unlikely to listen to the very popular rock band, Maná, let alone some obscure agitprop eco-artist.

Activism is about embracing conundrums and braving the slings and arrows of critics, including critics who are always at the ready to point out contradictions rather than examine serious problems. Every activist experiences such criticisms at some point along with the embarrassment of performing his or her contradictions in public. There is the potential for serious discomfiture in holding a protest sign, speaking out at a regulatory hearing, or singing a confessional song about environmental stewardship. Fear of ridicule and an overwhelming sense of hypocrisy can lead to political paralysis.

If there is one overriding ethic to environmental communication, it is the idea that communicating environmental messages is as important as contemplating them, that environmental ethics and meaningful praxis requires us to do more than dissect others' environmental rhetorics. It is important to look at Belinda's "Gaia" in that light. Belinda explained that she felt compelled to make a statement with "Gaia" (El Norte 2010):

> "Gaia" is a song directed at the planet. My Father and I always wanted to write about that and, when we made this song it was magic! The inspiration came at the right moment. Our planet (is) Gaia, it is time to open our eyes and take care of the only one we have.

Belinda has not allowed genre conventions and limitations to stop her from communicating environmental messages, no matter how generalized. Audiences expect critical challenges from post-punk bands like Café Tacuba. They even allow pop-rock ensembles like Maná to sound off. Young, female pop stars, however, are kept in the smallest box when it comes to genre conventions: caged by expectations, fans, and critics alike, they are lampooned as much for trying to break out as for remaining safely ensconced in the narrow sell. "Gaia" represents Belinda stepping out of line for the sake of conviction and at the risk of criticism.

On the other hand, there is little evidence that "Gaia" engendered much criticism. Press discussion of the song is almost non-existent and audience discussion is limited to a small group of committed fans. Joaco Collipal had this to say about the song and singer in the YouTube comments connected to a video of "Gaia" (Belinda 2013):

> This is a beautiful song. Here is the proof that she composes her songs for real and that it is not just a matter of being a pretty face in

> the world of music. It's a song for reflecting that once and for all we should do something for our planet.

Collipal's comments are representative in that he takes on a defensive tone. Many commenters reacted against unnamed critics, detractors who feel that Belinda is a superficial pop puppet rather than an artist in her own right. However, a surprising number of fans produced their own musical videos featuring "Gaia," testament to a direct, inspirational impact on Belinda's fans. They might not listen to Belinda because of her environmental messaging, but they appear to have received an environmental message because of Belinda. This is how pop politics typically work: as a "headline service" for young fans that might not otherwise encounter critical topics (Pedelty 2009).

Recording and performing a song like "Gaia" is filled with risk. In an age where style defines identity, one of the greatest gambles a performer can take is to look overly earnest, foolish, and uncool. However, the willingness to face one's contradictions, step out of line, and risk looking foolish is absolutely essential to participatory democracy. As environmental critics we might consider throwing a bit of praise in the direction of pop stars like Belinda for doing something more than selling soft drinks.

CONCLUSION

Malvina Reynolds and Pete Seeger's *God Bless this Grass* (1966) opened up space for lesser-known folk artists to sing about environmental topics (Ingram 2008, 2010). Hopefully, artists like Belinda and Maná—together with others such as Jack Johnson, Gotye ("Eyes Wide Open" 2010), Joni Mitchell, and Michael Franti—will have the same effect in the world of pop and rock. We might be lacking ecomusical models in the United States, especially in our local music scenes, but the world is full of environmental creativity. We would do well to study the rich diversity of ecologically creativity worldwide. Maná and Belinda provide us with simple but potentially useful lessons: link music to movements without sacrificing aesthetics, and take artistic risks. Before offering some final thoughts, I will say a bit more about both of these basic points.

As Mattern (1989) demonstrated, music coheres communities, helping members better identify with the shared goals of a collective body. From entrainment in the passing ritual moment (Phillips-Silver et al. 2010) to a more lasting sense of belonging and group identity, music performs an essential role in human organization and communication (Osborne 2009). Maná's connection to the environmental justice and biodiversity movements provides a model example. Maná's linking of aesthetics (e.g., song) to logistics (e.g., organizing) is rare, remarkable, and worthy of emulation by environmentalist musicians, including those of us who do similar work on a local scale.

The final take-away from Belinda is to take artistic risks, a relatively simple point perhaps, but one worth reinforcing. Environmentally themed pop remains, almost by definition, a genre-defying act. If stars like Belinda and Madonna have difficulty getting away with it, what chance do lesser-known musicians have of making music that evokes or advocates for sustainability, biodiversity, and environmental justice? There is enough to worry about already for the working musician: financing, promotions, marketing, transportation, organization, and so on, not to mention writing and performing quality music.

That is where musicians like Maná and Belinda become particularly useful. They serve as heuristic shortcuts, a common stocks of ideas, inspiration, and symbols that other performers can and do draw from in forming their own musical practices. They become shorthand for booking agents, venue managers, organizations, and music producers to understand new musicians similarly attempting to express environmentalist concerns. If Belinda can sing a song about Gaia, the space for local pop acts to likewise perform songs about environmental issues is greatly widened, at least in Mexico, Latin America, and Spain. Sadly, there are very few eco-pop equivalents to Belinda and Maná in Anglophone rock, pop, or hip-hop (Rosenthal 2006), but bands like Cloud Cult point to a future with more such models.

Many producers, distributors, and audiences consider environmental themes to be ideologically tendentious, which is one reason many musicians refuse to touch them. Nevertheless, Belinda co-wrote, recorded, and performed "Gaia." She risked alienating an audience not typically associated with environmental interests. Therefore, rather than criticized for daring to lay out her many contradictions onstage, Belinda should be applauded. Fear of looking foolish can lead to relatively safe performance, adequacy over efficacy, superficial entertainment over meaningful art. It is not easy defying the expectations of a comprehensible genre, especially one as confining as pop. In that light, "Gaia" is an unsafe act, one that flies in the face of expectations.

Granted, Belinda's "Gaia" is hardly a radical challenge. Sustainability is consensual in the abstract. It only threatens lifestyles and industries when articulated more specifically. Maná offered up much more than planetary platitudes when singing about Chico Mendes. Yet, there are very different pressures on pop stars like Belinda, women who, like the Dixie Chicks, are repeatedly told to *Shut Up & Sing* (Ingraham 2003). The disciplining of scopocentric sexism falls hard on female pop artists, making their acts of rebellion against genre convention that much more difficult and that much more impressive when successful.

The direct connection Belinda draws between self and Earth/Gaia resonates particularly well with an ecofeminist orientation, one that has been represented more fully in other musical traditions and genres. As Von Glahn (2013) explains, "Ecofeminists understand the health of the earth is inextricably bound to the health of its inhabitants, and vice versa" (210). It is

precisely that sort of mutually dependent relationship that Belinda expresses in "Gaia": "You have given me everything and I promise to take care of you […] you are vital to my life." Beyond words, when put into music and movement, Belinda's "Gaia" fosters a state of "kinesthetic empathy" similar to what Handschuh (2014) describes in her writings about dance. Just as "the cycling of the environment through the body" in dance "heightens our awareness" of place, so too, Belinda renders an aural image of "the reciprocity inherent in our relationships with other people and our surroundings" (152). It is another form of ecopolitics, less instrumental than Maná's ecopolitics, in the organizational sense, yet more deeply affective and embodied. At the same time, Feisst (chapter 18) provides a useful warning against falling into the gendered essentialism of viewing women artists as more attuned to life-giving nature than their masculine counterparts. Such narratives present "women's identification with 'sick' Mother Earth" (247), a trope played out in Belinda's "Gaia." In other words, if "Gaia" is an ecofeminist challenge to acritical pop, it is more aligned with an earlier, essentialist, and highly problematic articulation of ecofeminism.

Before conducting participant observation fieldwork I would have been more likely to criticize Belinda for the ideological naiveté in her music, but having experienced just a small taste of what it is like to try to communicate environmental themes through music, I marvel at Belinda's courage and, quite frankly, have found her example more than a little useful. Art is more often catalytic than communicative in the simple sense. Rather than the transmission model of communication, sending message A to listener B, music involves complex ecologies of meaning. It is about mediation rather than simple messaging. Artists tend to be more adept at mediating community concerns—providing new perspectives to initiate creative dialogue—than they are at providing information or motivating action. While Belinda might not be telling her fans to go out and do environmental justice work or providing them with information about ecological crises, she is interjecting critical questions into an otherwise acritical context. That is a difficult task, a greater challenge, at times, than preaching to the choir.[5]

Continuing to look for new and better ways to articulate music, stewardship, and activism on the local level, I have shared these two examples in part because I have found them useful as ways to think about ecomusical composition and performance, more generally. Maná's "Cuando los ángeles lloran" and Belinda's "Gaia" have reached wide audiences for many reasons. One is a shared recognition between performers and audience that ecological crises matter enough to sing about them. While serious audience research is beyond the scope of this project, the mere fact that popular musicians were able to put these ecocritical songs into circulation and still perform them regularly for large audiences is fairly remarkable. Hopefully, such songs will be commonplace in the future, but for now we are studying a phenomenon in the making.

NOTES

1. I would like to thank Michael Worden and Alfred Music Publishing for granting permission to reproduce the lyrics to "*Cuando los ángeles lloran.*"
2. The 2003 Viña del Mar performance can be viewed on YouTube; see also the online supplement (http://www.ecomusicology.info/cde) and http://ecosong.org/.
3. See the online supplement (http://www.ecomusicology.info/cde) and http://ecosong.org/.
4. Ibid.
5. After this manuscript was completed in the summer of 2014, Belinda announced her new "Fundación Gaia." Many pop stars have voiced support. However, it remains to be seen exactly what sort of work that the foundation will do. There has been relatively little press on the project thus far (Cortés 2014); the main source of information about it is via Twitter (@BelindaGaia). Nevertheless, it is a strong indication that Belinda seeks to do more with her environmentally themed song.

WORKS CITED

Belinda. 2010. *Carpe Diem*. New York: Capitol Latin.

Belinda. 2013. "Belinda Gaia Acustico Estudio Billboard." Accessed June 6, 2014. https://www.youtube.com/watch?v=RojbIHnYEOk.

Cortés, Noemi. 2014. "Belinda lanza 'Gaia' fundación en pro del Planeta." *Diario Rotativo Noticias de Querétaro*. Accessed February 21, 2015. http://rotativo.com.mx/entretenimiento/espectaculos-entretenimiento/309661-belinda-lanza-gaia-fundacion-en-pro-del-planeta/.

El Norte. 2010. "Su abuelo la inspira." *Gente!* March 23: 1.

Fisherkeller, JoEllen. 1999. "Learning About Power and Success: Young Urban Adolescents Interpret TV Culture." *Communication Review* 3 (3): 187.

Grant, Alistair. 2009. "Have U2 Created a Monster?" *Belfast Telegraph*, July 7.

Grossberg, Lawrence. 1992. *We Gotta Get Out of this Place: Popular Conservatism and Postmodern Culture*. New York: Routledge.

Gotye. 2010. "Eyes Wide Open." Eleven Music. Surry Hills, Australia.

Handschuh, Julia. 2014. "'On Finding Ways of Being': Kinesthetic Empathy in Dance and Ecology." In *Performance on Behalf of the Environment*, edited by Richard Besel and Jnan Blau, 147–174. Lanham, MD: Lexington Books.

Ingraham, Laura. 2003. *Shut Up & Sing!: How Elites from Hollywood, Politics, and the UN are Subverting America*. Washington, D.C.: Regnery Publishing.

Ingram, David. 2008. "'My Dirty Stream'": Pete Seeger, American Folk Music, and Environmental Protest." *Popular Music and Society* 31 (1): 21–36.

———. 2010. *The Jukebox in the Garden: Ecocriticism and American Popular Music Since 1960*. Amsterdam: Rodopi.

Leppert, Richard. 1993. *The Sight of Sound: Music, Representation, and the History of the Body*. Berkeley: University of California Press.

Maná. 1995. *Cuando los ángeles lloran*. Mexico City: Warner Music Mexico.

Mattern, Mark. 1998. *Acting in Concert: Music, Community, and Political Action*. New Brunswick: Rutgers University Press.

McLuhan, Marshall, and Quentin Fiore. 1967. *The Medium is the Message*. New York: Random House.

Monsiváis, Carlos. 1995. *Los rituales del caos*. México, D.F.: Ediciones Era.

Osborne, Nigel. 2009. "Towards a Chronobiology of Musical Rhythm." In *Communicative Musicality: Exploring the Basis of Human Companionship*, edited by Stephen Malloch and Colwyn Trevarthen, 545–564. New York: Oxford University Press.

Pedelty, Mark. 2004. *Musical Ritual in Mexico City: From the Aztec to NAFTA*. Austin: University of Texas Press.

———. 2009. "Musical News: Popular Music in Political Movements." In *The Anthropology of News and Journalism: Global Perspectives*, edited by Elizabeth Bird, 215–237. Bloomington: Indiana University Press.

———. 2012. *Ecomusicology: Rock, Folk, and the Environment*. Philadelphia: Temple University Press.

Petrilli, Susan. 2009. "Semiotics as Semioethics in the Era of Global Communication." *Semiotica* 173 (1–4): 343–367.

Phillips-Silver, Jessica, Athena Aktipis, and Gregory A. Bryant. 2010. "The Ecology of Entrainment: Foundations of Coordinated Rhythmic Movement." *Music Perception* 28 (1): 3–14.

Rosenthal, Debra J. 2006. "'Hoods and the Woods: Rap Music as Environmental Literature." *Journal of Popular Culture* 39 (4): 661–676.

Schnare, Ben, Peter MacIntyre, and Jesslynn Doucette. 2012. "Possible Selves as a Source of Motivation for Musicians." *Psychology of Music* 40 (1): 94–111.

Seeger, Pete, and Malvina Reynolds. 1966. *God Bless the Grass*. New York: Columbia.

Simpson, Richard. 2013. "Climate Change Concert Star Madonna Accused of Hypocrisy." *UK Daily Mail Online*. Accessed June 4, 2014. http://www.dailymail.co.uk/tvshowbiz/article-447677/Climate-change-concert-star-Madonna-accused-hypocrisy.html.

Springsteen, Bruce. 2001. "American Skin (41 Shots)." *Live in New York City*. New York: Columbia Records.

Vannini, Phillip. 2004. "The Meanings of a Star: Interpreting Music Fans' Reviews." *Symbolic Interaction* 27 (1): 47–69.

Von Glahn, Denise. 2013. *Music and the Skillful Listener: American Women Compose the Natural World*. Bloomington: Indiana University Press.

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Part IV

Textual Directions

Aaron S. Allen and Kevin Dawe

The essays in this part engage primarily with texts. These texts may be works of music by individual composers, as in Drott, Feisst, and Von Glahn (although none of the works on which they focus would be considered canonical). The texts may be those of folk music, which in Ingram's case happen to be both the scholarship on as well as the actual lyrics and music of traditional English songs (which are collected and transmitted, rather than composed). Or the texts may be writings in periodicals, as is the case with Allen. Linking all of these essays is engagement with the well-established textual practice of ecocriticism, which analyzes cultural products (such as poems, novels, commercials, films, music, etc.) that imagine and portray human-environment relationships (Garrard 2004, Glotfelty and Fromm 1996). Ingram is the only card-carrying ecocritic of the group, and he engages with a prominent ecocritical topic: the pastoral. Ecocritical writings help frame and theorize the essays by Drott (regarding postcolonial ecocriticism) and Allen (regarding ecological imagination, which scholars of environmental history also employ). Feisst and Von Glahn engage extensively with ecofeminism, a complex theoretical discourse with connections to ecocriticism and environmental philosophy. Furthermore, particular places and the idea of place is important for these essays (a common theme throughout the volume); most prominently, Von Glahn engages with bioregionalism, a place-based approach to organizing human society. Place and bioregionalism are major concerns in geography, environmental history, and of course, ecocriticism.

Ingram considers the issue of place with particular regard to concepts from cultural geography (topophilia) and from biology and evolutionary psychology (biophilia). As an example, he interprets the traditional English song "When Spring Comes In" as celebrating humans' affective bonds with the environment (topophilia; Tuan 1974) and innate affinity for nonhuman nature (biophilia; Wilson 1984, Kellert and Wilson 1993). Ingram critiques writings about traditional folk songs regarding the implications of the pastoral mode: For some Marxist writers, the pastoral in folk music was understood as an escape from urban, industrial society; but for some ecocritics, the pastoral could be simultaneously a critique of current situations and an orientation toward a more sustainable, or even utopian, future. In English culture, such pastoral discourse is also part of the politics of nostalgia, which in the contemporary folk scene holds up such music as models for local, sustainable cultural production. Ingram's essay relates to a number of major trends in ecomusicology and ecocriticism. His own book (Ingram 2010), one of the most important texts in ecomusicology, offers interesting parallels with the pastoral in American music of the late twentieth century (see also Porter 1991 for context regarding the Anglophone debates about Cecil Sharp). The pastoral is a perennial topic in ecocriticism (Gifford 1999, James and Tew 2009), while geography is a topic that has regularly interested musicologists (Von Glahn 2003, Grimley 2006, 2011, Watkins 2011). Nostalgia is a topic that Rehding (2011) has advocated as a

particular strength in ecomusicology. In this volume, Ingram's essay relates to those by Drott on the pastoral and on the "peasant" in opposition to modernity, and by Allen on the ecological imagination. Ingram's essay connects with Edwards regarding critical theory and with Titon regarding the pastoral and place; the latter topic is also of interest to Edwards, Simonett, and Von Glahn (regarding bioregionalism, dwelling, and topophilia). In discussing birds, Ingram's essay connects also with the other essays in this volume that include animal studies: Allen, Boyle and Waterman, Feisst, Guyette and Post, Seeger, Simonett, and Titon.

Drott brings postcolonial ecocriticism to bear on a single work, the *Petite symphonie intuitive pour un paysage de printemps* (1974) by Luc Ferrari. This tape piece makes use of newly composed quasi-minimalist music inspired by, together with recorded sounds and interviews from, the Causse Méjan, a plateau in south-central France. Central to Drott's interpretation are excerpts of interviews with local residents. The music and these texts allow for rather different views (dissensus) regarding the landscape: The visitor from the city has an aestheticized and appreciative "tourist gaze" (Urry 2011) that is in marked contrast to the rural inhabitants, who view the landscape practically rather than aesthetically. Ferrari's work is thus self-critical, and it shows how different social positions view landscape differently; as such, it allows listeners to have new, reflective, and complex environmental perspectives. Drott's approach is informed by postcolonial ecocriticism, which investigates the power relationships, inequalities, and material conditions in Western constructions of nature, particularly those imagined in the arts; in this regard, Drott is in dialogue with a community of ecocritics (Tiffin and Huggan 2009, DeLoughrey and Handley 2011). In addition to contextualizing his discussion in the history of France in general and the landscape of the Causse Méjan in particular, Drott also relates his analysis to debates of the "ecological Indian" in anthropology (Hames 2007). Grimley's studies of music and landscape (2006, 2011) are also a relevant intellectual context for Drott. In this volume, the acknowledgment of perspectives from others of lower status (the subalterns) in postcolonial ecocriticism situates it in relation to the essays by Edwards (who is also interested in dissensus) and Mark. Drott's essay connects with Ingram and Titon regarding ecocriticism and the pastoral, and with Feisst (and Mark) regarding the "tourist gaze."

Feisst chronicles the careers and discusses exemplary works of two composers who expressed environmental concerns, pioneered new music technologies, and succeeded in the male-dominated field of composition. In their work, Maggi Payne and Laurie Speigel display and simultaneously challenge ideas of ecofeminism (a belief that the exploitation of the Earth and the domination of women are connected). Feisst's analyses of their careers, ideas, and works—Payne's desert-inspired audiovisual piece *Apparent Horizon* (1996) and Spiegel's mini opera about mice and a dog *Anon a Mouse* (2003)—question the conventional wisdom claimed in decades of ecofeminist

writings that have viewed women as physiologically and psychologically closer to nature than men, and men as more strongly connected with culture and technology than women. Although neither Payne nor Spiegel considers herself an ecofeminist, their works express ecofeminist ideas. Feisst offers a unique perspective in the ongoing literature on gender and music (McClary 1991, Hinkle-Turner 2006) and on ecofeminism and environmental studies (Ortner 1974, Warren 2000, Merchant 2013). Elsewhere in this volume, Feisst shares an interest in the "tourist gaze" (Urry 2011) with Drott (a topic relevant also in Mark), and she uses a popular version of ecology in contrast to the definition advocated by Boyle and Waterman. Mice are a topic in the essays by Allen, Seeger, and Simonett (other animals are a topic as well in Boyle and Waterman, Guyette and Post, Ingram, and Titon). The issue of ecofeminism comes up in tangentially in Allen, more so in Pedelty, and especially in Von Glahn. Feisst's essay addresses the nature-culture debate, as do Dawe, Edwards, Hui, Mark, Seeger, Simonett, Sonevytsky and Ivakhiv, and Windsor.

Von Glahn focuses on the context, career, and work of Libby Larsen, whose political consciousness is connected to the ideas of bioregionalism (a belief that borders and boundaries should be drawn according to the physical environment rather than politics) and ecofeminism. Coming of age in the 1960s and 1970s, Larsen's context includes Vietnam War protest and the environmental and feminist movements, issues that coalesce in bioregionalism and ecofeminism. Although she originally refused to be labeled with such terms, Larsen eventually came to embrace them. Von Glahn makes the case, through considerations of Larsen's music and writings and through personal interviews with the composer, that bioregionalism and ecofeminism help us understand, contextualize, and feel Larsen's ideas as communicated in sound. Larsen does not preach with her music, so these concepts can be more powerful heuristics for understanding her music. *Deep Summer Music* (1982) is a case study, and through it and Larsen's writing about it, Von Glahn explores the issues of place, nature, and partnership—all of which are central to bioregionalism and ecofeminism. As with Feisst's essay in this volume (and to a lesser extent those by Allen and Pedelty), Von Glahn is in dialogue with an extensive literature on gender and music (McClary 1991, Hinkle-Turner 2006) and on ecofeminism and environmental studies (Ortner 1974, Warren 2000, Merchant 2013). For a coming together of ecofeminism and bioregionalism, see Plant (1990). The broader conversation on bioregionalism (Evanoff 2011) connects with the longstanding discussions of place frequent in environmental history (Hughes 2006), ecocriticism (cf. dwelling and pastoral in Garrard 2004), geography (Cresswell 2012, Tuan 1974), and of course ecomusicology (Von Glahn 2003, Grimley 2006, 2011, Watkins 2011, Pedelty 2012). Bioregionalism is a central idea with regard to place, a topic related to dwelling and topophilia and of interest also for Edwards, Ingram, Simonett, and Titon (as well as many others).

Allen considers a few years of writings from a late nineteenth-century Italian music periodical. Although such sources usually focus on opera, these

writings engaged with soundscapes and connections between nature and music: from discussions of bird musicians to forest soundscapes, and from emotional appeals in stories to claims relying on Charles Darwin and composers such as Bellini. Allen makes three points about these sources: first, an analytic point is that the authors constitute an early ecomusicological community given the dialogue and recurring themes; second, an interpretive point is that their writings are an exercising of the ecological imagination to push opera in new directions; and third, a historiographical point is that we can understand our own ecomusicological efforts today as part of a longer intellectual history of engagements between music, culture, and nature. Allen's discussion of the idea of the environmental or ecological imagination puts his essay in dialogue with ecocriticism (Buell 1995, 2005), environmental history (Worster 1993), and ecomusicology (Guy 2009). Opera studies is a field rich for ecomusicological interpretation (see Senici 2005). In the Italian critics' discussions of birds and animals in relation to music, Allen makes connections with bioacousticians (Krause 2012) and historians of medieval music (Leach 2007), as well as numerous essays in this volume: Boyle and Waterman, Feisst, Guyette and Post, Ingram, Seeger, Simonett, and Titon. Allen's discussion of historiography is also relevant to Edwards and to Sonevytsky and Ivakhiv, while the ecological (or environmental) imagination is of interest to Ingram. And no discussion of soundscapes would be complete without mentioning the "father" of that field, R. Murray Schafer (1994), who is also discussed in the essays by Guyette and Post, Hui, Simonett, and Titon.

Through a common thread of ecocriticism, the textual directions here are connected especially to the critical directions explored in Part III. They share the use of varied methods of critique: from ecocriticism to environmental history, from ecofeminism to postcolonial ecocriticism, and from bioregionalism to topophilia. However, the essays here differ from those of Part III through the emphasis on musical works. Indeed, Pedelty engages with specific works, while Allen does not; but Pedelty emphasizes a critical approach on communication (process more than products), while Allen foregrounds an approach based on texts (products more than process). All of the essays here emphasize places, both specific and general. In sum, then, the textual directions of these essays highlight the ecocritical and geographical directions of ecomusicology.

WORKS CITED

Buell, Lawrence. 1995. *The Environmental Imagination: Thoreau, Nature Writing, and the Formation of American Culture*. Cambridge: Harvard University Press.

———. 2005. *The Future of Environmental Criticism: Environmental Crisis and Literary Imagination*. Malden, MA: Blackwell Publishers.

Cresswell, Tim. 2012. *Geographic Thought: A Critical Introduction*. Chicester: Wiley.

DeLoughrey, Elizabeth, and George Handley. 2011. *Postcolonial Ecologies*. Oxford: Oxford University Press.

Evanoff, Richard. 2011. *Bioregionalism and Global Ethics: A Transactional Approach to Achieving Ecological Sustainability, Social Justice, and Human Well-being*. London: Routledge.

Garrard, Greg. 2004. *Ecocriticism*. New York: Routledge.

Gifford, Terry. 1999. *Pastoral*. New York: Routledge.

Glotfelty, Cheryll, and Harold Fromm, eds. 1996. *The Ecocriticism Reader: Landmarks in Literary Ecology*. Athens: University of Georgia Press.

Grimley, Daniel M. 2006. *Grieg: Music, Landscape and Norwegian Identity*. Woodbridge: Boydell Press.

