Introduction

U2 hates the planet. At least their 360° Tour made it seem that way. With "a steel structure rising 150 feet from the floor over a massive stage with rotating bridges" (U2 Station website), the band's stadium show was the height of industrial excess. This giant stage apparatus was erected before each show, disassembled afterward, and trucked on to the next city. David Byrne criticized U2's tour as "excessive" (*New Musical Express* 2009a):

> Those stadium shows may possibly be the most extravagant and expensive (production-wise) ever: $40 million to build the stage and, having done the math, we estimate 200 semi trucks criss-crossing Europe for the duration. It could be professional envy speaking here, but it sure looks like, well, overkill, and just a wee bit out of balance given all the starving people in Africa and all.

Residents of the neighborhood surrounding Dublin's Croke Park stadium protested U2's artistic overkill by blocking the stadium exits. U2's trucks were held up, missing a ferry scheduled to ship the massive operation on to Sweden. "Have U2 Created a Monster?" the *Belfast Telegraph* headline asked (Grant 2009).

U2's lead guitarist, The Edge, provided this defense: "I think anybody that's touring is going to have a carbon footprint" (*New Musical Express*, 2009b). "I think it's probably unfair to single out rock 'n' roll," he continued. "There's many other things that are in the same category but as it happens we have a programme to offset whatever carbon footprint we have." The U.K. firm CarbonFootprint Ltd. estimated that at least 20,000

trees would need to be planted in order to even begin to offset the tour's carbon emissions. Clearly the band was not too worried. The first page of their tour website bragged about the "massive" moving structure (u2.com/tour/). In response to the criticism, however, U2 hired Michael Martin's MusicMatters group to lessen the environmental impact of their tour. Martin has been the driving force behind rock's green movement for over two decades. He retired from investment banking in 1990 to form a nonprofit group called Concerts for the Environment. His first project was the wildly successful Earth Day concert on the Washington Mall, an event that brought out 500,000 fans and led to what has become an annual celebration around the world. Martin has done far more than anyone else to lessen the environmental impact of rock.

Martin showed me the "enviro-rider" that U2 and their tour sponsor, Live Nation, signed in order to shrink the tour's environmental footprint. New provisions included supplying reusable water bottles for the concert crew, putting recycling bins in backstage offices, collecting food scraps from the crew dining room for composting, creating a fan rideshare program, facilitating fans' purchase of optional carbon offsets, and recycling ink cartridges. Carbon offsets are calculated based on the energy used by the production and transportation teams. A second company provides the actual offset. Martin helped U2 reduce the vehicle fleet for the tour by 10 percent as well.

In addition to representing an impressive effort to mitigate the impact of a band that one environmental consultant referred to as a "multinational corporation," all these arrangements do as much to illustrate the enormity of the problem as they do to solve it. Pop spectacle is clearly at odds with environment. As in the case of U2, many musicians are just beginning to reconcile the obvious contradictions between their environmental intentions and the actual material effects of their tours, increasingly calling in specialists like Martin's Effect Partners and his subsidiary group, MusicMatters. Rock may not be ruining the planet, but it's certainly not helping. At least not yet.

One answer might be to do away with the big tours and move toward local and participatory music. However, environmental impact is not just a concern for globe-trotting "multinational corporations" like U2. Local musicians struggle with the same problem of making their music more sustainable. Consider a small rock band from Minneapolis: the Hypoxic Punks. The Punks performed for the North Star Chapter of the Sierra Club in Stillwater, Minnesota, as part of the Tour de St. Croix. Billed as the "14th Annual Land Use Conference on Wheels," the tour was designed to promote sustainable land use. It was a zero-waste event. All

materials were reused, recycled, or composted. Like U2's 360° Tour, the Sierra Club event was not completely harmonious with nature. For starters, most of the participating bikers drove cars and trucks to the reunion point. The parking lot was full of minivans and SUVs. Only bike racks and eco-friendly bumper stickers differentiated it from any other school, mall, or business parking area. However, the organizers and participants can hardly be faulted for driving: there was no alternative for most participants. The contemporary car culture and infrastructure require that most of us drive, especially in rural areas, a reminder that what we do individually is only half as important as what we do collectively.

However, the Land Use Conference on Wheels was remarkable in that it helped participants imagine better ways of getting around and, more importantly, better ways to organize our land-use policies and transportation system. Despite participants' fossil fuel inputs, the Tour de St. Croix was a strong net gain environmentally.

