

Nature Conservation and Music Sustainability: Fields With Shared Concerns

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Abstract

This essay advances the argument that the fields of nature conservation and music sustainability are unified by shared concerns. Namely, commodification and “economic development” engender approaches to the exploitation of culture that are often identical to the strategies for corporate profiteering of natural resources. Philosophical views of relationships between music and nature are traced, followed by a synthesis of research that demonstrates the music industry’s simplification of commercialized popular music for profitability, and the tendency for its products to distract from local arts and cultural heritage. Noise pollution is also identified as an important shared concern for which music education can play a role in enhancing public awareness. Wild Pedagogies, World Music Pedagogy and Soundscape activities are shown to be promising approaches for educators that potentially unite these fields.

Résumé

Le présent essai soutient que la conservation de la nature et la durabilité de la musique sont unies par les mêmes préoccupations : le fait que la marchandisation et le « développement économique » engendrent des pratiques d’exploitation de la culture souvent identiques aux stratégies de mercantilisme des entreprises qui extraient les ressources naturelles. L’article retrace les vues philosophiques des liens entre musique et nature, le tout suivi d’une synthèse de la recherche, qui montre que l’industrie simplifie à des fins de profitabilité la musique populaire commercialisée, et prouve en outre la tendance des produits de cette industrie à évincer les arts locaux et le patrimoine culturel. On ajoute que l’éducation musicale peut sensibiliser le public à la pollution sonore, une préoccupation commune aux activités de conservation de la nature et de durabilité de la musique. Les pédagogies de la nature, la pédagogie de la musique du monde et les activités d’éveil au paysage sonore sont présentées des approches d’enseignement prometteuses qui unifient nature et musique.

Keywords: conservation, music, nature, sustainability, noise pollution, Soundscape, Wild Pedagogy, World Music Pedagogy, commodification, cultural heritage

Mots-clés : conservation, musique, nature, durabilité, pollution par le bruit, paysage sonore, pédagogies de la nature, pédagogie de la musique du monde, marchandisation, patrimoine

Introduction

In spring of 2020, as the COVID-19 pandemic suddenly spread across the world, an unusual article titled “Why Do We Turn to Music in Times of Crisis?” appeared on the World Economic Forum website. It declared that, instead of financial concerns, we should shift some of our attention to music: “communities around the world have turned to music during the coronavirus crisis ... it can help maintain a sense of community ... we are feeling a loss of control not experienced since the second world war ... But making music provides a means to regain control” (Langley & Coutts, 2020). Indeed, music participation is far more powerful than most people realize—particularly during disruptive events—but what the World Economic Forum authors did not mention is the view shared by many musicologists worldwide that music itself is becoming weakened and disappearing,¹ and the very survival of many notable genres and practices is threatened much like endangered species (Cooley, 2019; Schippers & Bendrups, 2015).

To some, it might seem bizarre to suggest that those concerned with environmental protection share much in common with those concerned about the sustainability of participation in traditional music. After all, the natural environment would exist in the complete absence of humans, while music is regarded as a uniquely human activity. Why would the survival of any endangered species or wild habitat have anything to do with whether or not people continue to actively sing and dance in any traditional genre? What I seek to demonstrate in this article is that not only do the agendas of nature conservation and music sustainability have much in common in terms of metaphor and rhetoric (e.g., *biodiversity* and *cultural diversity*), but there are also some shared underlying behavioural processes and mechanisms that unify the global challenges and existential threats to which these movements respond. Specifically, I will describe how traditional music-making and natural habitats are similarly threatened under the conditions of modernity by the forces of unregulated commercialization and profiteering, which evoke ideologies promoted through marketing that commodify and exploit both *culture* and *nature* in the name of “economic development” (Stiglitz, 2019). At the same time, I seek to point out how much could be gained from synergistic cooperation between these two fields in education, thereby forging a “greener” musicology as well as a more artistic approach to environmental studies, particularly in terms of how these fields are brought into schools. We would do well to keep in mind Nicola Dibben’s observation that “music, as with other cultural practices and products, has a role in environmentalism as a means by which people experience the natural world vicariously, and through which alternative meanings and valuations of nature are asserted” (Dibben, 2015, p. 163). We must also conversely recognize the profound inspiration that musicians have obtained, all across history, from pristine natural environments.