———. 2011. "Music, Landscape, Attunement: Listening to Sibelius's Tapiola." *Journal of the American Musicological Society* 64 (2): 394–98.

Guy, Nancy. 2009. "Flowing Down Taiwan's Tamsui River: Towards an Ecomusicology of the Environmental Imagination." *Ethnomusicology* 53 (2): 218–48.

Hames, Raymond. 2007. "The Ecologically Noble Savage Debate." *Annual Review of Anthropology* 36: 177–190.

Hinkle-Turner, Elizabeth. *Women Composers and Music Technology in the United States: Crossing the Line*. Aldershot: Ashgate, 2006.

Hughes, J. Donald. 2006. *What Is Environmental History?* Cambridge: Polity.

Ingram, David. 2010. *The Jukebox in the Garden: Ecocriticism and American Popular Music Since 1960*. Amsterdam: Rodopi.

James, David, and Philip Tew, eds. 2009. *New Versions of Pastoral: Post-Romantic, Modern, and Contemporary Responses to the Tradition*. Madison Teaneck: Fairleigh Dickinson University Press.

Kellert, Stephen R., and Edward O. Wilson. 1993. *The Biophilia Hypothesis*. Washington, D.C.: Island Press.

Krause, Bernard L. 2012. *The Great Animal Orchestra: Finding the Origins of Music in the World's Wild Places*. New York: Little, Brown.

Leach, Elizabeth Eva. 2007. *Sung Birds: Music, Nature, and Poetry in the Later Middle Ages*. Ithaca: Cornell University Press.

McClary, Susan. 1991. *Feminine Endings: Music, Gender, and Sexuality*. Minneapolis: University of Minnesota Press.

Merchant, Carolyn. 2013. *Reinventing Eden: The Fate of Nature in Western Culture*. Second edition. New York: Routledge.

Ortner, Sherry. 1974. "Is Female to Male as Nature Is to Culture?" In *Woman, Culture, and Society*, edited by Michelle Rosaldo and Louise Lamphere, 68–87. Stanford: Stanford University Press.

Pedelty, Mark. 2012. *Ecomusicology: Rock, Folk, and the Environment*. Philadelphia: Temple University Press.

Plant, Judith. 1990. "Searching for Common Ground: Ecofeminism and Bioregionalism." In *Reweaving the World: The Emergence of Ecofeminism*, edited by Irene Diamond and Gloria Feman Orenstein, 155–61. San Francisco: Sierra Club Books.

Porter, James. 1991. "Muddying the Crystal Spring: From Idealism and Realism to Marxism in the Study of English and American Song." In *Comparative Musicology and Anthropology of Music: Essays on the History of Ethnomusicology*, edited by Bruno Nettl and Philip V. Bohlman, 113–30. Chicago: University of Chicago Press.

Rehding, Alexander. 2011. "Ecomusicology between Apocalypse and Nostalgia." *Journal of the American Musicological Society* 64 (2): 409–14.
Schafer, R. Murray. 1994. *The Soundscape: Our Sonic Environment and the Tuning of the World*. Rochester, VT: Destiny Books. Original edition, 1977.
Senici, Emanuele. 2005. *Landscape and Gender in Italian Opera: The Alpine Virgin from Bellini to Puccini*. New York: Cambridge University Press.
Tiffin, Helen, and Graham Huggan. 2009. *Postcolonial Ecocriticism: Literature, Amimals, Environment*. London: Routledge.
Tuan, Yi-Fu. 1974. *Topophilia: A Study of Environmental Perception, Attitudes, and Values*. Englewood Cliffs, NJ: Prentice-Hall.
Urry, John. 2011. *The Tourist Gaze 3.0*. Thousand Oaks, CA: Sage.
Von Glahn, Denise. 2003. *The Sounds of Place: Music and the American Cultural Landscape*. Boston: Northeastern University Press.
Warren, Karen J. 2000. *Ecofeminist Philosophy: A Western Perspective on What it is and Why it Matters*. Lanham, MD: Rowman and Littlefield Publishers.
Watkins, Holly. 2011. "Musical Ecologies of Place and Placelessness." *Journal of the American Musicological Society* 64 (2): 404–8.
Wilson, Edward O. 1984. *Biophilia*. Cambridge: Harvard University Press.
Worster, Donald. 1993. *The Wealth of Nature: Environmental History and the Ecological Imagination*. New York: Oxford University Press.

16 Ecocriticism and Traditional English Folk Music

David Ingram

The words "traditional," "English," and "folk" have all been strongly contested among commentators on music in ways that reflect differing attitudes toward modernity, national identity, and rural culture. As collector Steve Roud observes, "folk" song may be defined by both repertoire and performance context (Roud and Bishop 2012, xxxii). A broad notion of what may be deemed "traditional" or "folk" repertoire in English music includes material transmitted both orally and in print, variously comprised of "ballads four centuries old, side by side with the street-songs of Victorian peddlers, medieval lyric fragments of perhaps French origin, seventeenth- and eighteenth-century urban broadsides and tavern songs, and the products of Georgian concert-rooms and pleasure-gardens" (Reeves 1965, 31). As we shall see, this inclusive description contrasts with the narrower idea of what constituted folk song popularized by the collectors behind the Edwardian folk revival. This essay explores the use of the pastoral mode in the song material identified by Reeves (1965): what it meant to the song collectors, particularly Cecil Sharp, the most influential collector behind the Edwardian folk revival, what it may have meant to singers and audiences in the past, and what it means in the contemporary English music scene. Marxist critics have tended to view the pastoral dimension of English folk music as an idealized escape from the contemporary realities of an urbanizing, industrial society. For ecocritics, however, the pastoral is more ambiguous, and can also signify both a radical critique of the present and an orientation towards a more sustainable future. The essay concludes by considering the performance of "traditional" folk songs in contemporary music culture more generally. The perpetuation and reinvention of this tradition may be seen as part of a complex politics of nostalgia in English culture and, according to some of its participants and commentators, as a potential exemplar of local, sustainable cultural production. The focus of this essay is on pastoral songs about rural life; the wider repertoire of English folk music, such as sea songs and industrial songs, is both ripe for ecocritical analysis and beyond my current scope.

CECIL SHARP AND THE MARXIST CRITIQUE OF ENGLISH FOLK MUSIC

For Cecil Sharp, authentic "folksongs" were to be found among what he described as the "remnants of the peasantry" who "resided in the country and subsisted on the land" (2009, 4). He believed that these songs were the anonymous, orally transmitted product of "communal composition" rather than the work of individual authors (13). The transmission of folk songs was a largely unconscious process based on the evolutionary principles of "continuity, variation and selection" (29). Sharp's belief that many traditional folk songs were a cultural survival from pre-modern England led him to exclude songs that were disseminated on printed broadsides, which he dismissed as a "corruption" of "the genuine peasant song" (101). However, the broadsides contained the more recent songs that later collectors such as A. L. Lloyd and Roy Palmer came to include within their broader, revised notion of what constituted folk music. In *The Painful Plough* (1973), for example, Palmer collected nineteenth-century songs of agricultural labor whose subject matter included contemporary topics noticeably absent from Sharp's collections, including Luddism, the impact of new agrarian technologies, and unionization. Palmer notes that in the 1830s, agricultural laborers were singing "not only the traditional repertoire of songs which expressed pride in their strength and skill, but ballads which expressed bitter indignation at their lot" (6).

In contrast, Sharp imposed strict selection criteria for folk song, shaped by his critical attitude toward modernity. He sought out singers who lived, as he put it, in "country districts, which, by reason of their remoteness, have escaped the infection of modern ideas" (Sharp 2009, 4). The latter included what he saw as the degenerating influence of the music hall. The "mind that has been fed upon the pure melody of the folk will instinctively detect the poverty-stricken tunes of the music-hall," he wrote, "and refuse to be captivated and deluded by their superficial attractiveness" (135). While collecting songs from the rural communities in the Appalachian mountains in 1916, Sharp was asked by an urban critic whether he had found evidence of "arrested development" in rural America. He replied that "arrested degeneration" was a more appropriate phrase (Karpeles 1967, 146).[1]

For Sharp and his fellow collectors in the Edwardian period, the forces of modernization, particularly industrial agriculture, were threatening folk song with extinction. "The clapperings of the steam-binder have killed it from the harvest-field," wrote Sharp's collecting colleague Charles Marson about folk singing in Somerset in 1904 (Sharp and Marson 1904, xi). Also writing about rural Somerset, Sharp (1905) observed that labor practices in traditional cottage-industries such as shirt-making and glove-sewing used to encourage women to sing together: "It used to be the custom for workers in these industries to congregate, for company's sake, in one room; and this naturally led to the singing of songs. Nowadays, alas, the sewing-machine

ties each worker to her own cottage, where she must either sing without an audience, or not at all" (2). According to Sharp, then, the culture in which traditional folk songs flourished was being threatened by the changing relationship between town and country at the start of the twentieth century, which he characterized with a sense of loss. "Reformers," he wrote, "would dispel the gloom which has settled upon the country side, and revive the social life of the villages. Do what they will, however, it will not be the old life that they will restore. That has gone past recall. It will be of a new order, and one that will bear but little resemblance to the old social life of the 'Merrie England' of history" (Sharp 2009, 119).

Sharp's belief that authentic folk song belonged to a dying era of "Merrie England" reflected the rural nostalgia that has a long history in the intellectual thought of both the Left and the Right in the modern era. Sharp's own interest in Fabianism gave a moderate, reformist political context to his reference to Merrie England. Marxist critics, however, have attacked his hostility to modernity as a reactionary desire to escape from the contemporary realities of industrialization and urbanization into an idealized view of old England (Britain 1982, 259). According to this view, Sharp selected folk songs that reflected his bourgeois idealization of a lost English rural culture. Lloyd (1967) expressed this Marxist view of folk song culture by locating it within developments in English labor history. He concluded that many songs that originated in the late eighteenth century idealized the life of the agricultural laborer and thereby reflected the complacent, middle-class outlook of the landlords and farm-improvers of that period. "Songs reflecting this mild idyllic view," he wrote, "entered the lower class repertory either from the stage, as with the famous 'Sheepshearing song' [...], or through town-made broadsides, or were created by the villagers themselves by simple contagion from the prevailing fashion" (Lloyd 1967, 215). Many of the songs Lloyd cited as examples, such as "Pleasant and Delightful," "Lark in the Morning," "The Banks of Sweet Primroses," and "Searching for Lambs," remain favorites in the repertoire of the contemporary English folk scene. He argued that such songs display a "conventional charm" that came to dominate the collections made by the Edwardian collectors "because the tunes are sweet and the words gentle or quaint and there is no darkness or offence in them" (215). Lloyd's response was to add to this largely rural repertoire by recovering industrial ballads from the coalfields and mill towns of Northern England. This collecting work ran in parallel to the "second" folk revival of the late 1950s and 1960s.

Lloyd's comments about the selection criteria that shaped the Edwardian collections raises important questions about cultural agency and popular aesthetics, which Marxist assumptions about top-down manipulation do not adequately address. Although he acknowledged that villagers did make their own songs, the vocabulary of pathology ("contagion") that he used for their choice of song may be interpreted as mildly pejorative. Lloyd's criticism of the "idyllic" view of rural life expressed in the eighteenth-century

songs collected in the Edwardian era was amplified in the work of Harker (1985). His *Fakesong* criticized Sharp and Marson's collection of songs from Somerset for taking a "romanticized view" of English "peasant folk" (Harker 1985, 181). The collectors were "self-styled socialists" who proposed "a kind of cultural popular front with reactionary critics of industrialism and commercialism" (180), thereby seeking to impose bourgeois values onto working-class culture and ultimately reinforce British imperial ideology at the start of the twentieth century. Harker argues that the singers from whom Sharp collected his songs, far from being village "peasants" untouched by modernity, were more influenced by modern, urban society than he was prepared to acknowledge. The songs themselves were also inextricably bound to the printed broadside industry, rather than simply products of an oral culture untouched by modernity (191–193).

Harker followed Lloyd in arguing that the Edwardian collectors censored their collections to maintain a myth of Merrie England. He quotes the Rev. Sabine Baring-Gould's remark that when he collected songs from southwest England in the latter years of the nineteenth century, he did not hear "any songs or ballads expressing discontent at the life led by the country laborer," adding that this "is hardly surprising given that he exercised power over people at Lew in several ways, as priest, JP and landlord and master" (Harker 1985, 160). However, an alternative explanation is possible for why the Edwardian repertoire is dominated by the songs of "conventional charm" described by Lloyd. Baring-Gould's observation about the popular folk song repertoire favored by his source singers is backed up by folk singer Bob Copper's description of the traditional songs passed down in his Sussex family, which, he wrote, "were about the beauties of the countryside, the joy of work well done or the perennial delights of love." "It is significant," he added, "that there were few songs of complaint or protest; even those songs about their work were joyous songs" (Copper 1972, 60). Anecdotal evidence of this kind suggests that many rural workers chose to sing songs that were largely optimistic and affirmative of the society in which they lived. Sharp was aware of these popular preferences when he argued that, although some songs extolled the pleasures of agricultural work, "it is not unnatural, seeing that his hours of work are long and arduous, that the laborer should find more recreation in songs of romance and adventure than in those which remind him of his toil" (Sharp 2009, 97). The main function of public singing, in Victorian times as today, appears to have been to uplift the spirits, both for men singing in the local alehouse or women singing as they worked in the home. A song, wrote Copper, "seemed to make a task a little lighter and the long winter evenings a little shorter" (Copper 1972, 24).

Bearman (2000) has questioned both Harker's empirical findings and what he sees as his simplistic assumptions about class, arguing that a considerable number of the songs Sharp and Marson collected in Somerset in 1905 were indeed from the rural "peasantry" as defined by contemporary usage of the term, and that many of these sources did represent an older rural

society relatively untouched by modernity, as Sharp believed (772). Writing before these criticisms of Harker, Williams footnoted his work on Sharp and used it as evidence for his critique of the use of the pastoral mode in English literature as a conservative escape from the contemporary social and political realities of an urbanized, industrial society. Williams (1973) wrote of the

> abstract and limiting definition of "folksong," which in Cecil Sharp was based on the full rural myth of the "remnants" of the "peasantry," and which specifically excluded, as not of the "folk," the persistent songs of the industrial and urban working people, who did not fit the image but who were continuing to create, in an authentic popular culture, what it suited this period and this class to pretend was a lost world. It is then not only that the real land and its people were falsified; a traditional and surviving rural England was scribbled over and almost hidden from sight by what is really a suburban and half-educated scrawl. (258)

Sharp's romantic conception of rural England, he added, contributed to the "damage which can never be forgotten" (ibid.).

Williams' indignation over Sharp was part of his wider analysis of the power relations and material realities of rural England that he believed have been mystified or excluded by the pastoral tradition in literature. Nevertheless, his conclusion that the pastoral mode is a "false" representation of the "real land" is based on an implicit aesthetics of social realism that is itself "limiting." In contrast to Marxist critics such as Lloyd, Harker, and Williams, literary ecocritics have tended to explore not only the conservative role of the pastoral in creating an escapist idyll but also its more radical potential as an allegorical form expressing or promoting environmental awareness and protest. In doing so, they provide for ecomusicological approaches a more nuanced conceptual framework for looking at the representation of nature and the land in English folk songs than that provided by the narrower ideological and aesthetic framework assumed by orthodox Marxism.

ECOCRITICISM AND THE PASTORAL IN ENGLISH FOLK MUSIC

From an ecocritical perspective, the traditional songs mentioned by Lloyd as possessing "conventional charm" fit into the mode of what literary critic Leo Marx (2000) called the "simple" pastoral, a mode which lacks the critical or ironic questioning of the rural idyll he associates with its counter-term, the "complex" pastoral (25). It should be stressed that not all traditional English songs fit neatly into the mode of simple pastoral. Palmer (2008) observes, for example, that in the traditional murder ballad "Hangèd

I Shall Be," the beauty of the landscape is in ironic contrast to the dreadful events that take place when a woman is murdered in "the fields and meadows gay" (12). However, if this song fits more closely into the category of complex pastoral, in which the pastoral idyll is disrupted by outside forces, the simple pastoral is nevertheless an appropriate description of much of the traditional English repertoire, and probably contributes to the commonplace dismissal of traditional folk music by some listeners as "parochial and conservative" (Young 2010, 8).

When Leo Marx (2000) mapped the simple and complex pastoral onto a hierarchy of low and high culture respectively, he acknowledged that cultural expressions on what he called "the lower plane of our collective fantasy life" nevertheless express "the yearning for a simpler, more harmonious style of life, an existence 'closer to nature,' that is the psychic root of all pastoralism—genuine and spurious" (6). For Curry, this nostalgic fantasy of simplicity and closeness to nature becomes a more politicized form of resistance to what he sees as the depredations of modernity. He argues that Williams' negative attitude to the pastoral mode emerged from a British Left typically "stuck," as he puts it, both in a "modernist and economist world-view" and in "class reductionism" (Curry 1998, 46). In place of this "materialist and rationalist modernism," Curry defends a notion of "radical nostalgia," within which pastoral fantasy signifies not merely "apolitical passivity or right-wing quietism" but also a fundamental critique of industrial and techno-scientific modernity (47, 55). For Buell (1995), in contrast, the pastoral mode is more ambiguous, in that it "has sometimes activated green consciousness, sometimes euphemized land appropriation" (31).[2]

Following Buell and Curry, let us now consider possible ecocritical responses to a traditional English folk song that appears to fit into the mode of simple pastoral. "When Spring Comes In" was collected by Sharp in Somerset, Alfred Williams in Wiltshire, and by other collectors in Worcestershire, Warwickshire, Dorset, Hampshire, and Sussex, where it is part of the Copper Family repertoire (Williams 1923, 222; Roud 2001, 27). There are no known broadside versions of the song, suggesting it is of pre-industrial origin and therefore exactly the type of old, orally transmitted song in which Sharp was interested. The Copper Family's version begins:

> When spring comes in the birds do sing
> The lambs do skip and the bells do ring
> While we enjoy their glorious charm
> So noble and so gay. (Roud 2001, 26–27)

A Marxist analysis of these lyrics may reveal the ideological exclusions of this simple pastoral: by evoking a sentimental rural idyll, the pastoral mode has emptied the English landscape of its history, including the contested environmental history of sheep and dairy farming (Simmons 2001, 143).

The song goes on to celebrate an idealized, paternalistic social hierarchy based on naturalized class and gender distinctions, in which the dairymaid's labor is rendered part of the natural landscape:

> She milks, she sings
> And the valleys ring.
> The small birds on their branches there
> Sit listening to this lovely fair.
> She is her master's trust and care.
> She is the ploughman's joy.

Williams (1973) observed that the pastoral idyll in English poetry shifted in the late seventeenth century away from aristocratic settings toward a representation of ordinary rural life "in the interest of a new kind of society: that of a developing agrarian capitalism" (22). However, an alternative ecocritical interpretation of "When Spring Comes In" can augment this Marxist reading: The song can be seen as celebrating feelings of biophilia and topophilia often associated in a more progressive way with environmentalist or ecological thinking. The Copper Family version, quoted here, includes the refrain:

> The primrose blooms
> And the cowslip, too.
> The violets in their sweet retire,
> The roses shining through the briar,
> And the daffadown-dillies, which we admire,
> Will die and fade away.

These lines not only celebrate the common flora of the English cottage garden but also preserve endangered English words. That traditional songs may preserve old forms of local knowledge gives the repertoire a cultural value beyond mere nostalgia and heritage.

The biophilia expressed in "When Spring Comes In" typically extends to the domesticated nature of flowers and "small birds" rather than to all living organisms. Nevertheless, the sense of affinity that it establishes between human beings and the rest of nature, as the birds listen to the dairymaid sing, is typical of traditional English song. Thinking of songs such as "The Seeds of Love," Lloyd (1967) commented that many surviving songs express "the old idea that all natural phenomena are interdependent, that there is an intimate sympathy between the germination of seeds of wheat and the amorous encounters of men and women" (197). Yet the sense of biophilia in the rural English culture that produced these songs was evidently limited by practical considerations; indeed, other traditional songs reflect the harsher everyday realities of working the land in competition with other species. "Sheeover Birds," for example, makes a song out of bird-scaring calls. For the birds eating the farmers' crops, "powder and shot will be your lot"

(Palmer 1973, 9–11; Kirkpatrick 2011). This unsentimental and utilitarian attitude to animals is also evident in poaching songs, although they can also be seen as a form of protest against land enclosure (Palmer 2008, 12). The wider treatment of animals and birds in traditional English folk song and ritual, such as the killing of wrens commemorated in "The Cutty Wren," raises important questions for further research beyond the scope of this essay (Hutton 1996, 97; Lloyd 1967, 96).

In "When Spring Comes In," biophilia is really a form of topophilia. What is being evoked is an emotional attachment to a particular regional landscape, including its typical flora and fauna. This landscape, exemplified by the Copper Family's South Downs, is favored for its sense of domesticated nature: a middle landscape between the town and the wild (Marx 2000, 23). Buell (1995) observes that a sense of environmental stewardship can emerge from attachment to, and respect for, particular places (252). He argues that when literary writers invoke a concrete sense of place, they use words to make their readers perceive the familiar in a new way, in order to freshen what he calls the "environmental imagination."[3] The lyric poetry of John Clare, himself a collector of folk songs, serves as a useful comparison with folk song in this respect. Clare broke with eighteenth-century poetic conventions by drawing on personal memories and realistic descriptive details in a matter-of-fact tone, thereby avoiding both poetic cliché and overt moralizing (Bate 2003, 151–153). In contrast to such poetry, many traditional folk songs, including "When Spring Comes In," present images of the rural English landscape in a language that belongs to what, by Clare's time, had become an archaic poetic of generalized sentiment. Traditional folk song lyrics make use of repeated topoi ("As I went out one May morning") and generalized descriptions ("the small birds sing") rather than the signifiers of concrete detail or individual sensibility that became central to Romantic poetics. Nevertheless, a singer's vocal performance can give a song a degree of personal expression or individual affect deriving from the idiosyncrasies of what Palmer (1979) calls the "essential qualities of traditional singing style—tone and delivery, decoration and variation, pace" (6). It is this fusion of words and music in performance that gives traditional folk songs their power to renew the aesthetic perceptions of their audience. In the Copper Family (2001) version of "When Spring Comes In," for example, the roughness of timbre and variations in tempo (rubato) signify an "earthiness" which augments the sentimental pastoral scene depicted in the song's lyrics.

CONCLUSION: RADICAL NOSTALGIA IN ENGLISH FOLK SONG

According to the ecocritical reading of "When Spring Comes In" proposed above, the use of the pastoral in traditional English folk song can celebrate

affective attachment to place, which in the folk scene is simultaneously local, regional, and national. This topophilia can have a political dimension when it informs a stance of popular resistance to development. As Samuel (1994) argues, although an interest in conservation usually emerges from material prosperity, it is not necessarily identical with political conservatism but has also been the basis for leftist critiques of the status quo (297). Harrington (1989) similarly identified a "radical pastoral" in the music of Gustav Holst and Ralph Vaughan-Williams associated with the reformist socialism of William Morris (125). From this perspective, the radical nostalgia in traditional English folk music can also inform preservationist opposition to capitalist development and unrestricted economic growth. A social geographer notes a recent revival of "folkish anti-modernism" that is reasserting "the radical role of landscape preservationism" in the culture of the contemporary English left (Bonnett 2010, 161). In contrast, a conservative philosopher has attempted to reclaim "oikophilia" ("love of the *oikos*, or household") for British Toryism, thereby distancing himself from leftist traditions of radical environmentalism that view allegiance to the nation-state as reactionary. In this view, localism requires wider nationalist sentiment if conservationist care for the environment is to be fostered effectively (Scruton 2012, 26).

The issues raised by this ecomusicological study of English folk music expand into questions about the politics of modernity as a whole, focusing in particular on the future of urban and industrial development and the role of place and the nation-state in environmental politics. In the contemporary English folk scene, the combination of topophilia and radical nostalgia discussed here continues to inform the views of opponents of excessive development, as it did for Sharp in the early twentieth century. In a BBC radio interview recorded in 1951, Bob Copper's father, Jim, railed against housing developments encroaching on the Saltdean Valley in the South Downs near his home in East Sussex. "When we looked down from those old hills," he said, "we saw nothing but farmland, the white cliffs and the sea. Now it's houses, houses, houses on the land that we used to plough. I don't like it. In fact, there's only one thing that's come through from my young days unchanged, and that's our old songs" (Roud 2001, 34). This interview was quoted by Jim's grandson John on the opening track of the first Imagined Village album (2007). This album (a project led by Simon Emmerson) brought traditional folk repertoire into the contemporary era of multicultural Englishness and demonstrated that topophilia is necessarily informed by issues of ethnicity. In doing so, *The Imagined Village* steered traditional English folk music away from the narrower cultural nationalism that had informed the Edwardian folk revival. Sharp had wanted a folk revival to create a renewed sense of English nationalism, writing that the present system of education was "too cosmopolitan; it is calculated to produce citizens of the world rather than Englishmen. And it is Englishmen, English citizens, that we want" (Sharp 2009, 135–136). Boyes, whose book

provided the title for the Imagined Village project, wrote that the "broad attractions of their arcadian connotations have assured the Revival's signifiers a place in high and mass culture. Morris dancers, maypoles on the village green and orchestrated folksongs have been used to represent—and sell—'Englishness' throughout the world" (Boyes 2010, 3). In response to this exclusive, late imperial idea of Englishness, which is characteristic of the Edwardian folk revival, the Imagined Village brought together folk singers from the English tradition, led by Eliza and Martin Carthy and Chris Wood, with performers not usually associated with English folk culture, including Black British dub poet Benjamin Zephaniah, Anglo-Indian singer Sheila Chandra, and Billy Bragg and Paul Weller, musicians originally associated with English punk. The album's mixture of folk guitar and fiddle with sitar and dub-style electronic beats enacts the cultural diversity of contemporary England. Eliza Carthy's sleeve notes to *Anglicana* (2002) described well the inclusive, harmonious sense of multicultural Englishness she aims for in her music, in which, as she put it, there are "no border checkpoints, nobody pushed out."