The musical entertainment was more problematic. The Sierra Club invited a local group, the Hypoxic Punks, to perform. After the bikers completed their 26-mile trek through the beautiful St. Croix River Valley, they dismounted, unloaded their recyclables, drank some water, used the portable toilets, and huddled in the small patches of shade available. A few listened to the band, but most hopped right into their cars, anxious to get home. The Hypoxic Punks consisted of four professors and two students from the University of Minnesota. They performed upbeat tunes as the bikers finished their long tour of the scenic valley.

I was part of that band (Fig. 1). My participation was, and is, "ethnographic." In other words, I was an anthropologist pretending to be a musician in order to better understand the local popular music culture from a musician's perspective. More specifically, I wanted to explore the political ecology of rock from the inside.

What I learned is that rock and roll is energy-intensive, even for "acoustic" setups like ours. Compared with most bands, we were not particularly tech-heavy on that unusually hot September day, but we still needed a public address (PA) system to properly mix and project our instruments and voices, especially outdoors. Cables ran in all directions from the mixing board across the newly mown grass. We drove a van and two cars to get there as well, hardly equivalent to U2's massive fleet of trucks, jets, and ferries, but a fairly impressive amount of energy use for 45 minutes of live music. We plugged into a solar generator, which greatly lessened the band's impact and carbon footprint, but the obvious disjuncture between a human-powered, zero-waste event and the band's energy-intensive performance raised a few troubling questions.

FIGURE 1 The Hypoxic Punks perform for the Sierra Club. Bryan Mosher on bass and Mark Pedelty on guitar are pictured here. *(Photo by Kevin Pedelty.)*

First, did our musical performance add enough to any participant's environmental awareness, action, or enthusiasm to justify our environmental impact? The cost-benefit ratio is questionable. Our contribution to the low-energy event was either a wash or an example of greenwashing on a pathetically small scale. Either way, it is worth thinking about, and perhaps doing differently. Can rock evolve a less energy-intensive profile, or would that acoustic downsizing make it something other than rock? Is the environmental crisis ultimately a genre crisis for rock, hip-hop, and other energy-intensive musical styles?

The second question is one of aesthetics and message rather than material impact. Did the sight and sound of our plugged-in Americana rock advance the Sierra Club's environmental message? Was it the right sound for that setting? Perhaps not. Philip Tagg argues that rock is the

consummate urban sound (2006). He notes that heavy metal vocalists and electric lead guitarists use "sharp timbres at high pitch" to cut through the urban din (2006, 44). Audiences applaud a rock band's victory over the urban soundscape, argues Tagg, partly because it represents our desire for individuality in anonymous and alienating city settings. Perhaps the message of a rock band performing in a bucolic setting like the St. Croix River Valley is more about contradiction than conservation. Much like the urban punk who "looks so sick in the sun," as the Clash sang in 1979, rock aesthetics tend to contradict environmental outlooks. Later on we will see that this does not have to be the case, but it was that day in the St. Croix River Valley. An ethnographer hopes for those "aha" moments during fieldwork, and perhaps nothing brings home the problem better than the subjective experience of *being* the problem. This book is about that problem: the conundrum of making music sustainably—as well as related questions. How might music actually promote and inspire the sort of collective action needed to make our towns, cities, and nations more sustainable? What are some of the material, aesthetic, aural, lyrical, and even visual considerations that we need to keep in mind when aiming toward more sustainable music? And, most importantly, what's really at stake?

Why talk about popular music and the environment? The answer is easy: because popular genres like rock, pop, hip-hop, and country are what most people listen to and love. They form the basis of a major global industry. If there is little to no relationship between popular music and the environment, then we may have already identified the problem. How could the music we love ignore the greatest crisis we face? The deceptively simple answer to the problem of unsustainable music is for all of us to start making more of it locally. However, whether one is a global star like U2's Bono or a local unknown, we deal with many of the same challenges, contradictions, conundrums, and opportunities. As shown by the Sierra Club example, the big environmental problems do not go away with diminishing scale. Granted, locally based musicians perform at radically different levels of material and social effect than globe-trotting rock stars like Byrne and Bono, but the basic problems remain the same. How can we make our music more sustainable? Or, to put it in more positive terms, how might our music proactively promote sustainability? Can music be put to work? For example, could musicians be doing more in relation to environmental movements? If so, how? Those are some of the questions behind the research and writing of this book.