Background: *Music and Nature* in Intellectual History

Since ancient times, and throughout the world, philosophers have noted how traditional music promotes reflection on nature. Confucius—a renowned teacher of the Chinese musical instrument *qin*, as well as the most influential East Asian philosopher of all time—frequently taught about how music represents the natural world. At nearly the same time, on the other side of the world, Greek philosopher Plato argued that music represented movement of “the heavens,” since at that time both astronomy and astrology were intertwined. Indeed, music has been connected to imaginative cosmology and ritual since the earliest known evidence of musical practices. Specifically, Enheduanna (ca. 2300 BCE) an Akkadian princess credited as the “first named author in the history of the world,” was especially known for composing songs and leading rituals in the ancient Sumerian language, and is the world’s earliest known songwriter.²

European intellectual history³ saw many influential philosophers who were also music composers, such as Jean-Jacques Rousseau (who offered a romantic vision of mankind in a “State of Nature”) and Fredrich Nietzsche (who warned in *Beyond Good and Evil* that the power of nature merits respect). Until the end of the Industrial Age, historians can trace a long line of European development with only scant questioning of the assumption that humans are predestined to conquer nature. By the time the United States was fully established, the leaders of its first philosophical school, Transcendentalism, became widely known as naturalist writers who finally responded to the Industrial Age with some skepticism. These included Henry David Thoreau (1817–1862), who observed that “the sounds of men and birds are musical,” and Ralph Waldo Emerson (1803–1882), whose poem, “Music,” declares:

I hear a sky-born music still:
It sounds from all things old,
It sounds from all things young,
From all that’s fair, from all that’s foul,
Peals out a cheerful song.

(Emerson, 1904, p.366, lines 2-6)

A century later, among the most respected poets from the United States were figures such as Robinson Jeffers (1887–1962) and Gary Snyder (b.1930), both of whom produced influential works that are replete with images of nature (and subtle musical references). Meanwhile, Suzanne Langer (1895–1985), the first woman to receive “both professional and popular recognition as an American philosopher” (Dryden, 2003, p. 190), had grown up with a love of nature attributed to frequent stays in a forest cottage on Lake George; along with her contemporaries, Langer (1957) made new contributions to the

understanding of how music evokes embodied feelings. Connections between music and nature in the works of such great thinkers should be clear, but how can it be that nature and traditional culture may be understood as facing similar threats in the present day?

Interdisciplinary Views

An array of different fields of study from across the Humanities and Social Sciences illuminate the ways in which exploitation of nature and culture are impacted by similar forces of commodification under current conditions in industrialized societies, dominated as they are by corporate interests. These fields of study include the following: “Frankfurt School” sociology, development anthropology, “Capabilities Approach” economics, and environmental philosophy.⁴ What each of these fields demonstrates, from its own unique perspective, is how concern for profit margins has led the corporations dominating most industries to constantly press for ever greater exploitation of resources. A relentless drive for profits, at most any cost, is essentially built into the DNA of corporations with contemporary capitalistic economies; indeed, it is their *raison d’etre* (Stiglitz, 2019). In the case of *nature*, the impact of such movements can be traced back to such examples as the 19th-century whaling industry, while it is perhaps most obvious today in the petroleum industry and among corporations that specialize in military equipment or market unnecessary products to the most vulnerable consumers. In the case of *culture*, on the other hand, antecedents are generally less obvious, but for *music* they are strongly connected to the development and popularization of mass media technologies, including sound and video recordings and the Internet.

Mass Commodification: A Threat to Music Survival

During the 1940s, as big bands led by jazz pioneers Duke Ellington, Count Basie, Glenn Miller, and Benny Goodman unexpectedly became wildly popular, business-savvy elites began recognizing opportunities for music recordings to become a commercial product, bought and sold on a massive scale. The subsequent rise of the pop music industry in the 1950s resulted in formulaic procedures for mass production of songs, designed to be popular among adolescents—a model which continued to evolve across decades, along with new technologies ultimately spreading across the world (Hebert, 2018). While there have been plenty of popular music stars over the years with talent and substance to their work, much popular music lacks the relatively complex forms designed to sustain heritage and transform audiences through reflection; instead, it arguably resembles candy in the sense that it is designed for instant gratification and mass appeal.⁵

Some readers might be tempted to assume that concern for the sustainability of traditional music is somehow connected to cultural elitism, but this is a global issue relevant to many cultures, including ethnic minorities and Indigenous peoples worldwide, thus transcending any particular identity (Leung, 2018; Schippers & Grant, 2016). There are strong indications that traditional music genres of most communities are now threatened by the tendencies of the popular music industry to divert attention away from traditional practices and the artistry of local musicians in order to celebrate simple and mass-commodified forms.