As we have seen in this essay, the use of the simple pastoral in English folk music is part of a wider politics of nostalgia in English culture. Yet for some commentators on, and participants in, the English folk scene, this nostalgia is paradoxically future-orientated. Boyes (2010) argues that the "prospect the Revival offers is not simply a world as it had been but a world as it could be again" (4). In the context of the present era of ecological crisis, folk music in general has its advocates, amongst musicians, audiences and critics alike, as a model for sustainable production in a post-industrial society, because it is locally produced, community-based, amateur and acoustic, and therefore can be produced with a relatively low energy footprint. In a talk on BBC Radio 3, Jon Boden spoke of his fantasy of a future England, after oil production has run out, in which electricity is scarce and folk culture becomes a necessary means of "communal expression." As a folk musician, he is interested not only in the dangers but also "what we stand to regain" by "technological meltdown" (Boden 2012). After attending an evening of folk performances at Cecil Sharp House, the North London home of the English Folk Dance and Song Society, one writer similarly speculated that in the future, "Out of ecological and economic necessity, we would see a return to an age of productivity, creativity and self-sufficiency" (Hodgkinson 2009, 60). As Pedelty (2012) shows in his study of the practicalities of sustainable music-making, such moves toward "local and participatory music" bring their own problems of environmental impact, yet are an important way in which musicians are exploring how a more sustainable culture may work in practice (2).

In his book on the politics of nostalgia in English culture, Bonnett (2010) carefully distinguishes between art that is "reacting against modernity" and that which is "charting a path through it" (107). In this light, the traditional folk music scene may not fit easily into a straightforward notion of radical

eco-politics. Nevertheless, in its fascination both with the pastoral mode and with cultural forms of protest and dissent, the traditional folk scene is at least demonstrating its continuing relevance to the radical and utopian traditions in English culture.

NOTES

1. For a comparable ecocritical study of representations of the "peasant" in French culture, see Drott (chapter 17).
2. For an ecomusicological study of pastoral symphonies that relies on Leo Marx's theory, see Allen (2011).
3. For more on the environmental, or ecological, imagination, see Allen (chapter 20).

WORKS CITED

Allen, Aaron S. 2011. "Symphonic Pastorals." *Green Letters* 15: 22–42.

Bate, Jonathan. 2003. *John Clare*: *A Biography*. London: Picador.

Bearman, C. J. 2000. "Who Were the Folk? The Demography of Cecil Sharp's Somerset Folk Singers," *The Historical Journal* 43 (3): 751–775.

Boden, Jon. 2012. "The Essay: Under the Influence." BBC Radio 3. First broadcast Monday 16 July 2012. Accessed June 24, 2013. http://www.bbc.co.uk/programmes/b00zt60v.

Bonnett, Alastair. 2010. *Left in the Past*: *Radicalism and the Politics of Nostalgia*. New York: Continuum.

Boyes, Georgina. 2010. *The Imagined Village*: *Culture, Ideology and the English Folk Revival*. Leeds: No Masters Co-operative Limited.

Britain, Ian. 1982. *Fabianism and Culture*: *A Study in British Socialism and the Arts*. Cambridge: Cambridge University Press.

Buell, Lawrence. 1995. *The Environmental Imagination*: *Thoreau, Nature Writing, and the Formation of American Culture*. Cambridge: Harvard University Press.

Carthy, Eliza. 2002. *Anglicana*. Topic. CD.

Copper, Bob. 1972. *A Song for Every Season*: *A Hundred Years of a Sussex Farming Family*. Trowbridge: Country Book Club.

Copper Family, The. 2001. *Come Write Me Down*: *Early Recordings of the Copper Family of Rottingdean*. Topic Records. CD.

Curry, Patrick. 1998. *Defending Middle-Earth*: *Tolkein*: *Myth and Modernity*. London: Harper Collins.

Harker, Dave. 1985. *Fakesong*: *The Manufacture of British "Folksong" 1700 to the Present Day*. Milton Keynes: Open University Press.

Harrington, Paul. 1989. "Holst and Vaughan Williams: Radical Pastoral." In *Music and the Politics of Culture*, ed. Christopher Norris, 106–127. London: Lawrence and Wishart.

Hodgkinson, Will. 2009. *The Ballad of Britain*: *How Music Captured the Soul of a Nation*. London: Portico.

Hutton, Ronald. 1996. *The Stations of the Sun: A History of the Ritual Year in Britain*. Oxford: Oxford University Press.

Imagined Village, The. 2007. *The Imagined Village*. Real World Records. CD.
Karpeles, Maud. 1967. *Cecil Sharp: His Life and Work*. London: Routledge and Kegan Paul.
Kirkpatrick, John. 2011. *God Speed the Plough*. Fledg'ling Records. CD.
Lloyd, A. L. 1976. *Folk Song in England*. London: Lawrence and Wishart.
Marx, Leo. 2000. *The Machine in the Garden: Technology and the Pastoral Ideal in America*. Oxford: Oxford University Press. Original edition, 1964.
Palmer, Roy, ed. 1973. *The Painful Plough: A Portrait of the Agricultural Labourer in the Nineteenth Century from Folk Songs and Ballads and Contemporary Accounts*. Cambridge: Cambridge University Press.
———. 2008. *English Country Songbook*. London: Faber and Faber.
Pedelty, Mark. 2012. *Ecomusicology: Rock, Folk, and the Environment*. Philadelphia: Temple University Press.
Reeves, James. 1965. *The Idiom of the People: English Traditional Verse*. New York: W. W. Norton.
Roud, Steve. "The Songs." *Come Write Me Down: Early Recordings of the Copper Family of Rottingdean*. Topic Records, 2001.
Roud, Steve, and Julia Bishop, eds. 2012. *The New Penguin Book of English Folk Songs*. London: Penguin Books.
Samuel, Raphael. 1994. *Theatres of Memory. Vol. 1: Past and Present in Contemporary Culture*. London: Verso.
Scruton, Roger. 2012. *Green Philosophy: How to Think Seriously About the Planet*. London: Atlantic Books.
Sharp, Cecil. 1905. "Folk-Songs Noted in Somerset and North Devon." *Journal of the Folk-Song Society* 2 (6): 1–60.
———. 2009. *English Folk-Song, Some Conclusions*. Charleston: Bibliolife.
Sharp, Cecil, and Charles Marson. 1904. *Folk Songs From Somerset*. London: Athenaeum Press.
Simmons, I. G. 2001. *An Environmental History of Great Britain: From 10,000 Years Ago to the Present*. Edinburgh: Edinburgh University Press.
Williams, Alfred. 1923. *Folk Songs of the Upper Thames*. London: Duckworth.
Williams, Raymond. 1973. *The Country and the City*. Nottingham: Spokesman.
Young, Rob. 2010. *Electric Eden: Unearthing Britain's Visionary Music*. London: Faber and Faber.

17 The Peasant's Voice and the Tourist's Gaze

Listening to Landscape in Luc Ferrari's *Petite symphonie intuitive pour un paysage de printemps*

Eric Drott[1]

1

Luc Ferrari's 1974 tape piece *Petite symphonie intuitive pour un paysage de printemps* was born out of a chance encounter. On holiday in south central France, Ferrari visited the gorges of Tarn, a river valley that cuts through the limestone plateaus of France's Massif Central. On a whim he followed a footpath up one of the steep slopes of the ravine, arriving after a few hours at the vast plateau that stretches over the Causse Méjan.[2] The expansive vista of the plain captivated Ferrari: "Before me a gigantic plateau widened with sweet curves and gentle valleys until the horizon, until the sun. The colours reached from the yellow of dried up grass to the mauve in the distance, passing by the black of the few small forests which accentuated the space. Nearly empty, the nature offered itself to the eye without any obstacle. You could see everything" (Ferrari 1990).

The first fruit of Ferrari's encounter with the Causse Méjan's landscape was a two-part documentary he produced for the Südwestrundfunk in Baden-Baden, entitled *Presque rien ou le désir de vivre*. Both parts of the documentary centered on the plight of rural France: One examined the much-publicized struggle of farmers on the neighboring Causse Larzac against the expropriation of their lands for the planned expansion of a local military base, while the other explored the less familiar terrain of the Causse Méjan, offering a glimpse into the everyday life of the few shepherds still eking out a living on the plateau. This documentary was followed a year later by the *Petite symphonie*, which scattered fragments of interviews with inhabitants of the Causse Méjan across a musical setting comprised mainly of looped, echoed, and overdubbed flute figures. The result was a curious hybrid of electroacoustic music and ethnographic field recording. Unlike Ferrari's pioneering soundscape composition *Presque rien ou le lever du jour au bord de la mer* (1967–70), tape was not employed in the *Petite symphonie* to take a sonic snapshot of the Causse Méjan, but to record the speech of its inhabitants. The task of evoking the plateau's terrain is left to

the music enveloping the peasants' voices. More specifically, what conjures this environment is the relation Ferrari fashions between the musical ground and the snatches of spoken language strewn across it: The sparseness and isolation of these fragmentary conversations provide a sonic analogue to the sparseness of the terrain and the isolation of its inhabitants.

This essay's principal concern is how Ferrari's *Petite symphonie* represents both the Causse Méjan and its inhabitants. As such it participates in one of the major tributaries—if not *the* major tributary—that has fed ecomusicology to date. Scholarship addressing musical representations of nature abounds, a testament to music's capacity to mediate our relation to space and to the surrounding environment. Yet this focus on questions of representation is not without its shortcomings. In a trenchant survey of ecomusicological research, Perlman observes that what this line of inquiry has so far failed to address is how musical depictions of nature might reshape prevailing attitudes, let alone real-world conduct. In what way, he asks, is music's "potential for transforming our collective environmental consciousness to be accomplished?" (Perlman 2012, 19). Is listening to the right kinds of music sufficient for altering attitudes toward the environment? Or must one partake in a particular kind of musical practice? Lacking satisfactory answers to these questions, it is not surprising that Perlman harbors reservations about the utility of this strain of ecomusicological research: "Ecomusicological findings might recruit music-lovers to the environmentalist cause, or inspire them when they become discouraged. But beyond that, it's not at all clear what the activist implications of ecomusicology might be" (ibid.).

Perlman's skepticism toward musical constructions of nature and their ecomusicological critique is well-founded. Yet the utility he does concede to such work should not be dismissed. As research on social movements illustrates, activities promoting recruitment, persuasion, and the buoying of spirits are often key to deciding a mobilization's success or failure (Jasper 1997, Johnston and Noakes 2005). The question that needs to be addressed, then, concerns what musical representation *can do* rather than what it *cannot*. Without discounting the need for ecomusicology to expand beyond a narrow concern for matters of representation, much remains to be done regarding how music's "potential for transforming our collective environmental consciousness" may or may not be realized by means of such representations. To that end, this essay makes two key moves.

The first of these involves a slight yet significant recalibration: focusing less on how musical texts or practices embody a particular understanding of the environment and more on how they act as sites of contention between competing orientations to nature. Like signs, both landscape and music are "multi-accentual" (to borrow a term from Voloshinov's semiotics), objects over which different groups struggle. Of particular importance is how differences in subject-position generate discrepant experiences of the environment, a fact the *Petite symphonie* makes manifest. In pursuing this

line of inquiry I draw upon work in the emerging subdiscipline of postcolonial ecocriticism, which calls for "a broadly materialist understanding of the changing relationship between people, animals and environment—one that requires attention, in turn, to the cultural politics of representation" (Tiffin and Huggan 2009, 12). This cross-fertilization of ecocritical and postcolonial concerns has heightened awareness of the ideological underpinnings of Western constructions of nature and the environment. By disclosing the power relations, structural inequalities, and historical conditions that underwrite hegemonic representations of nature, postcolonial ecocritics have at the same time revealed the degree to which much ecocritical scholarship to date has subscribed to these same representations (Cilano and DeLoughrey 2007, 73). This essay continues along these lines by scrutinizing the pastoral tropes Ferrari deploys in the *Petite symphonie*, as well as by taking note of how these same tropes are themselves problematized by Ferrari's work, a self-critical moment that is key to fostering the reflexivity necessary for listeners to distance themselves from the subject-positions it invites them to inhabit. Where I depart from postcolonial ecocriticism is in casting its critical apparatus back onto France's territorial confines: My concern is with the asymmetric relation between metropolitan subjects and their rural others, the French peasantry, a subaltern group whose alleged distance from Western modernity is defined less in geopolitical than in socio-historic terms.

The second move I make is to examine how the *Petite symphonie* at once positions the listener vis-à-vis the landscape it evokes and how it works to unsettle this positioning. As Mitchell has observed, depictions of landscape do more than reflect particular ideological formations or the power disparities that underpin them; they are a medium by which such formations and disparities are enacted. They do so first by "naturaliz[ing] a cultural and social construction," representing "an artificial world as if it were simply given and inevitable" (Mitchell 1994, 2). More crucially, landscape depictions put this ideological trace to work by interpellating observers, placing them in a specific relation to the site portrayed: "An account of the 'power' of landscape is not to be had simply by reading it as a representation of power relations or as a trace of the power relations that influenced its production. One must pay attention to the specificity of the effects and to the kinds of spectatorial work solicited by a medium at a particular historical juncture" (3). Mitchell's appeal to the Althusserian notion of interpellation, the process by which individuals come to be constituted as subjects via their insertion into an ideological matrix, suggests one way to understand how musical depictions of the natural world have pragmatic effects. In the *Petite symphonie*, the music's organization—and in particular the trajectory it traces across a sonic space that simulates the real space of the Causse Méjan—encourages listeners to identify with certain figures at certain moments (namely the tourist), and disidentify with them at others. Such forms of musical subjectivation may of course be resisted. They may also be disturbed by competing sites of identification, including those

put into play by the piece itself. Indeed, the juxtaposition of incongruous perspectives, along with the distinct subject-positions to which they are indexed, facilitates their mutual destabilization over the course of the piece. Such processes of identification and disidentification transform these representations from something "out there," separate from the listeners who apprehend them, into something that enmeshes them. It is by means of this immersion in the virtual space the music fashions that the *Petite symphonie* acts upon individuals. Showing how the music Ferrari composed engages the divergent perspectives evinced by the tourist and the peasant, affording listeners the possibility of seeing the Causse Méjan as if through their eyes (and hearing it as if through their ears), emphasizes the degree to which differences in class and social position underwrite different constructions of landscape. Yet it also reveals that the collision of these positions and the mutual interference that results may be generative of new perspectives and new forms of involvement with the environment.

2

In 1967 the French sociologist Henri Mendras published *La fin des paysans* (translated into English as *The Vanishing Peasant*), a book whose title encapsulated in four short words one of the most consequential upheavals France had undergone since the end of the Second World War. In just twenty years the country's agricultural workforce had declined from 7.4 million in 1946 to 3 million in 1968 (Molinier 1977, 81). Numerous factors drove this decline. Governmental policies aimed at raising agricultural productivity encouraged the modernization of farming practices (including the widespread adoption of pesticides and industrially produced fertilizers), while increased access to credit enabled many farmers to purchase labor-saving machinery, especially tractors, for the first time (Bess 2003, 38–46; Moulin 1988, 215–218). But even as rising crop yields kept the French agricultural sector economically competitive on the global market, it also exacerbated long-standing geographic and demographic imbalances within the country. The "rural exodus" begun in the nineteenth century intensified during the postwar period, as much of the working-age population left the countryside to seek work elsewhere. In many parts of France villages became ghost towns and fields remained fallow. "An empty, deserted France extends its reach," historian Fernand Braudel observed, "abandoning the land to underbrush and wild boars" (1986, 428–429).

The Causse Méjan adumbrated many of these trends. The plateau's population peaked in the mid-nineteenth century when it was home to about 8,200 people, although migration to the neighboring Languedoc region, an emerging industrial center, had already begun (Petit 1978, 8–10). Those remaining on the Causse subsisted by growing cereal crops, with the plateau's modern steppe-like character a byproduct of the land clearing this

activity required (O'Rourke 1999, 146–147). The widespread deforestation of the Causse facilitated the subsequent reorientation of agricultural activity toward the production of sheep's milk, prompted by the rapid growth circa 1900 of the nearby Roquefort cheese industry (Petit 1978, 35–39; Brun 1978, 1; O'Rourke 1999, 147). Though the production of sheep's milk proved more lucrative, remaining to this day a mainstay of the local economy, it bound farmers' livelihoods all the more closely to the vicissitudes of national and international markets. Thus, when the economic crisis of the 1930s depressed demand for Roquefort, it forced many of the Causse Méjan's smaller producers to sell off their holdings. By 1975 the Causse's population had dwindled to approximately 1,900 people, a quarter of its mid-nineteenth-century peak. A corollary of this demographic collapse was a decline in population density, which went from 16.6 to 3.8 inhabitants per square kilometer over the same period (Petit 1978, 10–11). With fewer people to cultivate the land, substantial parts of the Causse Méjan were overrun by invasive species of flora (in particular Scots pine), rendering large tracts of land unsuitable for grazing.

The foregoing indicates that the vast, "nearly empty" space that so appealed to Ferrari was not a fixed, timeless characteristic of the Causse Méjan. Rather, it was the outcome of a historical process that was as much social as it was natural. The landscape Ferrari evoked in the *Petite symphonie* was not that of the Causse Méjan in some pristine state of nature, but as it existed at a particular historical conjuncture: It was empty insofar as it had been *emptied*, steadily drained of its human presence. That Ferrari did not immediately grasp this was less a personal failing than a function of the specific kind of relation he possessed vis-à-vis the landscape upon first encountering it. As a tourist who had traveled to the area from his home in Paris, he could not help but partake of what Urry has dubbed the "tourist gaze." What distinguishes this particular way of engaging with one's environs is that it aestheticizes the object of its regard, which is set in relief relative to the familiar contours of work and home life. "The tourist gaze," Urry writes, "is directed to features of landscape […] which separate them off from everyday experience. Such aspects are viewed because they are taken to be in some sense out of the ordinary" (1990, 3). In Ferrari's case, his fascination with the emptiness of the Causse Méjan was contingent upon its marked contrast vis-à-vis the cramped, urban milieu from which he hailed. And, as Urry notes, this opposition between tourism as a "leisure activity" and the sphere of "regulated and organised work" is defined in temporal as well as spatial terms: Tourist experience is by necessity ephemeral. It invests landscapes with a sense of the extraordinary insofar as it stands out as an exceptional moment disrupting the continuity of everyday life. Under these conditions it is hardly surprising that Ferrari would not have perceived the historicity of the landscape he encountered, since his infatuation with the plateau was predicated upon the "short-term and temporary nature" of his relationship with it (ibid.). Or at least this

was the case to begin with: The fact that Ferrari returned to the Causse on numerous occasions, interviewing local residents and providing them a platform for voicing their attitudes, clearly transformed his relationship with this place—and by extension the nature of his appreciation for it.

How, then, did Ferrari translate his fascination with the Causse Méjan into music? A striking feature of the *Petite symphonie* is the prevalence of flute sounds at the opening. For the first fifteen minutes of the twenty-five-minute-long piece, the bulk of the musical material consists of short flute figures, which Ferrari builds up, layers, echoes, and dissipates in a manner reminiscent of contemporary American minimal music.[3] Clearly Ferrari's use of the flute trades on the instrument's longstanding association with the bucolic. His exploitation of a sedimented cultural convention to conjure the rural milieu bears out Watkins's claim that "the appearance of nature in a musical work is fully the effect of discursive means, of techniques of signification which are culturally determined rather than directly evocative of nature" (2007, 8). But Ferrari's recourse to the trope of the rustic, pastoral flute did more than invoke a tired cliché; it also reflected a certain lived experience of the Causse, having been inspired by one of the locals he interviewed for his radio documentary: "One shepherd said one day: 'I am never bored. I listen to the landscape. Sometimes I blow into my flute and I listen to the echo which talks to me'" (Ferrari 1990). Furthermore, even if the flute functions as a clear signifier of the bucolic, it remains unclear what aspect of the pastoral it is supposed to evoke. Is it an index of the human presence on the plateau, embodied in the figure of the lone shepherd playing his flute? Or is it an image of the plateau itself, its open spaces rendered audible as the sounds emitted by the flute resound across its distinctive topography?

The inclusion of short fragments of recorded conversation, interspersed throughout the *Petite symphonie*, goes some way toward resolving these questions. First heard at circa 5'30", these verbal interludes present a jumble of fragmentary utterances in both French and German—the latter spoken by a pair of visitors to the Causse Méjan, who function as a proxy for Ferrari within the *Petite symphonie*. Six such interludes occur over the course of the composition, each separated by a minute or two of music. As Ferrari himself observed, their dispersal creates a form that is isomorphic to the "solitary and diffuse human presence" on the plateau (Ferrari 1990). It is as if we, the listeners, are traversing the Causse Méjan alongside the two German tourists, our imaginary journey broken up by the occasional encounter with the shepherds we meet along the way. At one level, then, the piece prompts us to experience the musical landscape from the perspective of, and hence to identify with, the tourist. The *Petite symphonie* thereby interpellates the listener—although this particular subjectivation does not go unchallenged (more on this below). But to the extent that the listener does identify with the figure of the tourist, even if only momentarily, s/he is placed within an ideological order according to which nature unveils itself before the eye and ear for the sole purpose of being consumed. Such an identification privileges the

aesthetic and semiotic qualities of the environment, though it also engenders a sense of direct involvement in the depicted landscape. The notion of representation, with its implication of detached observation, does not capture the way in which the *Petite symphonie* enfolds the listener in the virtual space it constructs. Nor does representation adequately describe the character that the shepherd's speech assumes for listeners implicated in the musical landscape. Insofar as listeners identify with the tourist, temporarily inhabiting this subject-position, they no longer "overhear" a conversation among others. Rather, it is as if the shepherds address us directly.

Presupposed in this particular construction of the Causse's landscape is a distinction between musical sound and speech: The latter becomes an audible trace of a dwindling human presence, the former recast as a signifier of the non-human environment. In this regard, the *Petite symphonie* inverts the relation that usually holds between documentary recording and music prevalent in soundscape composition. A case in point is Ferrari's *Presque rien* no. 2, in which the opposition of music and environmental sound maps onto the opposition of subjective experience and objective reality. By contrast, tape in the *Petite symphonie* serves mainly as a way of registering the experience and opinions of the plateau's inhabitants. The task of evoking the physical environment is displaced onto the flute music that engulfs the peasants' intermittent speech.[4] Yet the line drawn between music and speech—and the division of semiotic labor they perform in the *Petite symphonie*—is troubled by the aesthetic imperatives motivating Ferrari's choice of which conversational fragments to include. As his notes to the piece indicate, vocal timbre and intonation were as important as the sense of the shepherds' speech: "Human language is integrated into the musical texture; the sound of the voice means more than it says" (Ferrari 1990). Here, too, we can witness the effect of the tourist gaze: The musicality Ferrari attributes to the peasants' voices is contingent upon their difference from standard French—that is, French as spoken by educated, urban classes. Further inflecting the significance attached to the sonic qualities of the shepherds' speech were contemporary representations that characterized the French peasantry as anachronistic figures, representatives of a premodern social formation. The regional accents and rustic dialects of the shepherds not only marked their geographic distance from the country's urban core; they also marked their cultural distance from this core, their lack of assimilation into modern French society. Lending force to such representations was the tendency within the country's nascent environmental movement to regard the peasant as standing in a closer, more organic relation to nature than modern urban subjects (Aubertin and Pinton 2006).[5] In a manner analogous to Native Americans and other indigenous peoples, the peasant was recast as a being who "dwell[s] in harmony with nature," thus sustaining "one of the most widespread and seductive myths of the non-European 'other'" (Garrard 2012, 129; see also Krech 1999, Harkin 2007). In this way the figure of the "ecological peasant" assumed

a place alongside that of the "ecological Indian" within the imaginary of modern environmentalism.

If in the *Petite symphonie* "the sound of the voice means more than it says," what the voice actually says still matters a great deal. One of the virtues of Ferrari's composition is that it opens up a space for dissensus through its incorporation of the speech of those who dwell on the Causse. Remarks made by certain interviewees reveal the degree to which the aestheticized vision of the plateau afforded by the "tourist gaze" diverged from their own understanding of their environs. This is made clear just past 5'00". One of the first interviewees heard in the *Petite symphonie* responds to a visitor's comment about the natural beauty of the Causse by remarking "the land, you see, it's very pretty, but if you had to stay here all winter long, like us. …" The recording breaks off at this point, but a few moments later the old man's voice returns: "The summer, I don't know what to say about it, but winter is hard." This exchange, and others like it, conveys a very different vision of the Causse Méjan, one characterized not by the disinterested aesthetic appreciation of the tourist's gaze, but by interested, practical action: The environment was not something to be enjoyed so much as endured. Such comments denaturalize the particular way of seeing (and hearing) landscape fostered elsewhere by the use of pastoral tropes, impeding too close an identification with the tourist figure. Dislodged in this way from the positioning the work initially performs, the listener is free to adopt a different vantage point with respect to the Causse. Heightening this rupture is the difference in temporal horizon that the shepherd's remark discloses. Not only is it easier to entertain an appreciation for the natural beauty of landscape when one's livelihood does not depend upon it, it also helps if one is able to partake of it only during certain propitious moments, as part of a bounded event set apart from the rhythms of everyday life. For those who, like the shepherds, were unable or unwilling to leave the plateau, the relation to the landscape does not have the same optional character that it does for the tourist. Nor is it as fleeting: Their connection to the terrain is measured in years and decades rather than days and weeks.