Where Music Takes Place

The main purpose of this book is to understand the ecological potential, and pitfalls, of contemporary popular music, with an emphasis on the contrasting genres of rock and folk. While other methods will be brought to bear, my main entry into the problem is ethnographic. However, there are many other ways to study music and the environment. For example, scientists have studied sounds made by other species, including birds (Roper 2007), whales (Tougaard and Eriksen 2006), and even beetles (Cummings 2006). Similarly, musicians have engaged in performance-based research with nonhuman species, such as David Rothenberg's seminal explorations with birds and whales (2005, 2008).

Perhaps the most influential approach to date, soundscape studies, was pioneered by the Canadian scholar R. Murray Schafer (1994). His work and that of his students not only identified some of the most fundamental problems, but also led to the development of new listening environments. Designers influenced by the soundscape design studies movement have created structures and landscapes that combat noise pollution and inspire more sustainable orientations.

Conversely, musicologists interested in the ecocriticism tradition, initiated in literary studies, have tended to focus on musical texts rather than listening contexts, using ecocritical theory to build philosophical taxonomies for better understanding musical meanings. They borrow the literary critics' toolkit—semiotic, narrative, genre, and discourse analyses—supplementing those methods with music-specific theories and concepts. The musicological ecocritics' goal is to better understand musical discourses and histories. The *Grove Dictionary of American Music* (forthcoming) 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." The Summer 2011 issue of the *Journal of the American Musicological Society* (*JAMS*) most effectively introduces ecomusicology and promises to become a foundational publication for the emerging field. From Aaron Allen's overview in the Colloquy, "Ecomusicology: Ecocriticism and Musicology" (391–394), to Holly Watkins's essay brilliantly recasting "musical space as a virtualization of social and natural spaces" (407), the *JAMS* issue is must reading.

Unfortunately, these explorations have not reached far beyond academically sanctioned musical styles, including classical and jazz. One of the few exceptions is David Ingram's *The Jukebox in the Garden: Ecocriticism and American Popular Music since 1960* (2010). It is a truly excellent

ecocritical survey of popular music history over the past half-century. *The Jukebox in the Garden* provided extremely useful historical context for this study.

This book draws a bit from each of the above fields: ecocriticism, classical musicology, and biological ecology, as well as ethnomusicology and environmental communication. When applied to environmental issues, these fields can be collectively described as "ecomusicology," a multidisciplinary moniker that is rapidly gaining acceptance. As previously mentioned, my main research method is ethnography, meaning that I have engaged in long-term ecomusicological fieldwork to better understand music as a form of environmental communication, ecological art, and advocacy. The book deals with all three aspects of popular music—(1) communication: music as a means of mediating environmental matters; (2) art: music as a creative, aesthetic, symbolic, and affective expression of environmental meanings; and (3) advocacy: music as an attempt to inform, inspire, and persuade audiences.

To explore those questions, the book moves from the global stage to local campfires. The first three chapters deal with the environmental struggles of famous musicians, starting at a global scale (Chapter 1) and then working down to national contexts (Chapter 2), before finally focusing on the ways in which music helps to create regional identities in relation to specific environmental projects, such as the damming and undamming of iconic rivers and watersheds (Chapter 3). Those chapters focus on major concerts, such as Live Aid and Live Earth, and well-known musicians and bands: U2, Jack Johnson, Sheryl Crow, David Byrne, Soundgarden, Woody Guthrie, Mos Def, Peter Gabriel, Pete Seeger, Ani DiFranco, and others whose music continues to shape the American soundscape.

But what about the rest of us? Millions of us make and listen to music in our neighborhoods, homes, watersheds, and communities. Is there more we can do to align our musical lives and environmental interests? Is there some way for us to put music into the service of local sustainability? Or must we simply watch the show unfold elsewhere, in London, Los Angeles, and cyberspace? Answering those questions is the main goal of Chapter 4 and, ultimately, the book as a whole. As such, this book takes up Ursula Heise's challenge to find "imaginative strategies and devices that allow individuals and communities to form attachments" to "different kinds of space" (2008, 5). Like Heise, I find it necessary to go from "the local and regional level all the way to the national and global" (ibid.) in order to find satisfactory answers. Place is no longer purely local. Conversely, global culture is no longer distant, somewhere "out

there" beyond our immediate grasp. Every day we bathe in sounds made and manufactured somewhere far away, making them part of our intimate surroundings via the magic of television and digital listening devices. While these four levels of analysis—global, national, regional, and local—are by no means distinct, covering each in turn allows us to better understand the ecology of musical production and consumption.