An array of research studies has demonstrated that across recent decades, in order to attract mass sales, pop music has, as a whole, become harmonically simpler (Jensen & Hebert, 2016), less dynamic, and structurally more repetitive (Serra et al., 2012), with increasingly self-centred and repetitive lyrics (DeWall et. al, 2011).⁶ Like formulaic television shows, producers have steered popular music toward maximum popularity, and as the most popular forms of music have become increasingly simpler in terms of both their sound structure and lyrical content, a demographic divide has subsequently developed between different kinds of listeners. Studies have even shown that, in the 21st century, *less commercialized* forms of instrumental music and classical genres tend to attract individuals with relatively higher IQ scores⁷ (Kanazawa & Perina, 2012; Račevska & Tadinac, 2019). Relatedly, the personality trait *openness to experience*—a characteristic also strongly associated with outdoor adventuring—is correlated with a broadening of musical preferences toward diverse styles outside of the most commercialized forms of popular music (Bonetti & Costa, 2016; Vella & Mills, 2017). Indeed, as early as the 1970s, a publication noted, “It has never been adequately explained why environmentalists and research scientists tend to an interest in music ... wildly surpassing probability” (Berger, 1978, p. 64); however, today this tendency of *openness to experience* generally extends far beyond “classical music”⁸ to other less commercialized genres, consistent with attitudes associated with “cultural omnivorousness”: jazz, folk music, and traditions commonly categorized as “world music.” Folk music, in particular, with its strong connection to specific geographic locations, naturally includes many themes of enduring interest to environmentalists (Ingram, 2008). While many would argue that it is not a problem to have convenient access to the latest crop of easily approachable popular culture products, there are also reasonable concerns about the extent to which thoroughly commercialized forms may distract the citizenry from more substantive arts which aim to provoke reflection or connection to cultural heritage.

This is not to say that the corporate industrialists who profoundly impact both culture and nature through profiteering, commodification, and standardization necessarily have bad intentions, nor is much of what they have developed inherently wrong. To the contrary, just as convenient *tangible* products are useful, the *intangible* products of popular culture also serve their purpose of providing engaging entertainment. Transportation is necessary, and petroleum has, for some generations, been seen as essential as fuel. Entertainment is

useful, and formulaic pop music and movies have conveniently filled a void for people who crave something light as a temporary relief from life's challenges.⁹ Convenient and entertaining products certainly deserve some place in society, and it is unlikely humanity can completely eliminate the use of fossil fuels, which make life convenient. But at what cost, and to what end?

There are other considerations that arguably matter as much as convenience and profitability. Too often, what effective marketing firms convince the public to buy are unnecessary products that, while temporarily seductive, are actually of little long-term value in terms of personal growth and quality of life. Fast food and sugary soft drinks are obvious examples of this phenomenon, but there are many others. Similarly, popular music is pleasant and easy to understand, but it also increasingly distracts the public from rich forms of cultural heritage, leading to a devaluation of local folk music traditions and art music. This is how destruction of nature and destruction of traditional culture share much in common, through mechanisms advanced under the banner of exploiting new markets that otherwise might *tragically* remain “undeveloped.”¹⁰ Failure to recognize the seriousness of these developments is largely an educational problem, with similar causes that detrimentally impact both nature and culture.

Implications for Education: New Approaches

In many schools, actual practices subtly imply that the purpose of education is to churn out “useful profit-makers” for growth of national economies, rather than produce critically-thinking, creative, and globally conscientious individuals.¹¹ Instead of an education that promotes preoccupation with profit-margins, what protection of *both the environment and cultural heritage* requires is a larger proportion of students committed to questioning assumptions and actively promoting ways to transform society—to improve human rights, promote social justice, protect the environment, and support artistic and cultural expression. But where might we look for examples that show how these concerns may be effectively addressed in education?