Encompassing the horizons of tourist and peasant is another to which the piece provides imaginary access: that of the *longue durée*, of transpersonal historical time. Considered from this perspective, the emptiness of the plateau circa 1970 is but a moment within a longer process, a conjuncture that results from economic modernization, population decline, and ecological change. Although this horizon exceeds the necessarily bounded perspectives of both Ferrari and the locals he interviews, there is a sense in which the *Petite symphonie* narrates the Causse's long-term historical transformations. As the piece progresses, the bucolic tone of the beginning becomes bleaker. The first indication of this turn comes at circa 9'00" with the entry of a sustained cluster played on an organ, suffusing the music with an uneasy, dissonant quality. The organ is soon joined by sounds that are unmistakably electronic in origin, such as the oscillating, buzzing sonority

that fades in around 12'00".[6] The encroachment of electronically generated sounds upon the musical environment continues in the following passage, with an inflection point coming shortly before the penultimate spoken-word interlude at 15'50". At this point the flute sounds are sped up, filtered, and distorted, so that the principal token of the pastoral within the *Petite symphonie* is disfigured. The culmination of this progressive degradation of the bucolic setting is the emergence of machine-like sounds around 17'00", which quickly overwhelm the music. The indeterminacy of these machine noises means they afford a range of possible interpretations. Do we hear farm equipment, an audible icon of the technologies that have supplanted traditional forms of agricultural labor at the same time as they have altered the rural soundscape? Are these noises referring synecdochically to general forces of modern industry, whose impact on the Causse Méjan, while indirect, were still profound? Or perhaps they point beyond the Causse Méjan, to the nearby Causse Larzac where local inhabitants were waging a different struggle, against the government's plans to seize their lands and annex them to a neighboring military camp? It is impossible to say. Regardless of what these sounds signify, their introduction into and eventual domination over the musical texture signal the disruptive effect that modernization has had on the plateau and those who abide there.

3

It would be tempting to end here, considering that the apocalyptic close of the *Petite symphonie* is all the more pertinent forty years after its composition, in a period of acute environmental crisis. But if the bleak picture Ferrari paints seems applicable to a historical moment characterized by melting ice caps, collapsing bee colonies, and other signs of looming environmental catastrophe, it is less so with respect to the Causse Méjan itself, which in the decades since his visit in the early 1970s has been refashioned into a model of how agricultural production may be sustainably integrated into the surrounding environment. Along with much of the region, the Causse Méjan now forms part of the Parc national des Cévennes, established in 1970, shortly before Ferrari composed the *Petite symphonie*. A distinctive feature of the Parc national des Cévennes is its dual mandate: It is to preserve both the plateau's unique ecosystem and the traditional human activities that have evolved in conjunction with its peculiar geography, geology, and climate. Motivating this conservation model was a recognition that biodiversity on the plateau was largely dependent upon traditional forms of pasturage (Crosnier 2006, 159–160). Here, at least, depopulation was less a boon that allowed the environment to revert to an unspoiled state of nature than a threat to the species of plants and animals that had adapted to a terrain shaped by the grazing of sheep. Granted, the Parc national des Cévennes has faced challenges in maintaining an equilibrium between

inhabitants and their environs (Crosnier 2006, 163–164; O'Rourke 1999). Furthermore, neither the subsidies provided by the French government nor the designation of the park as a UNESCO world heritage site have entirely offset the socio-economic pressures that have induced successive generations to abandon the region. Yet the experiment currently under way in the Cévennes—something Ferrari could hardly have foreseen when he composed the *Petite symphonie*—does stand in stark contrast to the picture painted by the work's close. The progressive occlusion of the rural soundscape by the noise of heavy machinery makes it appear as if the fate of the plateau's delicate ecosystem is sealed, doomed to be yet another casualty of an agricultural-industrial complex that has subjected food production to the dictates of global capitalism. But the passage of time suggests otherwise. The catastrophe which the *Petite symphonie* foretells has not come to pass—at least not yet.

That the close of Ferrari's work stands in contrast to the actual fate of the Causse Méjan scarcely discredits the *Petite symphonie*. Evaluating the piece in terms of its predictive accuracy would be a mistake. So too would construing it as an object of detached aesthetic contemplation, despite the gesture made in that direction by its invocation of a tourist gaze that it then proceeds to deconstruct. This is because the *Petite symphonie* is less a work of *reportage* or art as it is a work of activism, to be judged as much for its efficacy as for its verisimilitude or beauty. The work's success or failure in this regard depends not only on its ability to represent the landscape via music, or even on the rhetorical power of its tragic narrative. Rather, it depends on its ability to position listeners within the acoustic space it fashions, its capacity to implicate listeners vis-à-vis the plateau—even if only imaginatively—and thereby generate a sense of attachment to this place and concern for its fate. Writing on the prospects of ecomusicology, Rehding has contended that music, as a medium, is ill-suited to the apocalyptic mood that typifies much literary production on environmental degradation. A more apt role for music, he argues, would be to use its unique affordances to impart feelings of nostalgia, to create an affective connection to a natural world threatened by intensifying environmental crisis (Rehding 2011; see also Ingram chapter 16). But in the *Petite symphonie*, at least, the nostalgic and the apocalyptic are fatally intertwined. It is listeners' investment in an idealized pastoral setting that makes the dystopian turn in the latter half of the work so baleful. Without the feeling of involvement that derives from the various interpellations the work performs, without the series of identifications and disidentifications it prompts, the *Petite symphonie* would be robbed of much of its affect—and hence its pragmatic effects.

This same sense of involvement provides the basis for the rhetorical force the piece continues to exercise. Even if the *Petite symphonie* is rooted in a particular time and place, this historic and geographic specificity does not diminish its enduring impact. The materials that Ferrari employs to evoke both the Causse Méjan and the forces menacing it are either sufficiently

conventional (as with the bucolic flute) or indeterminate (as with the machine noises) to permit their transposition to other times and places. The same is true of the narrative of ecological devastation the piece unfolds, which remains as resonant today as forty years ago. Above all, the continuing relevance of the *Petite symphonie* stems from the fact that the fate of the Causse Méjan still hangs in the balance. Even if its incorporation into the Parc national des Cévennes has afforded the plateau some protection from the socio-economic forces that have buffeted it since the mid-nineteenth century, such measures cannot entirely shield it from the effects of global warming, mass extinctions, or any of the other environmental catastrophes that pay no heed to park boundaries or UNESCO designations. Unless the agro-pastoral and land management practices in effect in the Cévennes become the rule rather than the exception, the bleak future that the *Petite symphonie* forecast for the Causse Méjan may yet prove prescient.

NOTES

1. Many thanks to Marianne Wheeldon, Holly Watkins, Kevin Dawe, and Aaron S. Allen for their feedback on drafts of this essay.
2. Although Ferrari employs French orthography in discussing the Causse ("Méjean"), I adhere to the regional spelling here ("Méjan").
3. The progressive accretion of notes to form melodic figures recalls Steve Reich's "beat substitution" technique, while the layering of parts via tape delay is similar to effects Terry Riley achieved in pieces like *Mescalin Mix* using his "time lag accumulator."
4. Ambient environmental noises (dogs barking, sheep lowing, etc.) are not entirely absent from the *Petite symphonie*, but they remain peripheral.
5. This is analogous to beliefs regarding women's alleged proximity to nature, a trope valorized in ecofeminism; see Feisst (chapter 18) and Von Glahn (chapter 19).
6. Synthetic sounds appear prior to this moment, albeit in the guise of ersatz birdcalls, softening the opposition between nature and technology established elsewhere.

WORKS CITED

Aubertin, Catherine, and Florence Pinton. 2006. "Les paysans: figure emblématique du développement durable?" In *Le retour des paysans? A l'heure du développement durable*. ed. Laurent Auclair, Chantal Aspe, and Patrick Baudot, 15–29. Aix-en-Provence: Edisud.

Bess, Michael. 2003. *The Light-Green Society: Ecology and Technological Modernity in France, 1960–2000*. Chicago: University of Chicago Press.

Braudel, Fernand. 1986. *L'Identité de la France*, vol. 2. Paris: Flammarion.

Brun, André. 1978. *La Causse Méjan 3: De la crise des années 50 aux perspectives actuelles*. Paris: Institut National de la Recherche Agronomique.

Cilano, Cara, and Elizabeth DeLoughrey. 2007. "Against Authenticity: Global Knowledges and Postcolonial Ecocriticism." *Interdisciplinary Studies in Literature and Environment* 14 (1): 71–87.

Crosnier, Capucine. 2006. "Biodiversité et pertinence des pratiques locales dans la réserve de biosphère des Cévennes." *Revue internationale des sciences sociales* 187: 159–168.

Ferrari, Luc. 1990. *Acousmatrix 3: Luc Ferrari*. BVHAAST CD 9009.

Garrard, Greg. 2012. *Ecocriticism*. New York: Routledge.

Harkin, Michael, ed. 2007. *Native Americans and the Environment: Perspectives on the Ecological Indian*. Lincoln: Nebraska.

Jasper, James. 1997. *The Art of Moral Protest: Culture, Biography, and Creativity in Social Movements*. Chicago: Chicago University Press.

Johnston, Hank, and John Noakes. 2005. *Frames of Protest: Social Protest and the Framing Process*. Lanham, MD: Rowman and Littlefield.

Krech, Shepard. 1999. *The Ecological Indian: Myth and History*. New York: Norton.

Mendras, Henri. 1967. *La Fin des paysans: Innovations et changement dans l'agriculture française*. Paris: S.E.D.E.I.S.

Mitchell, W.J.T. 1994. *Landscape and Power*. Chicago: University of Chicago Press.

Molinier, Jean. 1977. "L'évolution de la population agricole du XVIIIe siècle à nos jours." *Economie et statistique* 91: 79–84.

Moulin, Annie. 1988. *Les Paysans dans la société française: De la Révolution à nos jours*. Paris: Seuil.

O'Rourke, Eileen. 1999. "The Causse Méjan: Changing Relationships between Agriculture, Environment and Society within a French National Park." *Landscape Research* 24 (2): 141–165.

Perlman, Marc. 2012. "Ecology and Ethno/musicology: The Metaphorical, the Representational, and the Literal." *Ecomusicology Newsletter* 1 (2): 1, 15–21.

Petit, Françoise-Eugénie. 1978. *La Causse Méjan, 2: L'exode rural et l'utilisation du territoire de 1850 à nos jours*. Paris: Institut National de la Recherche Agronomique.

Rehding, Alexander. 2011. "Ecomusicology between Apocalypse and Nostalgia." *Journal of the American Musicological Society* 64 (2): 409–414.

Tiffin, Helen, and Huggan, Graham. 2009. *Postcolonial Ecocriticism: Literature, Animals, Environment*. London: Routledge.

Urry, John. 1990. *The Tourist Gaze: Leisure and Travel in Contemporary Societies*. London: Sage.

Watkins, Holly. 2007. "The Pastoral after Environmentalism: Nature and Culture in Stephen Albert's *Symphony: RiverRun*." *Current Musicology* 84: 7–24.

18 Negotiating Nature and Music through Technology

Ecological Reflections in the Works of Maggi Payne and Laurie Spiegel

Sabine Feisst

Conventional wisdom has long viewed women as physiologically and psychologically more closely tied to nature than men and men as more strongly connected with culture and technology than women (Ortner 1974). Ecofeminism, which developed in the late 1960s and 1970s, has underscored this perspective and encouraged women to embrace female difference and female forms of environmental activism. However, these years also saw the emergence of artists—e.g., Annea Lockwood, Pauline Oliveros, Maggi Payne, and Laurie Spiegel—who have established themselves in the male-dominated field of composition, have pioneered and used new music technologies, and have shown great ecological awareness.[1] In this essay I focus on Maggi Payne and Laurie Spiegel, both born in 1945. Although not widely known, they are intriguing composers and performers who have a wide variety of creative accomplishments. As I show, both artists make extensive use of electronic media and express environmental concerns in much of their music and in very distinctive ways. I first introduce Payne's and Spiegel's art and ideas and then probe how these two musicians display and challenge ideas of ecofeminism in two ecologically conscious electronic works: Payne's audiovisual work *Apparent Horizon* (1996) and Spiegel's musique concrète mini-opera *Anon a Mouse* (2003).

ECOFEMINISM[2]

It is no coincidence that women have long shown a strong interest in nature and its preservation, and the theory and movement combining feminist and ecological ideas known as ecofeminism draws attention to this fact. Ecofeminism, however, is not a unified philosophy. It is a complex phenomenon that emerged in the 1960s in a convergence of second-wave feminism—as inspired by de Beauvoir (1949) and Friedan (1963), among others—and the so-called new environmentalism (spurred by unprecedented environmental disasters and Rachel Carson's visionary 1962 book *Silent Spring*). French feminist Françoise d'Eaubonne introduced the term "éco-féminisme" in her book *Féminisme ou la mort* (1974). Broadly speaking, ecofeminism emphasizes the ties between women and nature

and points to the shared view of some ecologists and feminists, including d'Eaubonne, that parallels exist between androcentric domination of women and human-caused environmental degradation through ideological power hierarchies. Ecofeminists have enriched the debates about the state of the environment by drawing attention to questions of power hierarchies, specifically patriarchal worldviews which condone oppression of humans "based on race, class, gender, sexuality, physical abilities," and which authorize oppression of nature (Gaard 1993, 1). To ecofeminists, patriarchal belief systems either advance the exploitation of non-human nature as the "other" or focus on rescuing the feminized and frail Earth rather than on tracing and removing the causes for its deterioration or pursuing an ethics of caring (Kheel 1993, 243). Ecofeminists underscore that "[l]ife on earth is an interconnected web, not a hierarchy" and that it requires our respect in all its diversity (King 1989, 11). Such ecofeminists as Eisler and Kheel have suggested the development of a "partnership society" with women, men, and non-human nature as collaborators and the substitution of a "managerial ethics" with a "holistic ethics" (Eisler 1990, 23; Kheel 1993, 259).

Ecofeminism pursues many "heterogeneous strategies and solutions" (Diamond and Orenstein 1990, xii). Cultural ecofeminism, a movement which arose in the 1980s, for instance, has suggested controversially that women—due to their unrivaled (if culturally constructed) proximity to nature, special physiology, and social function (menstruation, childbirth, nursing, domestic caretaking, etc.)—show greater ecological consciousness and that, therefore, ecological concerns constitute a specifically feminist issue (Ortner 1974, Griffin 1978). Other ecofeminists, however, have warned about focusing on biological determinism, the close woman-nature bond, women's identification with "sick" Mother Earth, and reference to women and nature's status as victims of male oppression (and potential need for salvage through men)—all of which may underscore patriarchal ideologies and benefit neither women's nor nature's causes (Haraway 1990, 149–181; Alaimo 1994, 136–138). They have argued that questioning the deeply engrained nature-culture divide—be it through the treatment of animals as individuals, the recognition of nature as a powerful agent or through women's embrace of technology—could be a gain for both women and nature (Alaimo 1994, 138–141).

Many ecofeminists, however, agree that society should change, and some have emphasized that writers and artists can assume a special role in this endeavor. Orenstein considers ecofeminist art as a powerful catalyst for change, as it surely can reach and touch larger audiences than theoretical ecofeminist statements. Examining ecofeminist visual art and literature, she compares some of it as "medicine journeys" or "medicine stories" that might "bring about a healing of the earth" (Diamond and Orenstein 1990, 279 and 287; Orenstein 2003). The many musical compositions reflecting a variety of ecofeminist ideas, however, have received little attention.

WOMEN COMPOSING NATURE VIA ELECTRONIC MEDIA

The mere fact that in the twentieth century many female artists from conservative American composer Amy Beach (1867–1944) to experimental Australian musician Leah Barclay (b. 1985) have attained recognition as composers and created ecologically inspired music may evoke the concept of ecofeminism (see Von Glahn 2013). Yet only some among these musicians have identified themselves as feminists and/or environmentalists. Few of them would subscribe to the cultural ecofeminist view of women being closer to nature than men.[3] And few composers of the post–World War II generations would endorse the critiques and reservations of cultural ecofeminists regarding male-associated "hard" technologies.[4] Indeed, the use of innovative electronic audio technologies has become a trademark of such composers of nature-inspired music as Barclay, Ros Bandt, Susan Frykberg, Lockwood, Miya Masaoka, Oliveros, Payne, Spiegel, and Hildegard Westerkamp. Equipped with field recording devices, synthesizers, sequencers, mixers, and computers, and situated in a still strongly male-associated field, they defy constructions of female gender and run the risk of being typecast as "cyborgs" unable to express emotions. According to Reynolds (2011), "the abiding stereotype of the electronic musician is a science geek more comfortable with circuitry than emotion." Moreover, the use of machines to create nature-inspired works seems to undermine the common technology-nature dichotomy. Machines with their often destructive and dehumanizing potential not only contradict pastoral ideals, but they also raise questions of sustainability (Marx 1964).[5] The use of electronic music technology may indeed increase a musician's carbon footprint, but the use of instruments made of rare woods may be environmentally harmful as well and contribute to deforestation (see Allen 2012).[6] Many ecologically conscious artists using electronic media, however, agree with John Cage that, "electronics have brought our attention back to nature" (Zimmermann 1976, 56–57).[7] They might also concur with Rothenberg, who stated that technology, humans, and nature are inseparable, that even the most sophisticated electronic technology should be seen as an extension of human nature influencing the way we perceive nature (Rothenberg 1993, 224–225). Spiegel emphasized that "electronic technologies provide a means of experiencing sounds and soundscapes not otherwise immediately accessible to much of the public" and that "awareness of them and their fragility can be increased by their electronic reproduction and artistic portrayal."[8]

The question, however, arises whether any electronic technology-based nature music may be considered truly ecological. Clearly, there is plenty of commercially produced music featuring electronically processed nature sounds and offering listeners comfort and gratification. In all its "touristic prettiness," such music may exploit nature, conceal environmental problems, and do little to further the listeners' serious engagement with their environment (Millet 2004). As will be shown below, in their works both

Payne and Spiegel have used electronic technology as creative tools to extend the reach of our senses and to engage us with the natural world in critical ways.

MAGGI PAYNE

Born in Temple, Texas, and trained as a flutist and composer at Northwestern University, the University of Illinois, and Mills College, Payne is active as composer, performer, video artist, and recording engineer. She became fascinated with music and recording technology in her early teens when she experimented with a reel-to-reel tape recorder she had received from her father. She was first introduced to synthesizers by James Beauchamp, Gordon Mumma, and others in the early 1970s. Deepening this interest while in Illinois and at Mills, she composed her first electronic works on a Moog synthesizer in the early 1970s and soon built her own Aries synthesizer. Payne now focuses on electroacoustic music and draws on environmental sounds, which she gathers and electronically manipulates through timbral, dynamic, and rhythmic modification. She sculpts the processed sounds via spatial distribution and multi-tracking to create gradually changing, colorful, and richly textured music. She often adds a visual dimension to her music, involving live dancers or using natural and abstract images on film, slides, and later exclusively on video. She has also conceived several audiovisual installations.

Immersed in the male-dominated field of electronic music and record engineering, Payne never worried about gender discrimination.[9] "I never gave it a thought," she said, "[w]hen you are driven to do something, you just do it" (Rodgers 2010, 71). However, over the years she has noted the still small number of women in electronic music and audio engineering and has made it her mission to instill confidence in her female students, helping them gain a "special understanding for what it takes to build a piece, to compose" (Rodgers 2010, 71).

For Payne electronic music composition and nature are inextricable. She is a nature lover who enjoys trips to deserts of the American Southwest and marvels at their "sheer beauty, the vast expanses, and yet the incredible detail, every little gully, every plant, every little sound" (Kalvos and Damian 2004). She frequently goes "to the desert to recharge, to reset, to remind [herself] of [her] own insignificance in time and space" (Goldston 2010). Desert landscapes have been a major musical inspiration for her. Indeed such works as *Airwaves* (1987), *Desertscapes* (1991), *Apparent Horizon* (1996), and *Distant Thunder* (2003) pay tribute to Death Valley, Kelso Dunes, Devil's Playground in the Mojave Desert and Mono Lake (California), Pyramid Lake (Nevada), and Bryce Canyon and Canyonlands (Utah). Payne's attraction to these American wilderness areas, sometimes dismissed as wasteland, is unusual, as few female artists have addressed them.[10] As Norwood pointed out, women's mobility in untamed nature was

long restricted: "[W]omen were thought to be more comfortable in rural, cultivated nature—in civilized gardens" (Norwood 1996, 324). America's wilderness has often been viewed as a "place for defining virility, for playing out aggressive, adventure-seeking, sometimes violent impulses. Survival in a hostile natural environment is an ego-gratifying achievement and feeds the achievement-oriented male psyche, enabling men to return to civilization and improve their culture" (323). Besides deserts, Payne has also evoked other fierce natural phenomena in works including *Scirocco* for flute and tape (1983) and *Arctic Winds* for tape (2007) through titles, pictorial gestures, organically evolving and spatialized sonic textures, and sometimes through visual images of nature.

In her electroacoustic music Payne often records and processes recorded everyday sounds. In *Distant Thunder*, a fixed media piece conveying desert thunderstorms through multiple layers of waxing and waning roars, she uses boiling water, a resonant floor furnace, and unrolling adhesive tapes as sound sources. A passionate sound gatherer, Payne also employs recorded "wild" sounds. The audiovisual piece *Liquid Metal* (1994) features sounds of seagulls, wind, waves as well as sounds of Harley Davidson motorcycles, and *Surface Tension* (2010) uses the sounds of "sea creatures, ripples, bubbles, sand, shells, and pebbles" (Payne 2013).

PAYNE'S *APPARENT HORIZON*

Completed in 1996, *Apparent Horizon* is an audiovisual piece inspired by the sounds and sights of desert landscapes, including: Bryce Canyon famed for its hoodoos grouped in large natural amphitheaters; the Mojave Desert's Kelso Dunes marked by colorful Aeolian sand fields; Canyonlands with its many canyons, mesas, and buttes; and Death Valley, North America's lowest and driest place and one of the hottest areas on Earth. The work's creative process spanned about six years and involved the extensive gathering of sound and video footage on and off location. As primary sonic sources, Payne chose NASA sounds from Space Shuttle and Apollo transmissions, satellite transmissions, and shortwave radio broadcasts, including continuous human chatter, static sounds, Morse code signals, and sounds of astronauts working in space. Using Tom Erbe's SoundHack program, Payne processed these materials through "heavy equalization, convolving, extreme sample rate conversions and time compression/expansion" to obtain "sounds somewhat reminiscent of nature's sounds in the landscapes to which they are attached," for instance sounds of wind, rainstorms, insects, birds, and other animals.[11] She intended to "convey an aural impression of the sensations [she] experienced while in these earthbound landscapes" (Payne 2013). She also created unearthly sonorities to suggest the strangeness of bleak landscapes where humans are out of place and to evoke the feelings astronauts may have had when looking at the Earth from space.

Horizon is a twelve-minute through-composed work in one movement marked by slowly evolving and changing sounds that are combinations of actual human-generated and virtual sounds of nature. It opens quietly with low breathy wind and high quivering hollow sounds as well as a middle register sonority from which a distorted voice of the WWV shortwave broadcasts informing listeners of the Coordinated Universal Time gradually emerges and fades (at 1'15").[12] Thereafter sounds evoking roaring and wheezing wind, otherworldly voices, buzzing insects, and airplanes fade in and out. These sounds form layers and undergo timbral and registral modifications in a slowly changing texture. In the middle (4'15"–5'30"), a distinct interplay of Morse code signals transformed into cricket chirps crystallizes. The fourth part features sounds suggesting strong winds, rainstorm, and thunder (6'15"–7'00"). The space chatter reemerges, but now punctuated by static crackles, buzzing "insects," and high wind-like sounds (8'30"–10'00"). The piece concludes by mirroring the hollow sounds and unintelligible speech of the opening.

"Think[ing] of electroacoustic music visually," Payne indeed created a vivid tone poem that guides the listener through deserts (Goldston 2010). But she also added visual images in the form of a video. She used NASA footage for overhead views of various desert locations, and she captured other vistas on video "by holding still on an image for several seconds, then zooming in and out or panning to reveal more detail" (Kalvos and Damian 2004). Payne explained that her "earthbound shots are of rather 'alien' landscapes—those where I, as a human being, don't really fit in" (Payne 2013). She seamlessly interwove footage from space flights with her own on-location film material. Opening with a sunrise and closing with dusk, the video presents images of mountains, rock formations, cracks in the earth, vegetation, clouds, rain storms, and snow, all of which closely correspond to the sonic textures and timbres. Images of red rocks are, for instance, paired with high sounds reminiscent of crickets.

Horizon and such other works as *Airwaves* and *Liquid Metal*, part of an ongoing series of audio-visual works, attest to Payne's acute ecological awareness and gentle environmental activism. She conveys "the preciousness of these places," where "human beings should not be" except for visits during which they should "tread lightly" (Kalvos and Damian 2004). But neither does she narrate the heroic conquest of an inhospitable environment, nor does she present idyllic and unspoiled pastoral scenes catering to the "tourist gaze" (as does Ferde Grofé in his *Grand Canyon Suite* of 1931).[13] She conjures up the mysterious beauty of deserts, but also problematizes it. She shows the close proximity and interconnectedness of nature, humans, and technology by highlighting the similarity of human-generated and natural sounds. Yet she also suggests that the physical and often noisy presence of humans signifies human intrusion in fragile environments and human estrangement from nature. In *Horizon* Payne refrained from employing actual desert sounds captured on tape and instead converted surreal and

remediated human-generated sounds into virtual sounds of nature, pointing to the concept of recycling. Low-impact thinking is also evident in Payne's decision to borrow sounds and footage from NASA, rather than using planes and other equipment to obtain all of the materials needed. Payne demonstrates that not all technology is destructive and that it matters how we use and reuse it. With *Horizon* Payne not only offers an aesthetically intriguing and politically thought-provoking work, but also shows convincingly that technology can help humans perceive and understand nature in new ways. Although Payne never identified herself as an ecofeminist, her work and philosophy converge with important ecofeminist ideas. More important, she overcomes the nature-technology and nature-culture divide embraced by many cultural ecofeminists.