As an anthropologist, I mainly use ethnographic methods to understand music. Chapter 4 presents the results of eight years of musical fieldwork in Minnesota and Washington State, drawing on what I previously learned from working with musicians and audiences in Mexico City. Throughout that time I learned from expert informants while performing alongside them, doing what anthropologists refer to as "participant observation." I learned an instrument, composed music, formed a band, recorded CDs, and performed for local audiences. In other words, I made a fool of myself. In doing so, I learned a little bit more about what it is like to be a musician.

But don't worry, this book is not about me. We become anthropologists because other people are infinitely more interesting than we are. I completed hands-on fieldwork in order to gain backstage access and a stage-eye view of the problem. Just as there is value in the work of musicological analysts and critics, there are also benefits to ethnographic fieldwork. Ethnographers experience text in context. Most importantly, the ethnographer goes through a painful process of enculturation. Like children learning their own cultures, we are willing to make fools of ourselves in the field, to get things wrong in order to eventually get them right. That is how both children and ethnographers learn: through trial and error, deep engagement at the sites where cultural text meets social life. Unlike armchair criticism of finished products like musical compositions and recordings, ethnography is a messy and complicated business, mirroring the messy and complicated ways in which music (or sausage) is made. And so, through learning to compose, write, and perform music, I learned a lot about local performers and performance. I watched and interviewed musicians, learning from them by becoming one of them.

As indicated in the Sierra Club story above, this book will not glorify local music or suggest that it holds all of the answers to environmental engagement, community building, or social change. Today, globally distributed music is often experienced more intimately than music created and performed locally. Thanks to global culture industries, worldwide distribution networks, and digital listening technologies, we are more likely to feel close to music made by someone half a world away than music performed down the street. This intimate conversion of global

production into local listening has resulted in audiences whose consciousness tends to be more global and national, musically speaking, than local or regional. The globalization of music has also made live concerts more magical than ever. During these special, highly ritualized occasions, we share physical space with digitally omnipresent figures like U2, Soundgarden, or Lady Gaga.

Live concerts bring "our" music back home, allowing each of us to feel connected to something larger than ourselves and the physical spaces we inhabit. That deep sense of emotional investment is part of what defines ritual. Instead of God, we get Lady Gaga. Popular music critics once imagined that mass production, repetition, and global distribution would demean the live musical experience. However, the truth is quite different. Social distance heightens audiences' emotional investment and attraction to spectacle. Whether speaking of Mayan ritual, the classical music of Western empires, or globally commodified rock, the physical locales we cohabit are often less important than imagined communities and cultural spaces far away.

In other words, our minds are often elsewhere, and our music comes from somewhere far beyond the horizon. Communication prosthetics like televisions, iPods, and video game consoles provide a magical sense of transcendence, enriching our lives in the globalization age. However, such displacement can become a problem when it comes to creating sustainable places closer to home.

As global musics multiply, local and regional musicians struggle to make their sounds resonate. In fact, even hyper-local musicians must react to global soundscapes. Globally distributed sounds and sensibilities tend to dominate the music of local performers. Local musicians perform globalized music to go where the audiences' consciousness resides: "out there" rather than right here. The most successful local musicians, by far, are cover bands.

This raises a set of questions for those seeking to make environmentally conscious music. What *is* local music? How does local music relate to local ecologies, if at all? In a globalized sound system, what should local musicians do?

As distant places become more familiar, local spaces can become less so. Geographically proximate and distant environments alike become part of an electronically mediated market and consciousness. The modern consciousness seeks escape from place, and modern technologies, from thermostats to earbuds, provide it. Rather than becoming oriented toward the physical environments immediately surrounding our bodies, ears, and mouths, our minds are quite literally elsewhere. We are here and not

here, there and not there. We are everywhere and nowhere in terms of physical space. A series of simulacra color our sense of reality, no matter how grounded we imagine ourselves to be. That magical engagement includes soundscapes, creating challenges for those who seek to sustain local environments through music.

Because it is hard to know what local music is anymore, it is difficult to make. Rather than force the issue, I decided to concentrate less on making local music and more on making music locally. My starting premise was that anyone, even an anthropologist, could make a positive musical contribution to his or her surrounding community and environment. Everyone has the capacity to learn an instrument, to sing, and to join others in the making of music. From the outset, I assumed that "citizen-musicians" could make a difference. Few performers have U2's bully pulpit, but all of us have the ability to make sound matter together in our homes, parks, and bars.