From the side of environmental education, Wild Pedagogy is a recent movement that is potentially open to artistic concerns. Wild Pedagogues promote educational experiences in the wild that provoke learners to rethink contemporary urban lifestyles. The rationale for their work includes such claims as the following:

Cities are, by and large, colonized places. The ongoing process of colonization absolutely includes silencing, dehistoricizing, and violently dislocating indigenous and other marginalized populations over the course of its historical development, but it also includes a similar kind of suppression of the more-than-human world. We have, in a modern urban setting, violently altered, subdued, and mastered the natural world such that it is forced to conform to our anthropocentric, and we maintain neoliberal, visions and needs. (Derby et al., 2015, p. 2)

The authors of *Wild Pedagogies* (Jickling et al., 2018) argue that, while ideologies of industrialization indoctrinate us into acceptance of “domestication, colonization and destruction” (p. 40) as “normal” activities, what is most sorely needed is a “more humble humanity” (p. 35) that rejects such disruptive efforts to dominate nature. Wild Pedagogy emphasizes bringing students into nature to directly experience forests, mountains, deserts, and the ocean.¹²

In their discussion of “post-sustainability,” Jickling and Sterling (2017) berate the “music of salesmanship” as a device by which the notion of “sustainability” has been reinvented for misuse as a fashionable marketing concept (p. 18). Indeed, both music and rhetorical strategies can be used for either good or ill, but I would argue there are potential synergies for Wild Pedagogy with music education, pursued in ways that are compatible with the visions of both fields. Wild approaches can be useful for *music* learners, particularly those struggling with “burnout” due to an ultra-competitive milieu of obsessive “drilling” for technical mastery, while music can also support environmental lessons by evoking emotional and social engagement.

Transportation to “The Wild” can be a challenge for many common musical instruments. For this reason, voices, portable instruments, or creative instruments constructed from “found objects” can be ideal ways of developing a Wild Music Pedagogy connected to a local milieu. Such approaches naturally prompt reflection on the remarkable similarities between human singing and the instinctive behaviours of birds and fellow mammals, such as wolves and whales.¹³ Wild Pedagogues note that human relationships with the earth are unsustainable due to poorly regulated industrialization, but that “Those who have been privileged within industrialized, capitalist societies likely will have different work to do than those who have been disenfranchised, marginalized, and colonized” (Jickling et al., 2018, p. 24). Additionally, its proponents assert that “wild pedagogies are relevant to educators in a wide variety of settings” (Jickling et al., 2018, p. 110), which arguably includes such arts as music.

Wild Pedagogy represents an approach to teaching from environmental education that is potentially open to arts. From the side of arts, Soundscape is a notable approach to music learning that embraces environmental concerns in that it may be used to both systematically document and artistically celebrate the audible features of any natural environment. Many articles, in such journals as *Noise & Health*, compellingly demonstrate the impact of excessive urban noise on human health, but Soundscape projects encourage students to consider its destructive impact on birds, fish, and other wildlife, drowning out their beautiful sonic environment. Music studies and Soundscape activities can contribute to environmental awareness by promoting recognition of the growing threat of noise pollution, as identified in several Canadian studies (Davies et al., 2009; Michaud et al., 2005).

Canadian composer Murray Schafer was a notable pioneer in the field of Soundscape, which now has a legacy of more than 40 years (Schafer, 1977).

Schafer's work culminated in the production of many recordings of natural environments and original works based on collected sounds, a curriculum for guiding learners toward deeper listening, and the international World Soundscape Project (Barry, 2019; Shafer, 1992). Soundscape recordings, as a component of fieldwork, are an effective way of studying nature. The data they gather can also be modified by composers into new works of music, often merely through selective sampling to minimize spaces of silence. In doing so, they highlight the most notable sonic events in any environment: sounds of birds, animals, weather, or water movement. While production of Soundscape recordings seems an ideal fit with Wild Pedagogy in natural settings, its products also enable all kinds of listeners to vicariously experience and appreciate nature—even listeners who are unable to escape an enormous city. Ecological sound art (Gilmurray, 2017) and Indigenous sound studies (Robinson, 2020) are additional related approaches that merit attention as extensions of the notion of acoustic ecology that emerged from the Soundscape movement (Westercamp, 2002).