LAURIE SPIEGEL

Born in Chicago and trained in lute and guitar performance, composition, the social sciences, and philosophy, Spiegel began to earn recognition for her work in electronic music in the 1970s. Soon after discovering the Buchla synthesizer in 1969, she became one of the youngest resident researchers at Bell Telephone Laboratories, where she worked with Max Mathews in pioneering the use of computers for music. In 1977 NASA took her musical realization of Johannes Kepler's music of the spheres (*Harmonices mundi*, 1619), created at Bell Labs, into space on the Golden Record of the Voyager Spacecraft. Spiegel has developed synthesizers, music software, interactive process composition, computer-generated visual art, and digital animation software. She is perhaps best known for her software Music Mouse from the mid-1980s. Named after the computer's "mouse" input device, Music Mouse uses an XY pointing device to shape melodic lines and harmonic progressions and provides many options for control of harmony and timbre. Its logic and statistical possibilities allow for the creation of music in many styles including tonal, modal, and other non-tonal approaches.[14] Spiegel has composed numerous electronic works with and without this device. Her compositions are influenced by folk, ethnic, and classical European music, and by the structures of natural phenomena.

As an electronic music authority and a tinkerer, Spiegel, like Payne and numerous feminists, challenges stereotypes of female gender, thus undermining the cliché of "man giving birth to and taming the machine" (McClary 1991, 138). For a long time Spiegel worried that feminists who blamed gender bias for the neglect of women composers might hinder them from "mak[ing] the best possible music we can, as individuals" (Spiegel 1981). She was more troubled by the accusation that electronic music composers supposedly "dehumanize music by using computers," a common perception prior to the introduction of personal computers at around 1980 (Simoni 1998, 23).

Yet Spiegel now acknowledges that gender prejudice exists and that it is "so powerfully ingrained in probably all human cultures and endeavors that it may take generations of thought, practice and awareness-raising to evolve greater egalitarianism" (Spiegel 1991, 12).

A self-described "girl nerd," Spiegel loves nature, which is reflected in her nature-inspired works: pieces with programmatic titles, *Sunsets* (1973) and *Hurricane's Eye* (1990); pieces mimicking natural processes, *Kepler's "Harmony of the Planets"* (1977) and *A Strand of Life: Viroid* (1990); and pieces capturing recorded natural sounds, *Water Music* (1974) and *Conversational Paws* (2001) (Spiegel 2014). Such works as *Cavis Muris* (1986), *Anon a Mouse* (2003), and *Ferals* (2006), however, reveal Spiegel as an environmentalist concerned with ecological problems, global warming, and animal rights. A co-founder of Wildlife in Tribeca and New York City Pigeon Rescue Central, she is also licensed by the New York State Department of Environmental Conservation as a wildlife rehabilitator; she has published articles and created music, video, and visual art to foster wildlife appreciation and expose the mistreatment of wildlife, especially in New York City, her home since the late 1960s (see Spiegel 2014). Spiegel specifically advocates on behalf of animals that have come to be regarded as pests, often as a result of human activity and pollution, but that deserve their ecological niche and humane treatment—or in the case of feral members of domesticated species, human care.

SPIEGEL'S *ANON A MOUSE*

Among Spiegel's most provocative nature pieces is her ten-minute two-act opera, *Anon a Mouse*, the cast of which features rodents, a canine, and a human. The action takes place in a New York City loft's kitchen, in which a mouse family of three lives. The loft's human resident feeds the mice, whereupon they play with each other. The dog hopes to join the mice, but fails to win their trust, leaving him lonely and sad. Spiegel draws on actual experience, real living beings, and their sounds. She used field recordings she made with a Digital Audio Tape recorder, waiting very quietly in the dark in her own kitchen over several months, and then editing and processing with a Macintosh 9600 computer, a Kyma Capybara system, and Eventide H 3000 and DSP 4000 digital processors.

The piece opens with a few audible human utterances accompanied by environmental sounds: "Time to feed the mice … Rice cakes? Rice? Tonight?" Then such non-verbal human-generated sounds as the crunching of cellophane and breaking of rice cakes are heard along with the rattling sounds of mice. As the animals take center stage, the human element disappears completely (at 3'00" into the piece). Munching, squeaking, running and playing mouse sounds mingle with the sounds of the dog yelping and trying to speak their language with his squeak toy until the piece concludes

with an extended canine soliloquy, the whimpering dog now being entirely alone. Spiegel expands and rhythmicizes these sounds through reverberation, digital delay, loops, and multitracking to multiply the rodent squeaks evoking the presence of more than three mice. She creates intriguing percussive patterns within the low-pitched textures and subtle rhythmic configurations in the high-pitched parts as the textural density increases and decreases (see Spiegel 2014 for a recording).

Like Payne's *Horizon*, *Anon* reveals Spiegel's keen ecological awareness and discreet environmental activism, although here the focus is animal rights issues, specifically speciesism and urban ecology (Feisst 2014). Similar to racism and sexism, speciesism denotes human discrimination against animals and human constructions of hierarchies among nonhuman animals.[15] *Anon* discloses Spiegel's indebtedness to deep ecology in underscoring the intrinsic value of all living beings, even those regarded as pests and destined for the exterminator.[16] As she explained to me via email, Spiegel is especially concerned about what she calls "'underdog species,' those species that fall through the cracks of all animal protection laws." Spiegel explains that "feral domesticated animals such as pigeons and animals in commensal relationships with humans such as rodents are not pets, not livestock, not wildlife, not property or considered to deserve human care and yet they are not actually independent of humans. Small rodents are considered 'wild' but are not regarded or protected as 'wildlife.'" They are often seen as "'legitimate' targets for extermination, poisoning, shooting, and laboratory experiments." An amateur ecologist, she observed the competitive exclusion principle in the relationship of urban pigeons and rats to each other, "both scavenger species, compete for the same ecological niche in a given territory," such that when one species has successfully established itself in a certain territory, the other species yields (an urban territory might be an ally or a vacant lot or city block). Spiegel opposes the city's anti-rodent and anti-pigeon campaigns, believing that the increasing populations of predator species such as falcons and hawks can create a more natural ecological balance in this urban ecosystem.

The cross-species communication in *Anon* challenges the established human-animal hierarchy by inverting it: Mice are the protagonists, the dog is a supporting character, and the human has a very minor role. Spiegel anthropomorphized the animals, albeit cautiously. Animals are not symbols for humans and humans do not play animal roles, as is common in such animal operas as Maurice Ravel's *Enfant et les sortilèges*, Leoš Janáček's *Cunning Little Vixen*, and Hans-Werner Henze's *English Cat*. In *Anon* Spiegel lets animals speak for themselves and suggests an animal's point of view. Using recordings of animal voices, she illuminates the beauty and expressivity of these sounds. Although she edited and processed animal sounds, she did not sanitize or satirize them. The animal voices heard in this work are those of protagonists, not props. They are subjects in the sense that they make subjective individual statements.

Spiegel vividly emphasizes the interconnectedness and commonality between animals and humans. A "squeakbretto," a witty "translation" from the original, as sung in what Spiegel calls Universal Mammalian Vocal Expressive Language (UMVEL), enables humans to follow the plot. Although UMVEL is only a hypothesis that was entirely of Spiegel's creation, she wrote to me via email that UMVEL does actually exist and that it explains why we respond to the cries of other species. Spiegel noted:

> The poignant emotionality of the dog's concluding soliloquy is as completely comprehensible by our species as it would almost certainly be to most other mammalian species. It's a language of pitch and time, in a way much like music as a form of expression, except with less contrivance and artificiality than most music, not extra referential, not symbolic.[17]

She recorded the dog's final vocalizations not from her own well-cared-for dog, but from a rescued distressed dog she had recently cared for in her home.

Spiegel uses technology thoughtfully and constructively. Through technology she gives voice to animals at the margins in one of the most anthropocentric genres of classical music: opera. Recording and sound processing technology enabled her to illuminate the emotionality of animals and to unite a human and animals through sonic art. With *Anon a Mouse*, an attractive and environmentally provocative tape piece, she helps us understand urban wildlife in new ways. In this work, Spiegel critiques power hierarchies and thus aligns herself with many ecofeminists. On the other hand, however, she challenges nature-technology and nature-culture dichotomies, a viewpoint that contradicts the beliefs of many cultural ecofeminists.

CONCLUSION

Neither Payne nor Spiegel has considered herself an ecofeminist, and neither identifies with the tenets of cultural ecofeminism. Nevertheless, their nature-inspired works reflect manifold ecofeminist ideas. Having staked out their niches in a male-dominated sphere, Payne and Spiegel flouted gender stereotypes and augmented the legacy of modernist women composers. Although initially skeptical about gender prejudice in electronic music, they revised their stances. As citizens of the Earth they have recognized that music—an allegedly distinct anthropocentric activity often prone to alienate us from our natural environment—can be concerned with one of the most pressing issues of our time: environmental degradation. Both Payne and Spiegel have created fascinating works that help audiences reconnect with and better understand the state of the environment. Both have made important contributions to the growing repertoire of art that questions the status quo of our culture and honors the Earth.

NOTES

1. The term ecology denotes the scientific study of how organisms relate to one another and to their physical surroundings. I use this term in a broad sense, including the meanings of friendliness toward the environment and environmentalism, as it is implied in such concepts as ecofeminism, deep ecology, and social ecology. See also Boyle and Waterman (chapter 2).
2. See also Von Glahn (chapter 19).
3. My study of writings by Barclay, Lockwood, Andra McCartney, Oliveros, Payne, Spiegel, Hildegard Westerkamp, and many others did not yield any statements emphasizing such a standpoint.
4. Definitions of "hard" and "soft" technologies vary. I use the term "hard technology," referring to technologies with a high degree of specialization, sophistication, energy and material input.
5. Marx focuses on ideas of the pastoral; he does not discuss sustainability.
6. Spiegel pointed out that "all music made by the human body alone is 'technological.'" Laurie Spiegel to the author, email of October 4, 2013.
7. These artists include John Luther Adams, Barclay, Susan Frykberg, and Lockwood.
8. Laurie Spiegel, email message to author, October 4, 2013.
9. As a recording engineer, Payne helped prepare more than 400 releases for the label Music & Arts; see Vittes (2001).
10. The American writer Mary Austin's books, including *The Land of Little Rain* (1903), may be seen as an equivalent to Payne's works. Westerkamp's *Music from the Zone of Silence* (1988) was inspired by the Mexican desert mountain valley Zona del Silencio. Male composers who created music inspired by deserts in the United States include Harold Budd, David Dunn, Luc Ferrari, Ferde Grofé, Richard Lerman, Olivier Messiaen, Garth Paine, Harry Partch, and Edgar Varèse.
11. Information on American sound engineer Tom Erbe's program SoundHack can be found at http://www.soundhack.com (accessed December 22, 2014).
12. The time indications correspond to the commercially available recording of *Apparent Horizon* on Payne (2010).
13. See Drott (chapter 17) for more on John Urry's concept of the "tourist gaze." See also Toliver (2004).
14. Spiegel's development of the Music Mouse followed on the heels of Iannis Xenakis's gestural sound control tool UPIC (Unité Polyagogique Informatique CEMAMu) in the late 1970s, which involves a stylus and a digitizing tablet connected to a computer for real time performance and composition. But Spiegel's Music Mouse has arguably been more widely used.
15. Psychologist Richard Ryder and philosopher Peter Singer advanced this term in protest to animal experiments in the 1970s.
16. Deep ecology prizes biological diversity and the intrinsic value of all life, the equality and interdependence of humans and non-humans.
17. Laurie Spiegel, email messages to author, May 25, May 31, and October 4, 2013.

WORKS CITED

Alaimo, Stacy. 1994. "Cyborg and Ecofeminist Interventions: Challenges for an Environmental Feminism." *Feminist Studies* 20 (1): 133–152.

Allen, Aaron S. 2012. "'Fatto Di Fiemme': Stradivari's Violins and the Musical Trees of the Paneveggio." In *Invaluable Trees: Cultures of Nature, 1660–1830*, edited by Laura Auricchio, Elizabeth Heckendorn Cook, and Giulia Pacini, 301–15. Oxford: Voltaire Foundation.

Carson, Rachel. 1962. *Silent Spring*. New York: Houghton Mifflin.

Diamond, Irene, and Gloria Orenstein, eds. 1990. *Reweaving the World: The Emergence of Ecofeminism*. San Francisco: Sierra Club Books.

d'Eaubonne, Françoise. 1974. *Féminisme ou la mort*. Paris: Horay.

de Beauvoir, Simone. 1949. *Le deuxième sexe*. Paris: Gallimard.

Eisler, Riane. 1990. "The Gaia Tradition and the Partnership Future: An Ecofeminist Manifesto." In *Reweaving the World: The Emergence of Ecofeminism*, edited by Irene Diamond and Gloria Orenstein, 23–34. San Francisco: Sierra Club Books.

Feisst, Sabine. 2014. "Animal Ecologies: Laurie Spiegel's Musical Explorations of Urban Wildlife." *Social Alternatives* 33 (1): 16–22.

Friedan, Betty. 1963. *The Feminine Mystique*. New York: Norton.

Gaard, Greta, ed. 1993. *Ecofeminism: Women, Animals, Nature*. Philadelphia: Temple University Press.

Goldston, Dan. 2010. "Maggi Payne—Composing, Doing Video Work." *Experimental Arts Examiner*, December 23.

Griffin, Susan. 1978. *Women and Nature: The Roaring Inside Her*. New York: Harper and Row.

Haraway, Donna, ed. 1990. *Simians, Cyborgs, and Women: The Reinvention of Nature*. New York: Routledge.

Hinkle-Turner, Elizabeth. 2006. *Women Composers and Music Technology in the United States: Crossing the Line*. Aldershot: Ashgate.

Kalvos and Damian. 2004. "Maggi Payne: Ozone Poisoning." *eContact! Intrevues/ Interviews* 10 (2): n.p.

Kheel, Marti. 1993. "From Heroic to Holistic Ethics: The Ecofeminist Challenge." In *Ecofeminism: Women, Animals, Nature*, edited by Greta Gaard, 243–271. Philadelphia: Temple University Press.

King, Ynestra. 1989. "The Ecology of Feminism and the Feminism of Ecology." In *Healing the Wounds: The Promise of Ecofeminism*, edited by Judith Plant, 8–28. Philadelphia: New Society Publishers.

Marx, Leo. 1964. *The Machine in the Garden: Technology and the Pastoral Ideal in America*. New York: Oxford University Press.

McClary, Susan. 1991. *Feminine Endings: Music, Gender, and Sexuality*. Minneapolis: University of Minnesota Press.

Millet, Lydia. 2004. "Ecoporn Exposed." *UTNE Reader* (September-October). Accessed July 19, 2013. http://www.utne.com/community/ecopornexposed.aspx.

Norwood, Vera. 1996. "Heroines of Nature: Four Women Respond to the American Landscape. In *The Ecocriticism Reader: Landmarks in Literary Ecology*, edited by Cheryll Glotfelty and Harold Fromm, 323–350. Athens: University of Georgia Press.

Orenstein, Gloria. 2003. "The Greening of Gaia: Ecofeminist Artists Revisit the Garden." *Ethics & the Environment* 8 (1): 103–111.

Ortner, Sherry. 1974. "Is Female to Male as Nature Is to Culture?" In *Woman, Culture, and Society*, edited by Michelle Rosaldo and Louise Lamphere, 68–87. Stanford: Stanford University Press.

Payne, Maggi. 2010. *Arctic Winds*. Innova 83. St. Paul, MN: Innova Recordings. CD.

———. 2013. "Program Notes." Accessed June 28, 2013. http://www.maggipayne.com/.

Plant, Judith, ed. 1989. *Healing the Wounds: The Promise of Ecofeminism*. Philadelphia: New Society Publishers.

Rodgers, Tara. 2010. *Pink Noises. Women on Electronic Music and Sound*. Durham: Duke University Press.

Simoni, Mary. 1998. "Profiles of Determination." *Computer Music Journal* 22 (4): 19–28.

Reynolds, Simon. 2011. "Breaking the Sound Barrier," *New York Times,* October 9.

Rothenberg, David. 1993. *Hand's End: Technology and the Limits of Nature*. Berkeley: University of California Press.

Spiegel, Laurie. 1981. "Comments on Common Complaints." *Ear Magazine* 6 (3). Revised version accessed June 30, 2013. http://retiary.org/ls/writings/ear_women_article.html.

———. 1991. "An Open Letter on Women in Computer Music, etc. Re: Writings in CMA, *Array* 11, no. 2." *Array* 11 (3): 12.

———. 2014. Retiary Network. Accessed December 20, 2014. http://retiary.org.

Toliver, Brooks. 2004. "Eco-ing in the Canyon: Ferde Grofé's *Grand Canyon Suite* and the Transformation of Wilderness." *Journal of the American Musicological Society* 57 (2): 325–368.

Vittes, Laurence. 2011. "Maggi's Remedies." *Classic Record Collector* 8: 46.

Von Glahn, Denise. 2013. *Music and the Skillful Listener: American Women Compose the Natural World*. Bloomington: Indiana University Press.

Zimmermann, Walter. 1976. *Desert Plants: Conversations With 23 American Musicians*. Vancouver, British Columbia: A. R. C. Publications.

19 Musical Actions, Political Sounds

Libby Larsen and Composerly Consciousness

Denise Von Glahn

In the 1960s, amid escalating civil, social, and political unrest, a trio of movements emerged that would irrevocably alter the course of American history. The civil rights, second-wave feminist, and environmentalism movements had roots that went far back in the nation's history, and each had commanded the spotlight on various occasions over the decades. But in the 1960s and early 1970s, for a host of reasons, the movements coalesced. Their newfound strength was not the result of suddenly enlightened government policies, although there was progress on that front, or the support of the well-heeled establishment, who, like all comfortably ensconced classes, preferred to maintain the status quo; the movements' strength resided in large part in a recently empowered and simultaneously discontented post-World War II youth. They imagined a different world order, one that rejected inherited power structures and relationships, and one that insisted upon a more equal and just distribution of the world's bounty whether calculated in opportunities, dollars, or crops.

Motivated by mounting frustration with a distant war, systemic economic, racial, and gender inequalities, the futility of blinding materialism, and the belief that the nation's future was in their hands, large numbers of youth took to the streets and the airwaves espousing a multi-faceted idealistic agenda that combined respect for the planet and all of its inhabitants with strategies for its realization. Few corners of the culture, regardless of how sacred, were off limits to reimagining. Hopes were high: new ways of thinking would replace the old; local actions would produce global changes. Out of these larger movements others emerged; two of particular importance to this study are ecofeminism and bioregionalism. I am not the first scholar to pair these two movements; Plant (1990) recognized the complementarity of ecofeminist thought and the bioregionalist project. Together they offer an entrée into a discussion of Libby Larsen's music.

Larsen (b. 1950) came of age in these roiling times, and her music shows their effects. A young Libby had sung Gregorian Chant at Christ the King Elementary School. Early on she recognized the powerful role music played not only in sacred ritual but also in life. She understood the rare opportunity musicians possessed to sound people's feelings, to move them to a different place.[1] And eventually Larsen took to the airwaves too, but not with

songs crafted for AM radio audiences, although she is a gifted and prolific song composer. Larsen's music was not designed to become one of the many popular anthems that formed the soundtrack of demonstrations, rallies, and sit-ins. It spoke inside concert halls, those bastions of the establishment. Using sounds and styles long associated with the "art" music tradition, her music championed women and the environment. In this essay I consider how Larsen's unique blend of feminist insights, regionally informed environmentalist sensibilities, and Upper Midwest placedness came together in her 1982 orchestral piece *Deep Summer Music*.[2]

To better appreciate the cultural moment and Larsen's participation in it, we need to understand the history and principles of ecofeminism and bioregionalism. At the same time the two movements came into focus in the 1960s and 1970s, Larsen came of age. She read both Carson (1962) and Friedan (1963).[3] In different ways, each author insisted that power brokers stop talking and start listening. When Françoise d'Eaubonne coined the term "eco-feminism" in 1974, Larsen was in her first year of graduate school and did not know the word, but as she concurred in a 2009 interview, she was nonetheless an ecofeminist.

The proposition that the subjugation of the Earth and the domination of women were related was being considered simultaneously by a number of scholars on the continent and abroad, but none more articulately in the English-speaking world than the American theologian Rosemary Radford Ruether (b.1936). (For more on ecofeminism, see also Feisst chapter 18.) Her 1975 book *New Woman, New Earth: Sexist Ideologies and Human Liberation* became one of the movement's seminal texts, although Ruether acknowledged years later that she was unfamiliar with the term "ecofeminism" when she wrote it. Ruether, like d'Eaubonne, called for new models for understanding our relationship to each other and the Earth:

> Women must see that there can be no liberation for them and no solution to the ecological crisis within a society whose fundamental model of relationships continues to be one of domination. They must unite the demands of the women's movement with those of the ecological movement to envision a radical reshaping of the basic socioeconomic relations and the underlying values of this society. The concept of domination of nature has been based from the first on social domination between master and servant groups, starting with the basic relation between men and women. An ecological revolution must overthrow all the social structures of domination. (Ruether 1995, 204)

Ruether's interest in feminism grew out of her earlier engagements with civil rights and class issues: they were of a piece. It was a short step to seeing paternalistic religions as complicit in perpetuating hierarchical practices toward women, and then another short step to understanding "the

ecological crisis as the encompassing crisis of the ultimate 'other,' the earth itself" (xvi).

Scholars across disciplines developed and expanded upon Ruether's basic premise. Two of the most influential have been Carolyn Merchant (b. 1936) and Karen J. Warren (b. 1947). In a still growing series of books, Merchant approached the relationship between women and nature from her position as a philosopher and historian of science. Her first book, *The Death of Nature: Women, Ecology and the Scientific Revolution* (1980), tracked changing attitudes toward the natural world back to Francis Bacon. In the seventeenth century, nature went from being conceptualized as a nurturing organism to an atomized resource that could (and should) be controlled. Merchant encouraged us to "reexamine the formation of a world view and a science that, by reconceptualizing reality as a machine rather than a living organism, sanctioned the domination of both nature and women" (xxi). As Merchant later explained: "Science, technology, and capitalism come together in the 17th century to allow a secular version of the reinvention of Eden on earth. […] My argument is that the mechanistic worldview, which has become the dominant view of industrial capitalism—in a sense, the ideology of capitalism—is a framework that gives permission to exploit and dominate nature. The results are seen in the ecological crisis" (Schoch 2002). Twenty-four years later, Merchant suggested new possibilities for achieving balance based on "a partnership between humanity and nature" (Merchant 2004, 8). Although she has not abandoned her earlier concerns with dominators and victims, she sees that reading of relationships as one narrative among many, and reminds us that "narratives […] are not deterministic" (37). By 2004, Merchant had adopted a more conciliatory tone in her proposition of "a partnership ethic" (38).

Warren (2004) builds on the work of d'Eaubonne, Ruether, and Merchant, as well as scholars from across myriad fields to argue for the wealth of ideas and practices that intersect with ecofeminism.[4] She defends the usefulness of ecofeminist philosophy in chapters that focus on ecology, care-sensitive ethics, spirituality, justice, and animal welfare and moral vegetarianism. Although nature as it was conceived for centuries may be "dead," core beliefs of ecofeminist philosophy are not. Redesigning human and nonhuman others' relationships away from master-servant models and toward mutually respectful, cooperative, and collaborative interactions, which benefit all, has become an essential tenet of environmental thinking and sustainability efforts, and they remain at the core of ecofeminism. Collaboration and respect for humanity's cooperative relationship with the environment are at the heart of *Deep Summer Music* and more than two dozen nature-related works that Larsen has written over the past four decades.

Bioregionalism emerged simultaneously with ecofeminism in the early 1970s and grew out of a similar impulse to live harmoniously with the planet and each other. Although the movement's earliest spokespersons acknowledged feminists' concerns, rather than challenge gendered social structures

and ecclesiastical edicts, Berg and Dasmann (1977) proposed nothing less than a reconception, reconfiguration, and "reinhabitation" of human settlement on the planet according to natural, not arbitrary political, boundaries. Bioregionalism at its essence critiqued traditional gender roles and the abandonment of Gaea/Gaia for a mechanistic, scientific, Enlightenment explanation of the world, but it did not focus on changing people's thinking through gendered constructions of the world as much as changing their very ways of living in the world. Bioregionalists of the 1970s thought on a different scale: They believed that geography—watersheds, mountain ranges, and local flora and fauna, and not necessarily gender roles or religious thought—would determine destiny. Real community action would trump political protests or intellectual debates. Living with and within regional boundaries and resources was the only way to achieve the new order that Berg and Dasmann envisioned. As controversial journalist, author, and champion of anti-globalization efforts Kirkpatrick Sale (2000) explained a decade later:

> Now any region true to bioregional principles would necessarily respect the limitations of scale, the virtues of conservation and stability, the importance of self-sufficiency and cooperation, and the desirability of decentralization and diversity—and one can only imagine that these principles would impel its polity in the direction of libertarian, noncoercive, open, and more-or-less democratic governance. (108)

Sale recognized that such an idealistic vision offered no guarantees for human harmony:

> Different cultures could be expected to have quite different views about what political forms could best accomplish their bioregional goals, and (especially as we imagine this system on a global scale) those forms could be at quite some variance from the Western Enlightenment–inspired idea. And however much one might find the thought unpleasant, that divergence must be expected and—if diversity is desirable—respected. It is quite possible that an extraordinary variety of political systems would evolve within the bioregional constraints, and there is no reason to think that they would necessarily be compatible—or even, from someone else's point of view, *good*. (108)[5]

The bioregionalism movement established its foothold in San Francisco, California, in 1973 with Berg's "Planet Drum Foundation" and then in Missouri in 1979 with the first Ozark Area Community Congress (OACC). OACC proclaimed itself, "The first and longest-standing bioregional congress […] a decades-long forum for a sustainable and regenerative economy for the Ozarks" (OACC 2013). Both organizations and dozens of smaller ones that formed over the next decade encouraged regional awareness, sensitivity to natural physical realities, and life habits in harmony with local

environments. Ultimately the more utopian aspirations of the bioregional agenda receded from their efforts. Nothing less than a cataclysmic reduction and redistribution of humanity could produce the habitation patterns the movement had proposed.