To a certain extent the experiment succeeded. I learned to make music with others. If an anthropologist can do it, anyone can. However, I also learned to question the hopeful assumptions surrounding "participatory music" in the musicological literature. In truth, making music involves hard work. It is also expensive and time-consuming. That might be because I took things a little too far. Perhaps the ultimate lesson is that one does not need to play music in bands and clubs for it to matter, and that doing so can even become a profound distraction. However, even getting together with friends and neighbors to make music takes serious time, effort, and money. Taking the next step—making music serve the interests of sustainability—makes that task even more challenging.

Fortunately, one does not have to learn an instrument and perform to make music. A recurrent theme in this book is that audiences make music through listening, dancing, downloading, and playing recorded music in social contexts. When those social contexts include community building and environmental action—and not just entertainment and consumption—amazing things can happen. People don't need to hold instruments in their hands to make music matter.

Why Music?

In order to study music ecologically, it is necessary to consider connections between sound, people, and place. Ecomusicology requires us to go beyond composition, classroom, and concert hall to explore the resonance of entire ecosystems (Guy 2009). If we claim that pop's main message is conspicuous consumption, we have to show what that means in

the lives of musical consumers. If we are interested in activists singing around the campfire (greatly expanding their carbon footprint), we have to go beyond musical affect to consider material effect as well. In other words, neither material nor cultural reductionism will suffice. Yet, including material systems is new and uncomfortable for many musicologists, who prefer to remain in the realm of aesthetics and meaning. Unfortunately, no ecological analysis is complete without consideration of the material world as well.

Material analysis is not only important for sound ecology, however; it is also a useful way to discover musical meanings. What makes for good music, in the aesthetic sense, has always been partly dependent on what makes music good, ethically. That implies some recognition of material effect. In one of the most insightful studies of genre, Simon Frith concludes, "It is through genres that we experience music and musical relations, that we bring together the aesthetic and the ethical" (1996, 95). If the ethical problem is environmental sustainability, then musical meaning is partly dependent on material contexts and effects.

Whether or not the ethical dimension is made explicit in critics' aesthetic assessments, it is always part of the argument. Past debates about musical ethics have mainly revolved around sexuality, identity, and power (Blecha 2004). Sustainability, including its material dimensions, must enter the debate for ecomusicology to become truly ecological.

But why would we choose to make music in a time of environmental crisis? Didn't Nero get in trouble for doing that? One answer is that we never choose to make music; it is a fundamental human behavior. Music is an outcome of evolution, a species-defining trait (Levitin 2006). We make music because we can, because we express our humanity through musical sound as well as our connection to each other and a shared sense of place. In other words, it is not so much a question of *why* we would make music for, in, or with an environment—we have been doing it all along. Instead, it is a question of how we might make music better, environmentally speaking. What makes music "good" shifts from generation to generation, culture to culture, and genre to genre. Sustainability is just entering the discussion.

Of course, all music has environmental implications and meanings. The last beat of Britney Spears's "Toxic" (2004) is not found in the final measure of the song, but rather in the metallic "thunk" a broken iPod makes when it hits empty soup cans in a local landfill. Aaron Allen addresses material connectivity particularly well in his groundbreaking study of violin production. Allen argues that "if we want to protect the environment, we need to make both cultural and ecological arguments;

and if we want to preserve cultural traditions, we need to recognize and address their environmental impacts as well" (2010, 13).

People, places, and technologies generate songs. In return, music helps define who we are and mediates our imagination of place. Drawing connections between music and environment is not an unnatural act. The unnatural act is assuming that music is somehow separable from the contexts in which it is made and consumed. From acoustics to aesthetics, the places where we live, work, and play influence what music means and how it functions. Environmental crises have reawakened us to such connections, reminding us of what Yaqui deer dancers, griot drummers, and studio engineers have known all along: music is more than organized sound. Music is movement, languages, and places. Music is even material. The origins and consequences of music come from, and extend far beyond, a musical piece or performance. Therefore, ecological synthesis is not just important for achieving more sustainable musics but also for understanding music more holistically and, therefore, better understanding what music is.

As William Gardiner explained in the nineteenth century, music is one of humanity's most direct connections to nature (Gardiner 1838). Based on over sixty years in the music business, New Orleans musician Harold Battiste argues, "Musicians who are close to nature make the best music" (2010). Whether or not that is true, music can help listeners become closer to nature. From Ferde Grofé's *Grand Canyon Suite* (1932) to Pete Seeger's "My Dirty Stream" ("The Hudson River Song," 1966), from Ani DiFranco's "Your Next Bold Move" (2001) to Peter Gabriel's "Down to Earth" (2008) from the *WALL-E* soundtrack, music contains a reaffirming energy and the capacity to reconnect us to the living world.