But by the first decades of the twenty-first century, many basic principles of original bioregional thought have gained traction: farm-to-table practices in private homes and restaurants, the slow food movement, sustainable planting and harvesting strategies, citizen efforts to save unique regional habitats, recycling programs, technological efficiencies, a revaluation of diversity (whether of different species or human cultures), consciousness of the fragility and interrelatedness of life forms, the impact human behaviors have on all environments, and a variety of initiatives to educate the public to the advantages of living with and within the carrying capacity of one's biotic community regardless of whether one defines "community" as a family, neighborhood, city, township, state, region, nation, continent, or planet (Sale 2000, 111–132). Evanoff (2011) has argued for a bioregionally informed "global ethic" that takes a larger-scale ecological approach to all aspects of the planet's environmental condition.[6] Where original bioregionalists focused on individual bioregions and ways to strengthen the ties between humans and non-human others within their particular locales, Evanoff seeks balance and harmony between the needs of those individual biological and cultural communities and common challenges facing the larger global endeavor. Evanoff's "transactional" approach rejects dichotomous thinking of all kinds, whether between nature and culture, local and global, or human and non-human; he advocates harmony between self, society, and nature. In Evanoff's view, neither a monolithic "global ethic" nor a specific bioregional approach suffices. He thinks across cultures of all kinds; there is no separating the part from the whole.[7]

At a pair of interviews in March 2009, Larsen rejected categorizing labels of all kinds. She refused being called an ecofeminist or a bioregionalist, despite echoes of both movements' values resonating in her life in a number of ways: her fealty to local and regional land forms and water ways, her humble respect for her natural physical surrounding, her understanding of the relationships between human behavior and environmental consequences, and her general mindfulness of her position in this most important collaboration. She spoke of the words ecofeminst and bioregionalist as confining. Only four years later, Larsen boldly embraced being identified as both. Perhaps more certain of who she had become and what she had accomplished, she is now comfortable defining herself on her own terms and unafraid of others' limitations.

In a published statement, Larsen (1985) explained:

> To a Minnesotan and a Norwegian by heritage, nature is, in the old sense of the word, dear—for half the year there is little sound or movement, and the overwhelming white background heightens one's

> awareness of each small irregularity or contrast or surprise. Here there is also a complex feeling of joy and sadness and fear and gratitude during the beautiful, short seasons of spring, summer, and fall. A grain of wheat can mean much more than a grain of wheat. (3)

Larsen's music is often a "visceral, memory-tied response to a natural scene" (4).[8] Numerous pieces attest that she is a composer *from* and *of* the Upper Midwest who derives sustenance and satisfaction from "musicalizing" its unique geography, cold temperatures, paralyzing snowpack, and in the case of *Deep Summer Music,* the "motion of a field of ripened wheat in the wind" and "the gentle contour of the horizon around Terrace [Minnesota]" (4).[9] I will come back to this piece.

Beyond revealing her regional loyalties, the 1985 article illuminated Larsen's sense of connection to the larger natural world.

> I had not been composing for many years before it was clear to me that the most important source of inspiration for my own music would be nature. She and I had a good relationship even before music came along, but in those days she had to do most of the singing on her own, while I played the best audience I could. Now I think that, at least from time to time, we are able to pull off a fairly successful and equal collaboration, even if success depends primarily upon remembering my place. (3)

In characteristically unpretentious prose, Larsen admitted the importance of the natural world to her work as a composer and the collaborative relationship they shared. Larsen's statement bespeaks her humble stance.

But Larsen's easy gendering of nature as female may raise the hackles of ecofeminists sensitive to the capacity of language to perpetuate destructive thought patterns. Warren (2000) explained:

> The deep historical enmeshment of the concepts of women and nature, in at least the Western intellectual and cultural tradition, is not something that can be dismissed easily or taken lightly. Both concepts are deeply grounded in social, historical, and material realities. Maybe we *ought* not negatively associate women with nature and nature with women; but if we do not take seriously the negative associations of women with nature, and nature with women, we will not understand how these associations continue to permeate, reinforce, and "justify" behaviors, policies, theories, institutions, and systems of domination. (57, italics original)[10]

Can readers simply assume that Larsen was reasserting nature's Gaean "femaleness" rather than parroting patriarchal associations of nature with women, a practice that lessened the value, import, and power of both?

Bacon's natural world required domination and control; Larsen's natural world assumes an ecosystem of equals, a partnership. Still the breezy use of "she" and "her" might chafe.[11] Does Larsen's cozy informality suggest a privileged relationship to nature that she enjoys *because* she is female? Does Larsen's choice of words reinforce the myth that women are closer to nature and hence separate from the world of higher-order thinking and ideas? Larsen rejects both ideas. Rather than dismiss her words because of their seeming inconvenience to my project, or burden them unnecessarily with questionable freight, it is more instructive to consider her music and what it says about women and their worlds. As Larsen explained to me, music is her preferred language: "My first language is music; my second language is gesture; my third language is words."[12]

In 1982 Larsen collaborated with writer Patricia Hampl to create *In a Winter Garden*, a large oratorio-like work. Situating the story within a convent in the depths of a snow-shrouded December, Larsen and Hampl drew upon their shared knowledge of Upper Midwest winters, the frustrations with Roman Catholicism among female believers, and the inextricable relationship they both believed existed between people and their environments. The work's protagonist ultimately embraces the boundaries of her physical world and learns to live within them in a way that recalls Berg and Dasmann's bioregionalist ideals. Larsen's critical stance toward Roman Catholicism is similar to that of Ruether (1995). The piece reveals both bioregionalist and ecofeminist sensibilities.

Another piece offers additional insights into ways feminism and nature intersect in her music. Although Larsen felt disenfranchised by a patriarchal church and left organized religion while a teenager, she remained strongly spiritual. Among her most obvious spiritually informed pieces is a mass she wrote in 1992 called *Missa Gaia: Mass for the Earth* (Larsen 1995; see also Von Glahn 2013, 249–265). Instead of using the traditional texts of the Kyrie, Gloria, Sanctus, Credo, and Agnus Dei, or contrarily the writings of all feminist authors, Larsen set poems by Wendell Berry, Gerard Manley Hopkins, Joy Harjo, Meister Eckhart, and Maurice Kenny in order to foreground humanity's relationship to the Earth. Larsen's liner notes (1995) illuminate her thinking:

> *Missa Gaia* is a celebration of those of us who live on this land, a land which can be terribly beautiful and gentle, a land which can be harsh—which is always giving and always renewing. […] And we are stilling learning what it is to live on this land and what it is for the land to let us live here. […] I am reminded again and again that the Earth lets us live on it.

Larsen believes that an ideal relationship to the natural world is respectful rather than controlling, cooperative rather than co-optive, embracing rather than excluding. Nature does not discriminate on the basis of gender. Larsen's "she" and "her" reflect an intimate bond felt by a female composer

to a living, breathing organism, one with which she identifies. *Missa Gaia* invites everyone to feel part of that whole.

Deep Summer Music reveals a similarly inclusive embrace, but in this piece it is the particular place, Terrace, Minnesota, that is foremost in her mind. She is at home here even though she lives in a different part of the state; a shared Upper Midwest culture connects many Minnesotans as part of a common endeavor. Deep-seated joy invigorates this work, from opening muted horn calls, to softly pulsing vibraphone and marimba oscillations, to the arching string melody that grows out of the landscape and then floats over and through the piece. (See Example 1.) Larsen's music draws breath from the place, and the place comes alive. It breathes through her sounds. *Deep Summer Music* is, quite literally, a personal collaboration between the composer, the place, and a small community of dwellers in and on this land. Larsen explained the background of the piece and how it was informed by specific knowledge of the place:

> Terrace, Minnesota, is a farming community of 70 about 100 miles northeast of the Twin Cities. It lies among rolling hills next to the Chippewa River, and 80 years ago was the site of a flour mill, now being restored. For three years, the Terrace Mill Foundation hosted a concert by the Minnesota Orchestra. Billed as a sort of "classical Woodstock," the event drew as many as 5000 people from the surrounding areas. In 1982 I was commissioned to write a piece for the 1983 concert, a piece to be dedicated to Terrace. Since the residents of the town had personally contributed to the commission, and because they were a manageable number, I spent a long weekend knocking on doors and asking my audience what sort of music they had in mind. (1985, 3)

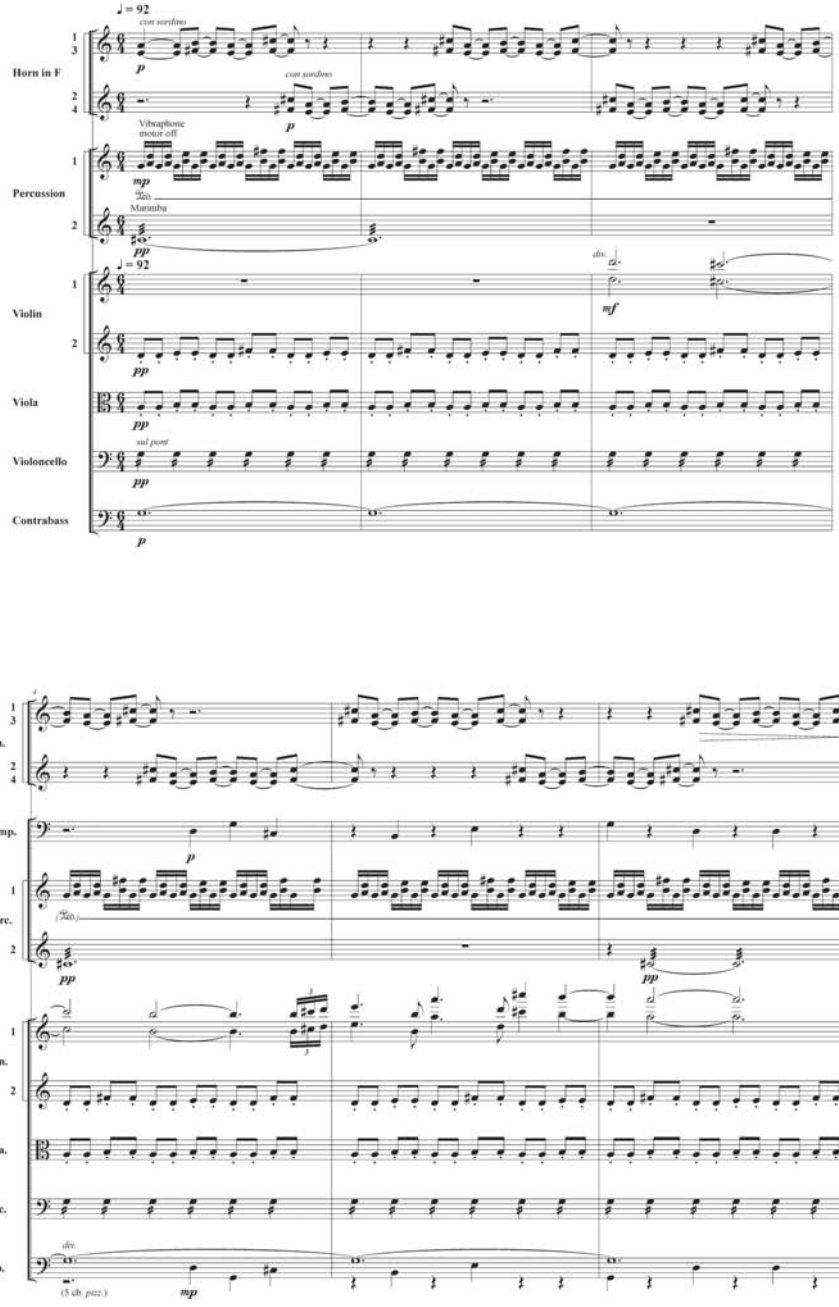
Larsen assumed that her fellow Minnesotans would receive her warmly, so she was emboldened to engage directly with them. What she heard surprised her:

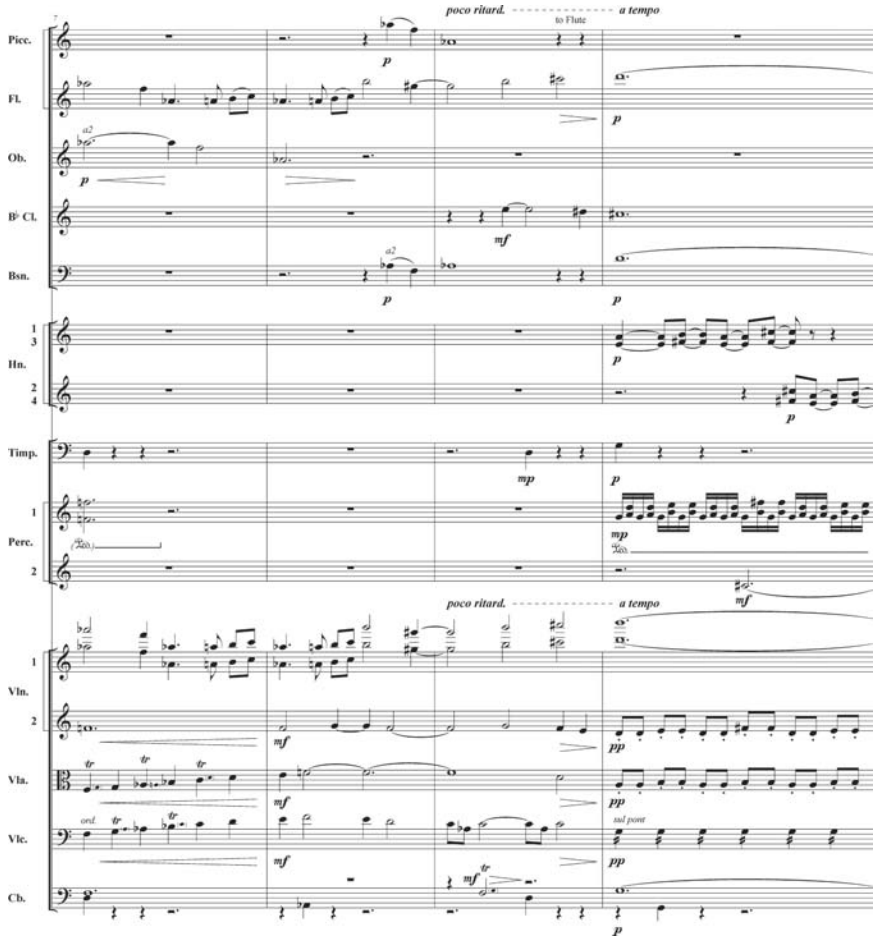
> For three days, I didn't hear anything about music. I heard about Terrace. Men and women spoke about the land; how much they felt its beauty and depended on but sometimes feared its strength. They talked about connections; the farmers to the land and to each other; and about the tyranny and bounty of the weather. (3)

The farmers' kinship with the land resonated with Larsen who from the time she was a child felt a greater affinity with the natural world than anything else. *Deep Summer Music* succeeds because of Larsen's empathy with the place and the people, and with what she characterized as their "complicated union with their surroundings" (3).

Listeners hear that relationship in the tentative sounds of a solo trumpet that first appears about a third of the way into the seven-minute work. It is hard not to think of Charles Ives's *Unanswered Question* or Aaron

Transposed Score

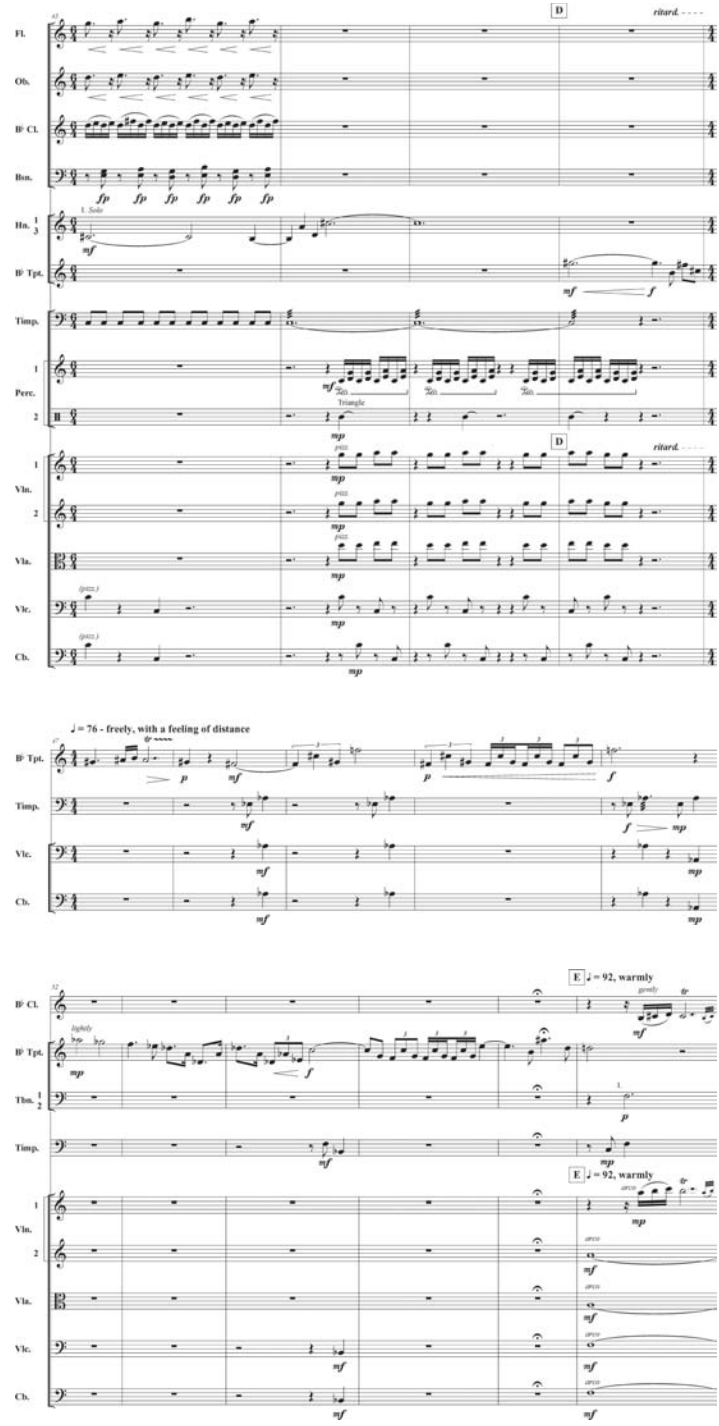




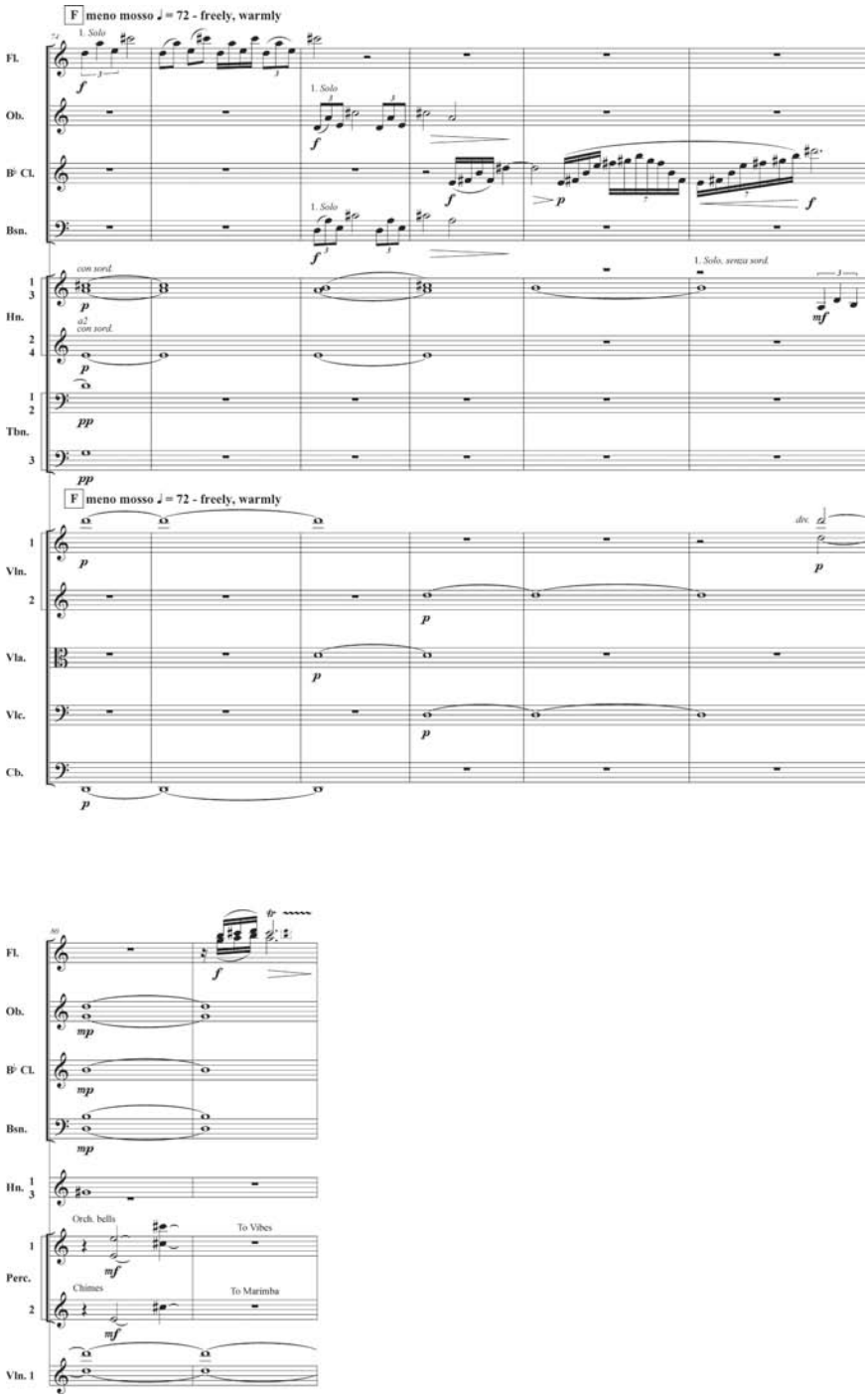
Example 1 Deep Summer Music, mm. 1–10.

Copland's *Quiet City*, which both foreground the instrument. Larsen explains: "The trumpet melody (a device borrowed from Charles Ives) was long and noble, to call to mind the prouder days of the mill town, when wheat farming and milling could make a man almost wealthy" (1985, 3).[13] But Larsen's use of trumpet is distinctly different to my ear from either Ives or Copland. Where their trumpets suggested outsiders looking in, Larsen's protagonist grows from the soundscape itself. Its melodic material mirrors and modifies the opening string arch and then the solo horn passage that introduces the trumpet. Although the trumpet maneuvers in a generously open orchestral texture, it is securely situated within the soundscape Larsen creates. (See Example 2.)

It is not just open scoring that conjures the Midwest's spacious hills and fields. Larsen's music rings with bird-like calls and songs whose material recalls the original arching melody. (See Example 3.)



Example 2 Deep Summer Music, mm. 43–57.



Example 3 Deep Summer Music, mm. 74–81.

Larsen weaves place and people into a seamless expression: the germinating string melody is the place, it reblossoms effortlessly (m. 82); the trumpet represents Larsen's heroic stewards of the land, it returns and then fades a final time without disturbing the balance of sound (mm. 106–119). In *Deep Summer Music* people and land experience "a complicated" but thoroughly natural "union with their surroundings": people with land, land with people.

Larsen acknowledged that her intentions for *Deep Summer Music* may not be universally audible, but that does not discourage her.

> Now the listeners may or may not have noticed that I was using certain techniques to achieve certain effects in that piece. But it wasn't my purpose to show them. What mattered to me was just the effect. I wanted the audience to be immersed in the experience—even to "be" the wheat—just as, in susceptible moments, they were immersed (as they told me) in the complicated union with their surroundings. I wanted them to hear, as I did, the sound of their feelings. (1985, 3)

What is a feminist to make of Larsen assigning the role of human protagonist to the trumpet, an instrument traditionally gendered male?[14] Has the male (once again) subdued nature? As with Larsen's use of "she" and "her," superficial readings do not suffice. Larsen explained that a combination of pragmatic considerations and programmatic ambitions directed her choice: Few instruments can be heard over and through a sonic field better than trumpets; she wanted this part to stand out. But more important to the composer than acoustical realities was the historical association of the trumpet with nobility. "*Deep Summer Music* tells a *noble* story of people and land working together."[15] There is a partnership between commissioners and composer and performers and listeners that mirrors the natural world; they came together. The "partnership ethic" that Merchant identified in 2004 recalls the "equal collaboration" that Larsen had composed in *Deep Summer Music* and spoke of in her 1985 article.

Reading the political movements of the times into Larsen's music invites charges of "biographical fallacy." Surely her imagination, the conventions of orchestral writing, and the conditions of the commission shaped the work as much as the social causes of the time. But to ignore Larsen's explicit remarks about *Deep Summer Music*, both published and personal, and to ignore a works list that testifies to the composer's embedded position in her Upper Midwestern world would be to deny both the music a large part of its meaning and the composer the essence of her voice. Larsen advocates for attention to place with her music. She challenges listeners to heed the intricate relationships between places and people by composing them in her music. As Larsen did with other works in which she pushes performers and audience alike to "become" the subject of her pieces,[16] in *Deep Summer Music* she invites us all to "be" the wheat, to feel ourselves not separate from nature but one with it. Rather than deliver a fact-filled screed that argues for greater awareness of the environment, Larsen links

mind and spirit and allows her music to do what it does best: move people to thoughtful action.

NOTES

1. Personal conversation with the composer, August 18, 2013. Larsen explained that it was the December 1, 1969, Vietnam War Draft lottery that caused her to become politically active: "That was the day I got busy."
2. For a discussion of a number of Larsen's works that focus on her relationship to nature and the environment see Von Glahn (2013, 242–273).
3. Larsen also explained the power of Jabobs (1961) and Murchies (1954) upon her thinking. Of the latter she said, "This book was my Bible." Personal conversation with the composer, August 18, 2013.
4. Warren's 18-page bibliography reveals the depth of her research and the breadth of the intersections of ecofeminist philosophy with other disciplines.
5. Sale clarified that he sought a system, "that will work even if the people in them are *not* good"; for him "bioregionalism […] thrives on the diversity of human behavior" (109–110). All italics original. How the bioregional world order would be implemented was never convincingly addressed in the movement's tracts.
6. The phrase "global ethic" recalls the "land ethic" of Leopold (1949).
7. For his most developed statement regarding his position on the relationship between bioregionalism and globalism see Evanoff (2011).
8. In this case Larsen was describing *Aubade*, a solo flute piece for Eugenia Zukerman that was commissioned by the Minnesota Composers Forum in 1982.
9. "Musicalizing" is a term Larsen uses to indicate an idea becoming music; personal conversation with the composer, March 28, 2009.
10. Larsen's bond with nature as expressed in her prose and realized in dozens of pieces inspired by nature has the potential, it seems, to marginalize both the composer and nature; it can be turned against them both.
11. Asking Larsen whether she assumed that her dominantly female readers would be safe with her gendered language the composer responded: "I wasn't thinking of gendered language. I chose the word 'her' with Gaia in mind. I have always thought of nature as she because it's complete: it births and dies." Personal conversation with the composer, August 18, 2013. Sigma Alpha Iota, the sponsoring agency of *Pan Pipes*, is an international *women's* music fraternal organization, and the readership of the magazine is overwhelmingly female.
12. Personal conversation with the composer, March 28, 2009.
13. Ives was another composer deeply attached to his place.
14. An overwhelming majority of orchestral trumpeters are male. Although more women are learning trumpet, it remains among the most gendered of all traditional Western orchestral instruments. A recording of this piece (Larsen 2001) by the Colorado Symphony Orchestra lists three trumpeters among its personnel: all are male.
15. Personal conversation with the composer, August 18, 2013. Larsen emphasized the word "noble" when speaking.
16. In her work *Four on the Floor*, she wants the four performers to become the gear box; in *downwind of roses in Maine* [sic], she invites players and listeners to become the fragrance.

WORKS CITED

Berg, Peter, and Raymond Dasmann. 1977. "Reinhabiting California." *The Ecologist* 7 (10): 399–401.

Carson, Rachel. *Silent Spring*. New York: Houghton Mifflin, 1962.

d'Eaubonne, Françoise. 1974. *Féminisme ou la mort*. Paris: Horay.

Evanoff, Richard. 2011. *Bioregionalism and Global Ethics: A Transactional Approach to Achieving Ecological Sustainability, Social Justice, and Human Well-being*. London: Routledge.

Friedan, Betty. 1963. *The Feminine Mystique*. New York: Norton.

Jacobs, Jane. 1961. *The Death and Life of Great American Cities*. New York: Vintage Books.

Larsen, Libby. 1985. "The Nature of Music." *Pan Pipes of Sigma Alpha Iota* (winter): 3–4.

———. 1995. *Missa Gaia: Mass for the Earth*. Koch International Classics, 3-7279-2.

———. 2001. *Deep Summer Music*. Koch International Classics, 3-7520-2 HI.

Leopold, Aldo. 1949. *A Sand County Almanac*. Oxford: Oxford University Press.

Merchant, Carolyn. 1980. *The Death of Nature: Women, Ecology and the Scientific Revolution*. San Francisco: Harper.

———. 2004. *Reinventing Eden: The Fate of Nature in Western Culture*. New York: Routledge.

Murchies, Guy. 1954. *Song of the Sky*. Boston: Houghton Mifflin Company.

OACC. 2013. Accessed July 5, 2013. http://ozarkareacommunitycongress.org/.

Plant, Judith. 1990. "Searching for Common Ground: Ecofeminism and Bioregionalism." In *Reweaving the World: The Emergence of Ecofeminism*, edited by Irene Diamond and Gloria Feman Orenstein, 155–161. San Francisco: Sierra Club Books.

Ruether, Rosemary Radford. 1995. *New Woman, New Earth: Sexist Ideologies and Human Liberation*. Boston: Beacon Press.

Sale, Kirkpatrick. 2000. *Dwellers in the Land: The Bioregional Vision*. Athens: University of Georgia Press. Original edition, 1985.

Schoch, Russell. 2002. "A Conversation with Carolyn Merchant." *California Monthly*, v. 112, n.6. Accessed June 19, 2013. http://www.mindfully.org/Sustainability/Carolyn-Merchant-ConversationJun02.htm.

Warren, Karen J. 2000. *Ecofeminist Philosophy: A Western Perspective on What it is and Why it Matters*. Lanham, MD: Rowman and Littlefield Publishers.

Von Glahn, Denise. 2013. *Music and the Skillful Listener: American Women Compose the Natural World*. Bloomington: Indiana University Press.

20 New Directions

Ecological Imaginations, Soundscapes, and Italian Opera

Aaron S. Allen[1]

INTRODUCTION

After examining tens of thousands of individual issues of Italian-language music periodicals published before 1887 (Allen 2006), I can claim confidently that these periodicals focused obsessively on opera. But this fact alone should not be surprising—opera was a major cultural product of nineteenth-century Italian-speaking lands (and elsewhere), and authors, editors, and readers of periodicals emphasized reporting on, analyzing, and gossiping about their favorite genre. During the 1880s, one periodical, *La scena illustrata*, explored an unusual area beyond their usual theater and music writings: the connections between music, culture, and nature. Amid the typical fodder for opera buffs, there are articles about Italian-trained birds that sang opera excerpts, Italian brown mice that learned to sing, how forest soundscapes could substitute for and inspire new human music, and the variety of larks' vocal talents—and their comestible quality!

What motivated the authors, editors, and readers to stray from opera and venture in new directions? And what are the ramifications of these writings for ecomusicology? In this essay I suggest that Italian political and artistic situations of the period—in particular, national unification after the Risorgimento and the crisis of opera—provided a welcoming context for these writings. These authors made up a nascent ecomusicological community—that is, they read and responded to each other while engaging with the intersections of music, culture, and nature. Moreover, this community is an antecedent to our own; both are part of a broader historiography linked by what we conceptualize today as the ecological imagination.

Billed as a biweekly journal of music, drama, and literature, *La scena illustrata* (*LSI*) began publication in 1864 or 1865 in Florence, then the capital of the recently unified Italy. Of the approximately 135 Italian arts and music periodicals published before 1887, the average lifespan was about ten years, but *LSI* was published nearly continuously from 1865 until 2003, when it moved to an Internet format that still publishes irregularly.[2] A chronicle of this unique periodical is beyond my current scope, as are explanations for its longevity and success; in fact, I limit my discussion to publications from early 1885 to the middle of 1887, the chronological period to which I have had access.

But what I can say is that this snapshot of *LSI* presents us with an early ecomusicological community, something unusual in the periodicals of nineteenth-century Italy. To support this contention, I discuss a cross-section of the authors involved and a selection of the themes they discussed. I conclude with some reflections on the historiography of ecomusicology in relation to soundscape studies.

Before continuing, however, I need to elaborate on the idea of ecological imagination, which is used in multifarious ways in various interdisciplinary fields: ecomusicology (Guy 2009), environmental history (Worster 1993), environmental studies (Orr 2010), environmental policy (Lejano et al. 2013), and especially literary ecocriticism (Buell 1995, 2005). As Guy (2009, 220) framed it, "What might musical references to this iconic river [the Tamsui] inform us about a Taiwanese environmental imagination?" She traced those musical and environmental imaginations through different stages of the Tamsui's channelization and pollution, finding connections and disconnections between humans (composers, musicians, listeners) and nature (the Tamsui). On the one hand, then, the environmental imagination involves environmental creativity and/or environmental aesthetics. In addition to Guy (2009), we see this with regard to narrative and literature (Buell 1995, 2005, Lejano et al. 2013), especially nineteenth-century literature with nature themes. On the other hand, the ecological imagination refers to a sensitivity to nature developed in childhood that leads to more ecological ways of being in adulthood (Orr 2010).[3] In relation to both of those uses, Worster (1993) envisioned a place for environmental history in academic discourse: Historical inquiry should not be so anthropocentric and should consider the fundamental human-nature connections that are the basis of all societies. The ecological imagination informs the disciplinary rethinking that Worster was advocating. On a continuum of uses, then, the ecological imagination relates to a diachronic understanding of human development and change with regard to our relationships with nature: For to imagine is to form in the mind ideas that are not actually present in reality but that instead are notional (i.e., speculative) and/or remembered (from reality). The ecological imagination is informed by actual sensate nature but creates an alternative form of reality presented in conceptions of the future, literature, or music.

The *LSI* authors illustrate such ecological imagination in relation to their own time and place, in which environmental destruction was evident and growing in awareness (Marsh 2003, Hughes 2005, Serneri 2010) and opera was a primary art form. Furthermore, the *LSI* authors are writing in the context of a subject (opera) invoked only rarely in relation to ideas about nature (although see Senici 2005 for a recent endeavor[4]). I do not claim that the *LSI* authors created ecomusicology *avant la lettre*; Occidental cultures have found and written about various ways of engaging with sound and environment dating back to at least the Ancient Greeks. Nevertheless, we

can interpret this *LSI* community as earlier voices in our own ecomusicological dialogue—a conversation in which we also employ our ecological imaginations.

AN EARLY ECOMUSICOLOGICAL COMMUNITY

Although a dozen individuals wrote relevant pieces in *LSI* in the mid 1880s, four stand out: Ferruccio Rizzatti, "Crick," Guido Fantoni, and Michele Lessona. These are the most active third of a community of writers who were reading and responding to each other. (Table 20.1 on pages 283–284 provides the bibliography of *LSI* writings referenced throughout this essay.)

Rizzatti's four-part "Music Among the Beasts" (Rizzatti 1885a) focused systematically on birds, their habitats, and their voices. His later "Music and Beasts" (Rizzatti 1886) discussed the sounds of other animals and the influence of music on them. "Music in the Forest" (Rizzatti 1885b) differs in that it is a fictional story about the inspirational power of the forest, where a man is inspired, falls in love, and comes to various realizations about the world and the place of love, science, and music.

The author known only as "Crick" wrote a piece that may have influenced Rizzatti's fictional story. In "Music of the Trees," Crick (1885a) made the case that the natural soundscape of forests could substitute for human art music and inspire new human music, regarding both composition and listening. Crick's arguments fit well with the "skillful listeners" chronicled in Von Glahn (2013), in that he recognized the importance of listening to nature as fuel for musical creativity; in fact, Crick seems a sort of R. Murray Schafer 100 years before that Canadian composer launched his own ear-cleaning and ear-reorienting ventures in the 1960s and 1970s, when he wrote about "the world as a macrocosmic musical composition" (Schafer 1994, 5). In "The Modern Inventors," Crick (1886) considered briefly some French composers who represented various aspects of the human physical world (such as battles) and biological natural world (such as donkeys and birds). But in the context of *LSI*, "Vocal and Instrumental Music in Birds" (Crick 1885b) was more influential; this essay sought to expand the realm of musical experience through nature. Quoting extensively from "naturalista appassionato" Charles Darwin's *The Descent of Man* (1871, translated into Italian the same year by Michele Lessona, reprinted again in 1882 and 1888),[5] Crick interpreted various avian behaviors as vocal and instrumental music and claimed that male birds are responsible for musical expression.

Still different approaches to birds are from Guido Fantoni: the story of a faithful swallow (Fantoni 1886a), a survey of larks (Fantoni 1886b), and a quasi-reception history of the swan in literature and music (Fantoni 1886c). In "The Song of the Swallow," Fantoni (1886a) does discuss the swallow's song (*canto*): The bird is more an expressive, harmonious chatterbox than a singer because its song is more a shriek than a melody. But the Italian *canto* in his title

hints at the term's poetic meaning. As in his subtitle, "From the Memories of a Naturalist," Fantoni summarizes the story of a naturalist who was adopted by a faithful swallow that returned each year during its migration to the naturalist's home. In "The Morning Singer" Fantoni (1886b) catalogues various lark species, habitats, behaviors, voice types, and vocal virtuosity—much in the way that Rizzatti did in "Music among the Beasts." In "The Song of the Swan," again playing on the dual meaning of *canto*, Fantoni (1886c) considers three main reception trends: first, the ancient and modern, Italian and foreign stories of how sweetly the swan sings in general and/or when dying;[6] second, how some famous Italian poets and musicians (Virgil, Rossini, Bellini) are called the swans of their respective birthplaces; and third, other reports that the swan's voice is terrible, with which Fantoni ultimately agrees.

Michele Lessona was a naturalist; Rizzatti and Fantoni seem to have some similar training. Lessona was a professor of zoology at the Universities of Bologna and Turin, and he translated into Italian numerous works of Darwin. In his *LSI* article "Natural Phenomena," Lessona (1886c) tells of his visit to a circus menagerie in Genoa where he confronted a charlatan curator over some poorly faked animals (e.g., they passed off a goateed goat for the otherwise beardless, but certainly more exotic, ibex). His earlier article "The Song of Mice" (Lessona 1885) is an attempt to persuade us that mice sing.[7] Apparently, not all his readers were convinced, because a few months later Lessona wrote in his next article, "The Song of Apes" (Lessona 1886a), that he had been asked for further proof. Lessona then provides a number of citations, primarily of French and English naturalists, including Darwin.

What makes these writers part of a community? First, they are publishing in the same periodical, which they are, we may assume, reading. Thus, they are sharing ideas with each other. Second, and most important, those ideas are appearing in shared and influential ways in their writings. Crick's ideas about forest soundscapes provide grist for Rizzatti; Fantoni provides essays to parallel Crick's interest in birds (and Darwin); and Lessona broadens the scope beyond just birds into mice and apes (also drawing on Darwin). Finally, we should also consider whether they are an *ecomusicological* community. We might understand their writings as an early musicology engaging with nature studies, but I would suggest that there are cultural elements—love, gender, social relations, hierarchy, literature—beyond music as narrowly conceived and beyond nature conceived (problematically) as non-human environment. And while we cannot expect a level of critical inquiry that has come to characterize contemporary scholarship, and that is a foundation for ecomusicology (see Edwards chapter 11), these authors are interrogating some relevant topics. These and other writers in *LSI* are considering those musical, cultural, and natural issues that swirl around in ecomusicology. The arts in general (visual, oral, literary, plastic) and music in particular have long engaged with nature topics; unusual here is that we have a community-level effort in the context of the dominant culture of opera in nineteenth-century Italy.

THREE ECOMUSICOLOGICAL THEMES IN *LSI*

In "Natural Phenomena," Lessona (1886c) mentions the trumpet prophesied to sound before Armageddon with regard to a trumpet he heard (or imagined for poetic impact?) just before being drawn into the charlatan's menagerie, but otherwise, this article is not about music. Lessona is instead telling a story. While this emphasis on non-musical narrative within a general nature topos may seem unusual for an opera periodical, it is important to note that many nineteenth-century Italian music periodicals trained their sights on the arts in general (some also included economics/industry). The subtitle of *LSI* in the 1880s was the "bi-weekly journal of music, drama and literature" (this subtitle changed throughout the course of its long publication history[8]), and of course being *Illustrata* it included many illustrations. We might, then, consider these as "interdisciplinary" publications. Nevertheless, it is the nature theme that stands out as unusual—although not unique, as discussed below—even in this interdisciplinary arts context. In addition to Lessona (1886c), nature themes appear in four other non-music stories from the period I consulted; I interpret three of these four as responses to articles cited above.

"Flower of Snow" (Mon … 1886), however, appears to have no precedent or earlier conversational partner in *LSI* (with the caveat that I have been limited in my access to materials). The author says that he had promised the shepherd who told him the tale that he would publish it, providing us with a pastoral genesis. The story is about a four-year-old girl in a circus who sang and walked the tightrope. Her abusive mother ultimately kicked her out into the snow along with an old clown who defended her. They wandered looking for shelter, which no one offered. Eventually, the clown died, the girl wandered on but died herself. Where she collapsed an unusual white flower, an "earthen star, like a pearl," blossomed in the winter.

"Cage of Little Birds" (Misasi 1886) is a metaphor for nuns in a convent. Misasi makes a brief reference to music by comparing the chattering and singing of nuns with that of birds—as if he had read Crick (1885b). When the narrator went with his cousin to a convent outside of town, they heard "a confusing clamor; there were cries, laughter, and sniveling (mixed with a cadential chanting of infantile voices) that made for a deaf accompaniment to the shrill music. That solitary white house seemed to me like a cage, in which a hundred bright and garrulous little birds fluttered about" (Misasi 1886, 2–3).

"Sketches and Hints" (Vasquez 1886) are vignettes about nature scenes that launch poetic analogies: In the forest, the snake about to kill a bird is like vice in the human soul; a sea gull flying freely over a tempestuous sea is like a cloistered girl's hopeful heart; the boisterous stream becoming a placid river is like the human life going through love, first excited and sobbing, then resigned and placid. It seems that the above writings of Crick (1885a) and Rizzatti (1885a)—which we may presume that Vasquez knew, or at least that an intermediary editor knew—provide a conceptual background for Vasquez's inspirations from poetic nature.

A fourth article, "Spring that Sings" (Giarelli 1887), furthers my interpretation that the *LSI* authors were reading and referencing each other's work. This musical reference is not unlike Rizzatti's trumpet call, but either Giarelli or the *LSI* editors took it a step further, offering an elaborate full page drawing by Paul Heydel of "Spring that Sings" complete with a poem lauding May and birds (Figure 20.1). The various articles about birds and forests by Rizzatti, Fantoni, and others in 1885–86 seem to have made this 1887 depiction possible, even logical. Crick (1885b) is the most prominent background: The percussionists, string players, harpists, trombonists, flutists, and singers are all represented in a grand, sylvan opera production.

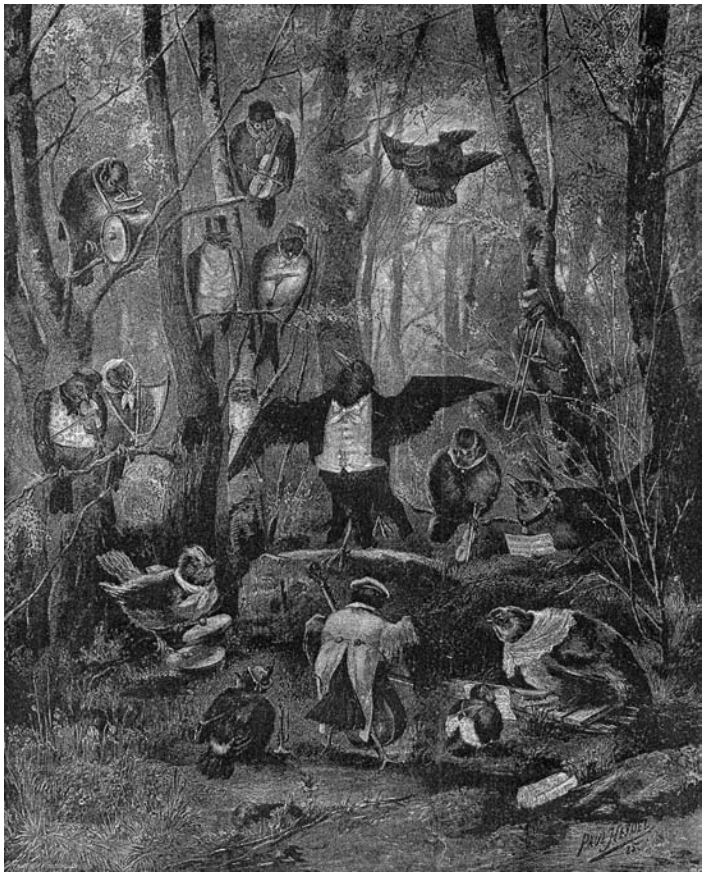


Figure 20.1

Opera, *la dramma per musica*, is the second theme, and I see it represented in two ways: literal and metaphorical. Opera—with its amalgamation of music, theater, dance, and literature—was, of course, the dominant content of most nineteenth-century Italian music periodicals, *LSI* included. It is not surprising,

then, when "Music and Beasts" (Rizzatti 1886) recounts, briefly, a type of opera at the court of Louis XI that comprised pigs trained to dance (and, presumably, to squeal) to the accompaniment of bagpipes. Nor is it surprising that "Parrots in the Theater" (Lessona 1886b) went to great lengths to justify that parrots could perform opera excerpts. After spending four fifths of his article discussing examples of learned parrots, Lessona finally arrives at his explicit point: an Italian living somewhere in the Western hemisphere has trained a group of parrots to sing solo and choral excerpts from Bellini operas, and they were a smash hit. These reports of literal "beasts in opera" are understandable in the general opera reportage of *LSI* and other periodicals.

But there are also metaphorical "bestial operas," as for example in "Spring that Sings" (Giarelli 1887) and others. In "Amidst the Woods: The Song of the Nightingale" (Bobba 1886), the author offers a detailed comparison of the late winter forest with that of early spring. She introduces a cast of characters to highlight the changes between seasons, but at the very end Bobba brings in the nightingale. The bird's song in major and minor variations represent in sound what we feel and express in writing: "Everything we are obligated to translate into vile prose, the nightingale expresses in that divine language called music" (Bobba 1886, 6).

"The Morning Singer" (Fantoni 1886b) enumerates the various types of larks, their habitats, behaviors, and vocal characteristics; I interpret Fantoni's writing, however, as a metaphor for opera singers. For example, the field lark is "the virtuosa *par excellence*, the *prima donna*," whom many have glorified (8). Fantoni elaborates on the bird's ability to fly and sing simultaneously, as if it were an actor that could both move vigorously about the stage and act while singing virtuosically: "No other throat can compete with the lark's. [... It] sings for an entire hour without interrupting itself for even a second, flinging itself vertically up to an altitude of thousands of meters, skirting the clouded regions in order to all the more gain altitude—and all that without missing even one of its notes in that immense trajectory" (8). Fantoni details the structure of the bird's songs and various strophes. Then he considers the larger titlark, which is well poised, as if it had the posture of a dignified singer; it has an appendage on its head that it keeps upright, and "its voice is harmonious and can be heard at extremely long distances even when the bird flies through the air and out of sight." In a macabre twist at the end of his article, Fantoni excuses the larks that do not sing by admitting that, "they compensate us for their lack of talent with the extreme delicacy of their meat!" (8). Ornithologist admirer of birdsong he was indeed—but he seems not to have been a preservationist vegetarian!

This consumptive finale is in line with the adoration and objectification of opera singers and their voices that characterized many writings in nineteenth-century Italian music periodicals. By and large, the *LSI* articles on birds, and especially this one by Fantoni, are not about what insects the birds eat or the nests they build or their migratory patterns; rather these essays are about how well or virtuosically they sing. This fascination with birds

has a long history (Leach 2007) and has continued into the twenty-first century (Rothenberg and Ulvaeus 2001, Rothenberg 2005, Krause 2012, and the varied discussions in Boyle and Waterman chapter 2, Guyette and Post chapter 3, Ingram chapter 16, Seeger chapter 6, Simonett chapter 7, and Titon chapter 5). In the context of opera periodicals, however, the bird-diva parallel can become problematic because of exploitative gender associations (see ecofeminism as discussed by Feisst chapter 18 and Von Glahn chapter 19). "Voice in Animals" (Lioy 1886) elaborates on the idolatry of female opera singers. Lioy is concerned with establishing how the males of many animal, insect, and especially bird species are the music makers, the ones with a voice (cf. Crick 1885b). In contrast, humans (the "unfeathered bipeds," as he puts it) are uniquely blessed by having both sexes—and especially the fair sex—participate in making music (Lioy 1886, 8).

If the avian world represents the divas of the operatic stage—those virtuosic, star singers—then what of the other beasts and non-human animals that appear in the pages of *LSI*? In the grand "bestial opera," I interpret the other animals (my third theme in this section) as the supporting cast and audiences. For example, in a tale from sixteenth-century Brussels recounted in "Music and Beasts" (Rizzatti 1886), a bear plays an organ made of cats, and the ensemble is followed in a procession by apes playing bagpipes. Lessona (1886a) discusses apes more prominently in "The Song of Apes"; he describes as "song" (*canto*) what others refer to as "call" (*urlare*). These songs resemble a whistling in the lion monkey, while other species "resemble the warbling of birds mixed with the sound of a flute." Lessona also mentions the hylobates—the gorillas, orangutans, and chimpanzees—and cites Darwin's *The Descent of Man, and Selection in Relation to Sex* (1871, which Lessona translated) as reporting that one of these is able to vocalize a complete octave when trying to attract a mate. "Even today among human beings, complete and correct musical octaves create great sexual allurement, and ladies of good taste [go] crazy for tenors, baritones and especially bassi profundi" (Lessona 1886a, 8).

While not quite as suggestive as rock-star-like ape singers, their fans swooning and screeching after them, professor Lessona (1885) also offers a tale of singing mice. Lessona first explains the types of mice and the history of their introduction into Italy, but, with a tinge of nationalistic pride, he reports that it is the native Italian brown mouse that sings. It is not just mice vocalization; rather, these are mice that, Lessona argues, learned how to sing. His two encounters with singing mice were in rooms where a piano was frequently played. Concluding that the mice had thus learned how to sing, he urged some entrepreneurial reader to become a mouse-impresario and take on the task of training mice to sing: "A vocal concert of little mice, with the accompaniment of and intermezzi by piano, violin, and flute, would be such a novelty that it would make a fortune going on tour through the world's grandest cities" (Lessona 1885, 8).

From the audience of mice who learned osmotically to sing, Rizzatti (1886) continues the thread with numerous Orphic stories about animals

that appreciate music. For example, he recounts stories of a violinist and a pianist who each had regular encounters with spiders that emerged to listen while they practiced at home. Another story tells of a group of friends who persuaded a lizard to come out of his hiding place only when playing a specific section of an opera aria. Rizzatti tells of Rameau encountering a turtle that would poke its head out of its shell only when serenaded. Then there are the friends who watched their companion charm two donkeys into laying their heads in his lap as he played the flute by a forest stream. And Rizzatti tells of two friends lunching in a park; one used a trumpet to attract deer, boars, and other quadrupeds, then had his servant perform on a kithara while the animals listened intently. When the performance ended, the animals left.

In addition to these stories that echo Orpheus—that promote the idea of music soothing the savage beast—there are other themes I could expand but cannot due to the confines of this brief essay. Various articles bring up the pastoral, emphasizing the countryside, forests, streams, and the ocean. This classical topos is most evident in Alberto Manzi's translations, "In Full Arcadia" (Gessner 1885), based on eighteenth-century Swiss poet Salomon Gessner's *Idyllen* (also cited in Rizzatti 1886). The vegetable kingdom is discussed in relation to the sound of wind in trees and the crescendo of ripe grain in a summer field, most prominently in "The Music of the Trees" (Crick 1885a). And various aspects of the elemental are invoked, from the great forces of the wind, thunder, and lightning (Crick 1885a), to the tangible sonorous properties of metals and rocks in "Musical Stones" (Anonymous 1886).

CONCLUSION

By engaging in discourse around the connections between music, culture, and nature, the authors of these selected *LSI* articles are, I claim, part of a nascent ecomusicological community. But they were not the first in nineteenth-century Italian periodicals to connect sonic issues to the environment. I have found related discussions of similar themes in over a dozen articles in Italian music periodicals since the 1820s.[9] When it comes to authors, however, there is no comparison with the community in *LSI*: Many of those earlier articles are anonymous, authors seem not represented more than once, none of the *LSI* authors discussed here are represented in the earlier periodicals, and inter-article dialogue is not evident. Thus, while *LSI* was by no means the first Italian music periodical to deal with ecomusicological topics, it was exceptional in the quantity and quality of and dialogue among the articles. Further, this momentary ecomusicological flourishing in the pages of *LSI* was itself exceptional to the usual focus on opera. Why did they do it? And what can this digression in *LSI* tell us about ecomusicology and opera?

Regarding the historiography of ecomusicology, these writings provide a corrective to assumptions that only after the twentieth-century environmental movement did soundscape studies, acoustic ecology, and ecomusicology flourish. Environmental problems have been evident to Italians for centuries (Marsh 2003, Hughes 2005, Serneri 2010). The Italian government issued the first pollution laws in 1888 as a result of growing industrialization, which came to Italy later than elsewhere in Europe (Serneri 2010); we might interpret the *LSI* authors as exhibiting some anxiety to these industrial and cultural changes. In Allen (2014), the first dictionary/encyclopedia entry on ecomusicology, I cited Schafer as the founder of soundscape studies and acoustic ecology, fields that are important antecedents (and overlapping milieus) for ecomusicology; furthermore, Järviluoma et al. (2009, 10) and Minevich (2013, 2) have referred to Schafer as the "founder" or "father" of soundscape studies. Schafer was hard at work in the 1960s and 1970s, when he initiated and developed important and influential projects in the institutional settings of academia and arts activism.

But, as historians of the senses (e.g., Smith 2007) and Schafer would agree, the soundscape has always been there. As the authors of *LSI* show, regardless of what they are called—soundscape studies, acoustic ecology, ecomusicology—such engagements are part of an intellectual history that begins well before the twentieth century. One might trace the origins of such studies back to the "Harmony of the Spheres," from the Ancient Greeks through medieval *musica mundana* to Enlightenment and Romantic philosophies, a tradition that spans over two millenniums (Godwin 1993, Clark and Rehding 2001); one could also consider medieval Christian consternation over birds and music (Leach 2007), the writings of Vedic cosmological philosophies and mythologies (Schneider 2004), or the numerous Asian traditions (Edwards chapter 11). But we can also see a closer historical connection to today via nineteenth-century Italy and, remarkably, in the context of opera criticism.

Nineteenth-century Italians regularly debated the role of opera in the cultural life of the peninsula. In the first half of the century, Gioacchino Rossini's operas were an international sensation, and he was loved throughout the peninsula; in the later half of the century, Giuseppe Verdi took the mantle as Italy's most famous opera composer. Nevertheless, Rossini and Verdi were criticized for not moving beyond standard forms. Giuseppe Mazzini is known as a revolutionary Italian political figure central to the Risorgimento, but his *Filosofia della musica* (1836) critiqued a crisis in opera (largely represented by Rossini) and aimed to find balance between Italian and German musical styles. Critic and sometimes opera composer Abramo Basevi believed Giacomo Meyerbeer was that synthesis; Basevi also promoted eighteenth-century Italian opera composers and nineteenth-century German composers of instrumental music such as Ludwig van Beethoven (Allen 2006). Basevi and others fanned the flames of the debate caused by the arrival in Italy of Richard Wagner's music, which appeared in 1871 in Bologna

with *Lohengrin* but which premiered twenty years earlier in Weimar. The post-unification movement known as the Scapigliatura ("bohemianism"), which included opera librettist and composer Arrigo Boito, advocated a renewal of Italian arts. That renewal became manifest in the Verismo ("realism") movement with operas such as Pietro Mascagni's *Cavalleria rusticana* (1890). In Italian periodicals, particularly during the 1880s, critics lamented a perceived decline of opera that threatened Italy's cultural hegemony in the genre. Thus, throughout the nineteenth century, debates raged among conservative and progressive parties about the form, function, and future of opera.

In this context, the ecomusicological writings of the 1880s in *LSI* can be more than just quixotic operas staged in print. They can be understood as part of the larger debate over Italian culture: as attempts at reconsidering opera. Rather than frivolous entertainments, these ecomusicological interests reflect the contexts—aesthetic (opera), political (Risorgimento), and natural (pollution)—in which they were written. We might therefore understand the writings in *LSI* as quasi-patriotic rethinkings of the popular genre: In order to push opera in new directions, the *LSI* authors exercised their ecological imaginations.

We can also understand the late twentieth- / early twenty-first-century flourishing of an explicit ecomusicology as reflective of the political and aesthetic contexts in which we find ourselves: from the increasing concern with environmental issues in daily life and academic discourse to those efforts that expand and connect artistic, humanistic, and scientific scholarship (see Allen and Dawe chapter 1). We should remember, however, that our emerging ecomusicological communities are not firsts; such a realization is both humbling and empowering. Our contexts today and our position in a broader historiography impel us to rethink current institutional milieus for sound and music studies and to push scholarship and culture in new directions.

Table 20.1 Selected Writings in *LSI* (February 1885–June 1887).

Anonymous 1886*:* "Pietre musicale," *LSI* 22 (4): 4.

Bobba, Maria 1886: "Fra i boschi: il canto dell'usignolo," *LSI* 22 (9): 6.

Crick 1885a: "La musica degli alberi: nuove sorgenti d'ispirazione," *LSI* 21 (9): 8.

——— 1885b: "La musica vocale e strumentale negli uccelli," *LSI* 21 (17): 9.

——— 1886*:* "I moderni inventori: musica imitativa e pittoresca," *LSI* 22 (2): 7.

Fantoni, Guido 1886a: "Il canto della rondine: dai ricordi d'un naturalista," *LSI* 22 (3): 4.

——— 1886b: "Il cantore del mattino," *LSI* 22 (4): 8.

——— 1886c: "Il canto del cigno," *LSI* 22 (10): 8.

Gessner, Salomon 1885: "In piena arcadia" (trans. Alberto Manzi), *LSI* 21 (4): 4.

Giarelli, F. 1887: "Primavera che canta," *LSI* 23 (9): 6–7.

Lessona, Michele 1885: "Il canto dei topi," *LSI* 21 (19): 8.

——— 1886a: "Il canto delle scimie," *LSI* 22 (1): 8.

——— 1886b: "I pappagalli in teatro," *LSI* 22 (7): 7.
——— 1886c: "Fenomeni naturali," *LSI* 22 (21): 8.
Lioy, Paolo 1886: "La voce negli animali," *LSI* 22 (2): 8.
Misasi, Nicola 1886: "Gabbia di uccellini," *LSI* 22 (5): 2–3.
Mon …, R. 1886: "Fior di neve: leggenda," *LSI* 22 (5): 7.
Rizzatti, Ferruccio 1885a: "La musica fra le bestie: fra il verde e nell'azzurro," *LSI* 21 (3): 8; 21 (4): 3; 21 (5): 7; and 21 (6): 8.
——— 1885b: "Musica nel bosco," *LSI* 21 (10): 3.
——— 1886: "La musica e le bestie," *LSI* 22 (21): 6–7.
Vasquez, F. G. 1886: "Abbozzi e sfumature," *LSI* 22 (5): 7.

NOTES

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2. See also the online supplement (http://www.ecomusicology.info/cde).
3. Orr discusses the idea in relation to ecological design and architecture as well as to Rachel Carson's "sense of wonder" with the natural world and Edith Cobb's "ecology of imagination," ideas also elaborated in Louv (2005).
4. Opera is an especially relevant genre for ecomusicological study given its textual basis and ecocriticism's productive history of analyzing text.
5. See Mundy (2009) regarding twentieth-century debates about aesthetics, birds, Darwin, and spectrographs. A further study on Darwin reception in Italy might consider the sources cited in this essay in relation to Catholicism and general attempts to grapple with, or anxiety about, evolution.
6. Fantoni does not, however, interpret the swan's "singing while dying" as a metaphor for sexual orgasm, a tradition dating to classical antiquity; see Macy (1996).
7. See also Feisst (chapter 18), Simonett (chapter 7), Seeger (chapter 6), and the online supplement (http://www.ecomusicology.info/cde).
8. See also the online supplement (http://www.ecomusicology.info/cde).
9. Ibid.

WORKS CITED

See Table 20.1 for all *LSI* sources.
Allen, Aaron S. 2006. "Beethoven's Music in Nineteenth-Century Italy: A Critical Review of Its Reception Through the Early 1860s." Ph.D. Dissertation, Harvard University.
———. 2014. "Ecomusicology." *The Grove Dictionary of American Music*. New York: Oxford University Press.

Buell, Lawrence. 1995. *The Environmental Imagination: Thoreau, Nature Writing, and the Formation of American Culture*. Cambridge: Harvard University Press.

———. 2005. The Future of Environmental Criticism: *Environmental Crisis and Literary Imagination*. Malden, MA: Blackwell Publishers.

Clark, Suzannah, and Alexander Rehding, eds. 2001. *Music Theory and Natural Order from the Renaissance to the Early Twentieth Century*. New York: Cambridge University Press.

Godwin, Joscelyn. 1993. *The Harmony of the Spheres: A Sourcebook of the Pythagorean Tradition in Music*. Rochester, VT: Inner Traditions International.

Guy, Nancy. 2009. "Flowing Down Taiwan's Tamsui River: Towards an Ecomusicology of the Environmental Imagination." *Ethnomusicology* 53 (2): 218–48.

Hughes, J. Donald. 2005. *The Mediterranean: An Environmental History*. Santa Barbara: ABC-CLIO.

Järviluoma, Helmi, Kytö Meri, Barry Truax, Heikki Uimonen, Noora Vikman, and R. Murray Schafer, eds. 2009. *Acoustic Environments in Change & Five Village Soundscapes*. Joensuu, Finland: Tampereen ammattikorkeakoulu.

Krause, Bernard L. 2012. *The Great Animal Orchestra: Finding the Origins of Music in the World's Wild Places*. New York: Little, Brown.

Leach, Elizabeth Eva. 2007. *Sung Birds: Music, Nature, and Poetry in the Later Middle Ages*. Ithaca: Cornell University Press.

Lejano, Raul P., Mrill Ingram, and Helen M. Ingram. 2013. *The Power of Narrative in Environmental Networks*. Cambridge: The MIT Press.

Louv, Richard. 2005. *Last Child in the Woods: Saving Our Children from Nature-Deficit Disorder*. Chapel Hill, NC: Algonquin Books.

Macy, Laura. 1996. "Speaking of Sex: Metaphor and Performance in the Italian Madrigal." *The Journal of Musicology* 14 (1): 1–34.

Marsh, George Perkins. 2003. *Man and Nature*. Edited by David Lowenthal. Seattle: University of Washington Press. Original edition, 1864.

Minevich, Pauline. 2013. "Introduction: The Art of Immersive Soundscapes." In *Art of Immersive Soundscapes*, edited by Pauline Minevich and Ellen Waterman, 1–22. Regina: University of Regina Press.

Mundy, Rachel. 2009. "Birdsong and the Image of Evolution." *Society and Animals* 17 (3): 206–23.

Orr, David W. 2010. *Hope Is an Imperative: The Essential David Orr*. Washington, D.C.: Island Press.

Rothenberg, David. 2005. *Why Birds Sing: A Journey Through the Mystery of Bird Song*. New York: Basic Books.

Rothenberg, David, and Marta Ulvaeus, eds. 2001. *The Book of Music and Nature: An Anthology of Sounds, Words, Thoughts*. Middletown: Wesleyan University Press.

Schafer, R. Murray. 1994. *The Soundscape: Our Sonic Environment and the Tuning of the World*. Rochester, VT: Destiny Books. Original edition, 1977.

Schneider, Marius. 2004. "La nozione del tempo nella filosofia e nella mitologia vedica." In *Ecologia della musica. Saggi sul paesaggio sonoro*, edited by Antonello Colimberti, 31–40. Rome: Donzelli Editore.

Senici, Emanuele. 2005. *Landscape and Gender in Italian Opera: The Alpine Virgin from Bellini to Puccini*. New York: Cambridge University Press.

Serneri, Simone Neri. 2010. "Dealing with Industrial Pollution in Italy, 1880–1940." In *Nature and History in Modern Italy*, edited by Marco Armiero and Marcus Hall, 161–79. Athens: Ohio University Press.

Smith, Mark. 2007. *Sensing the Past: Seeing, Hearing, Smelling, Tasting, and Touching in History*. Berkeley: University of California Press.

Von Glahn, Denise. 2013. *Music and the Skillful Listener: American Women Compose the Natural World*. Bloomington: Indiana University Press.

Worster, Donald. 1993. *The Wealth of Nature: Environmental History and the Ecological Imagination*. New York: Oxford University Press.

Glossary of Keywords

This glossary offers a summary of and quick reference for selected keywords used currently in ecomusicology. Some of the brief definitions are used in single essays in this volume but may be of broader interest; others are used in numerous essays, occasionally in contrasting ways. Many keywords are general philosophical or scientific concepts, while others deal with particular environmental and material issues. Some are relatively straightforward, while others resist the simplification provided here. Nearly all these keywords are parts of other fields of extensive scholarly discourse, and these brief definitions cannot capture the richness and debate therein. All the authors in this volume contributed to creating this glossary, but the editors winnowed and cultivated, grafted and pruned, composted and recycled. We encourage further investigation of these keywords for greater depth of understanding and for broader or deeper deployment in future studies, ecomusicological or otherwise.

Acoustic Diversity A measure of biodiversity in a place based on sounds in the environment.

Acoustic Ecology The study of the relationships between sounds and living beings in a physical environment, particularly with regard to imbalances that may create problems (such as noise pollution).

Acoustic Niche Hypothesis The idea that animal species have adapted through evolutionary natural selection in order to communicate, as clearly and conspicuously as possible and with minimal interference, within their own particular sound spaces.

Aesthetics Critical philosophical engagement with the perceptual and emotional qualities of artistic and other objects (including nature) as well as their appreciation.

Anthrophony Sounds made by humans. Some scientists and sound artists define anthrophony as destructive human-generated noise. More objectively, it refers to the collective sounds that occur in relation to human activity in any given space or place.

Anthropocentrism Human centered, focusing on the value of human lives over other organisms. Alternate ethical perspectives are biocentricism (or ecocentricism) and theocentrism.

Anthropogenic Impacts caused by human actions.

Bioacoustics The study of the sounds produced by or affecting living organisms, particularly those sounds used in communication.

Biodiversity The variety of life forms at different levels of biological organization. It typically refers to the number of species, but it can also apply to population-level genetic differences or community and ecosystem levels.

Biophilia A sense of love for, or affinity with, the natural and/or living world. This feeling may be an innate human behavior.

Biophony Sounds made by non-human living organisms.

Bioregionalism A cultural and environmental movement that advocates redrawing global borders and local boundaries according to geographical (i.e., physical and environmental) characteristics rather than political victories and humanly determined divisions. *Bioregions* are identified by their watersheds, soil composition, and natural topography as well as their autochthonous cultures.

Biosphere The global sum of all ecosystems integrating all living beings and their relationships, including their interactions with the elements of the lithosphere (earth/land), hydrosphere (water), and atmosphere (air). Sometimes also referred to as the *ecosphere*.

Carbon Footprint The total amount of greenhouse gas emissions, measured in carbon dioxide equivalents, generated by a person, object, or event.

Comparative Studies *In ecology*, these involve associations of traits across multiple species, which are correlative rather than causal but which are nevertheless informative regarding evolutionary history. *In ethnomusicology*, these compare empirical data collected from different performances and performance contexts.

Conservation (Conservation Biology, Conservation Ecology) Preservation, protection, management, or restoration of the natural environment, especially including its biodiversity. Such work may take ethical, political, and/or utilitarian approaches to applying the scientific principles and findings of ecology.

Co-presence While presence is the awareness of a being (usually located in a particular place), co-presence entails two or more beings aware of each other's presence (also typically in a specific place).

Cradle to Cradle A biomimetic approach to the design of products and systems. It models human industry on processes in nature and views materials as nutrients circulating in healthy, safe metabolisms. In such metabolisms, there is no waste, for all waste is actually food.

Cultural Ecology The study of human relationships with and within biological and social contexts. Rather than a discipline, it is an interdisciplinary field—interpreted in various ways—in several academic areas, including anthropology, geography, and literary studies. In the late Soviet period, cultural ecology referred to the scholarly and moral imperative to preserve human cultural production together with its interconnected parallel in material nature.

Cyborg A composite word derived from "cybernetic" and "organism" that refers to a biological being whose body is technologically enhanced.

Deep Ecology A philosophy that recognizes the value of all life, regardless of its utility to humans. Deep ecologists are ecocentric or biocentric (rather than anthropocentric); they advocate protecting wilderness for its own sake and altering cultural attitudes and social systems.

Ecocriticism The critical study of literary and other artistic practices in relation to environmental concerns. Ecocritical scholars usually take an explicitly political, environmentalist position in their analyses of cultural products that imagine and portray human-environment relationships. *Postcolonial ecocriticism* examines points of historical, material, and ideological intersection between colonial domination and environmental destruction.

Ecofeminism A wide-ranging term expressing the belief that the exploitation of the Earth and the domination of women are connected and rooted in the Enlightenment's mechanistic world views, patriarchal religions, dualistic thinking, and materialistic cultures and economies.

Ecological (or Environmental) Imagination Conceptions of the future, conveyed in verbal or non-verbal arts, that are informed by sensate nature but that create an alternative form of reality.

Ecological Indian A stereotype that imagines indigenous peoples as possessing a more intimate, sustainable, and virtuous relation to the environment than modern Westerners. Like the myth of the noble savage, this concept is used to critique the negative effects of capitalist modernity; nevertheless, it imposes a restrictive, essentializing identity on indigenous peoples, and it is often incorrect.

Ecological Psychology The study of the relationships between organisms and their environments to explain behavior. This field of behavioral science, based on work by James J. Gibson, differs from both environmental psychology (based on the work of Roger G. Barker) and ecopsychology (based on the work of Theodore Roszak).

Ecology The scientific study of the interrelationships of living organisms and their abiotic environments.

Ecopoetics Poetry or poetic writing about, influenced by, or exploring the pastoral, wilderness, or other human-environment relationships. Ecopoetics also involves the study of such writings.

Ecosublime An aesthetic moment that in its awe and terror provokes a cognitive and spiritual re-conception of place.

Ecosystem A community of living organisms and non-living matter interacting in a given space. *Ecosystem health* is the condition of an ecosystem as measured by examining its organization, biodiversity, productivity, and resilience. *Ecosystem sustainability* is its resilience: how it functions and persists through normal disturbance cycles without outside influence or assistance.

Environmental Communication The study of how humans communicate about environments (biological, built, and/or material) and the natural world. Such communication has far-reaching effects in times of human-caused environmental crises.

Environmental Ethics A field of environmental philosophy that is distinguished from traditional ethics by including the non-human world. It developed from an intersection of activism and scholarship, and so it is used regularly in both academic inquiry and environmentalism.

Environmental History A scholarly field that considers human-environment interactions over time and that emphasizes how human culture impacts and is impacted by the non-human world.

Environmental Justice A social movement that advocates greater equity and agency in creating policy and making decisions due to the history of the disproportionate burden of pollution on, and the environmental degradation suffered by, low-income people and communities of color. The environmental justice movement views clean water, healthy air, and vital soils as basic human rights, not commodities or resources.

Environmental Public Sphere How news media, social media, and other public arenas communicate about and perceive the environment.

Environmental Studies A broad interdisciplinary field that considers human-environment relationships and problem solving within those relationships. Academic programs may emphasize either the scientific aspects of understanding the natural world or the social aspects of human systems.

Environmentalism A socio-political movement that advocates improving relations between human communities and their biophysical environments.

Epistemology The study of knowledge. Epistemology also considers how we know what we know and how we justify beliefs.

Ethnobiology The scientific study of the way plants and animals are treated or used by different human cultures. It studies the dynamic relationships between peoples, biota, and environments, from the distant past to the immediate present.

Ethnogenesis The idea that ethnic communities operate as social and biological organisms with life cycles rooted in specific places. This controversial term was coined in the late Soviet period to extend the notion of ethnos to the ecological realm. *Ethnos* is Greek for "nation" or "ethnic group," and it implies that identities are linked to particular places and natural environments.

Geophony Sounds made by non-living entities such as the wind, rain, and thunder.

Greenwashing The unethical, and sometimes illegal, business practice of making false, vague, misleading, or exaggerated claims about the environmental benefits of a company's products, services, or practices.

Landscape Ecology The study of the composition, structure, and function of landscapes. This field focuses on spatial variations across scales and is broadly interdisciplinary, considering human and non-human influences on spatial patterns, process, and change.

Materialism The view that reality is comprised of physical matter and thus that all systems are manifestations of matter. This philosophical approach has often involved critical judgments of intellectual and social activities.

Moral Geography An idea in cultural geography that holds some people, things, and practices belong in some spaces, places, and landscapes (but not in others).

Ontology The study of being. Ontology involves and considers questions of existence.

Partnership Ethic An argument that the greatest good for humanity and the natural world depends upon the realization that both are equally important and mutually interdependent.

Pastoral A work of art or literature portraying a peaceful and harmonious rural life, usually associated with farmland and pasture. A pastoral place is usually that middle landscape between urban and wilderness. Some pastorals may be simple rural idylls, while others may be complex in that they critique such naïvete.

Perspectivism The view that animals and humans have very similar societies but possess different perspectives about the world around them. This complex concept was developed to describe relationships between humans and animals in the indigenous cosmologies of the Amazon.

Political Ecology A complex field of study that considers critically the relationships between resource and material environmental problems and the human social systems (i.e., politics and economics) that are affected by and that cause them.

Posthumanism A philosophical position that is critical of anthropocentric humanism and that embraces widening perspectives, for example regarding non-human animals and/or cyborgs.

Resilience The capacity of a system to absorb disturbance while undergoing change. Such systems may be ecological or cultural, or both. *Cultures of resilience* are strategies for coping with human-induced environmental challenges.

Scientific Method The process by which scientists obtain reliable information about the world. This approach involves: 1) observation of a pattern, 2) formulation of alternative hypotheses that could explain that pattern, 3) tests of predictions to distinguish among alternative hypotheses, and 4) often retroduction and reformulation of refined hypotheses. An *hypothesis* is a "story," consistent with all available information, to explain an observed pattern. A *prediction* is a testable statement, answered with yes/no, stemming directly from an hypothesis which, if not true, is capable of refuting one or more alternative hypotheses.

A *manipulative experiment* is the only method by which scientists can reliably infer causation in the relationship between two or more variables; key elements include randomly assigning experimental units to treatments, appropriate controls, and replication.

Sensual Culture The senses considered as cultural systems.

Sentient Ecology Study of the relationships between humans and other (non-human) sentient entities as mediated by attention and reciprocity. As an alternative to the science of ecology, sentient ecology can be heuristic in contexts that emphasize relationships between people, animals, and the environment.

Sound Commons (Acoustic Commons) A sonic space shared by a community of human and non-human animals in which their sound communication can take place freely, with the least amount of anthropogenic noise interference. The sound commons is an extension of the long-standing practice (mostly in Europe) of *res communes*, which held that grazing land, water, and similar resources could not be possessed by a single individual and were instead shared by a community.

Soundscape A composite word derived from "sound" and "landscape" that suggests a multiplicity of sonic environments going beyond conventional Western ideas of music and music performances (e.g., the temporal collection of sounds occurring in a natural or urban environment); soundscape expands the usual visual focus of landscape.

Soundscape Ecology A scientific field that, since circa 2011, studies patterns of sounds in landscapes, including their spatial and temporal patterns as they are produced and experienced in a landscape. Since the 1970s, soundscape ecology has also been used to mean acoustic ecology.

Speciesism A hierarchy of inequality and discrimination among human and non-human species. As an anthropocentric position akin to racism or sexism, speciesism is a prejudice or bias that favors humans over non-human animals.

Sustainability The capacity to endure; the conditions under which humans and the environment can exist in productive harmony, and which allow the natural, social, economic, and cultural flourishing of present and future generations. Widely associated with the United Nations' concept of sustainable development, sustainability is sometimes associated with the "triple bottom line" (people, planet, profit) or the "three Es" (equity, environment, economy, to which culture or aesthetics may be added).

System A whole that contains a complex series of dynamic relations and functions.

Topophilia Love of a particular place, or an affective bond with one's environment.

Contributors

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Andrew Mark received his Ph.D. from the Faculty of Environmental Studies at York University, where he also earned an M.A. in ethnomusicology. As an active musician that ultimately choose the McGill School of Environment to complete his undergraduate degree, his loyalties to environmental thought and performing arts find a home in ecomusicology. His dissertation concerns the importance of musicking for sustaining the rural community of Hornby Island in British Columbia, Canada. Andrew has publications with themes that relate to music and globalization, Gnawa music, mbira music, eco-performance, ecomusicology, mourning and melancholy in the environmental movement, podcasting and ecocriticism, and forthcoming work on North American Zimbabwean music. Andrew is a co-founder of the Society for Ethnomusicology's Special Interest Group for Ecomusicology, a board member of the *Ecomusicology Newsletter*, an editorial collective member of *Undercurrents: The Journal of Critical Environmental Studies*, and a co-producer of the podcast series *CoHearence*.

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