Beyond Soundscape, there are other convincing indications that environmental awareness and recognition of concerns associated with Indigenous cultural sustainability have broadened among musicians and music educators. For example, even by the mid-20th century, many musicians had rejected the use of ivory and exotic woods in musical instrument manufacturing despite what had previously been ingrained perceptions of their centrality to the tradition of authentic instrument construction. Music production also gradually shifted to an all-digital format of streaming distribution, which was refreshing after so many generations of birds and mammals being suffocated or dismembered by long strands of tape from cassettes or vicious shards from compact disc cases and vinyl records that ended up in the ocean or landfills.¹⁴ In many parts of the world, there has also been increasing concern regarding the decline of minority languages and growing recognition that the sustainability of language also has important implications for song repertoire.¹⁵

World Music Pedagogy (WMP) also supports an ecological perspective through its advocacy of interdisciplinary connections (with geography and sciences, for instance) and promotion of participatory activities in local communities (Coppola et al., 2020). Its aims are consistent with a growing realization among music educators that there is potential harm in replicating a “curriculum and pedagogy that is both elitist in approach and ethnocentric in content” (Hebert, 2010, p. 108), and that what is needed are balanced programs designed with an awareness of diverse music traditions, including local folk music associated with minorities and Indigenous peoples (Hebert & Saether, 2014; Sagar & Hebert, 2015).

The WMP approach begins with listening, but systematically guides students toward active and creative musical participation as well as interdisciplinary knowledge of musical heritage. Creative educational technologies are also increasingly developed for such purposes as integrated learning of music and

environmental concepts (e.g., “biophilia”),¹⁶ and interactive digital mapping of both natural soundscapes and endangered traditional music practices.¹⁷ Such educational initiatives promise to inspire direct exploratory learning experiences which give rise to “*transformative learning*, a learning that leads to abilities to go beyond what is taken for granted. Such learning is vital in times when changes in life conditions require social adjustments” (Saether, 2018, p. 104).

Concluding Remarks

The power of music can be used to effectively represent environmental concerns through song, and this is not the first study to note the natural synergies between music and sustainability education.¹⁸ Indeed, survival of the environment, of endangered species, and even of humanity and our most cherished cultural practices all require similar changes to society. In this essay, Wild Pedagogies, World Music Pedagogy and Soundscapes were identified as especially promising approaches to fruitful collaboration between the fields of nature conservation and music sustainability. Additionally, the potential role of music studies to enhance public awareness of the impact of noise pollution—not only on human health but also on the natural environment—was also demonstrated. It is a basic responsibility of educators to recognize and effectively promote those forms of social change that are fully endorsed by scientific research, thereby bridging the gaps between theories, policies, and practices. The use of environmental studies to bolster music and the use of music to bolster environmental studies are approaches to learning that promise to strengthen these respective fields, which share many of the same threats and aspirations for survival.

Endnotes

- 1 An example of an ongoing research intervention with the objective of strengthening the sustainability of a threatened traditional genre is the Musical Transformations project in Vietnam, managed by Stefan Östersjö. I have been collaborating in Saigon as a member of this project in recent years with the Vietnamese-Swedish intercultural ensemble, The Six Tones, which seeks to document the lives and musicianship of master performers of Vong Co in the Mekong Delta, while also stimulating traditional artists to consider new possibilities for expanding their audience. See Östersjö (2020) for some of the early outcomes from this project.
- 2 For detailed discussion, see Holmes (2018).
- 3 I will limit this very brief survey to “Western” examples, but it is worth noting that other profoundly influential philosophers who were also active in music include the Central Asian scholars Al-Farabi and Ibn Sina, as well as the great Indian polymath Rabindranath Tagore.

- 4 Suggested resources include the following: Brightman & Lewis (2020); Buscher et al. (2014); Fletcher (2016); Gordon et al. (2018); and Nussbaum (2013).
- 5 While the division between “high art” and “popular art” forms should not be seen as a universal and objective dichotomy, social conventions arguably produce different traditions that are generally understood as fitting within these broad categories, with each specific genre emphasizing slightly different aesthetic features (Novitz, 2003). See Hebert et al. (2017) for discussion of popular music and its changing role in education, and note that Rick Beato’s YouTube channel merits recognition as an especially valuable audiovisual resource for identifying characteristics of quality song recordings (<https://www.youtube.com/RickBeato>).
- 6 There are strong indications that this tendency has continued to the present day. For example, the song “WAP” by Megan Thee Stallion and Cardi B was recently recognized by the world’s leading institutions of popular music as the most important song of 2020 (e.g., *Rolling Stone*’s “Best Song of 2020,” Billboard Global 200’s “Number One Song of 2020,” and Grammy Award for “Best New Artist”). Musically, WAP features five components: (1) an endlessly repeated 3-note bass motif; (2) a male voice repeatedly singing, “There’s some whores in this house” on one pitch; (3) predictable percussion sounds programmed into a digital sequencer; (4) truck horn and bell sounds (each appearing once); and (5) rapping of lyrics widely perceived as provocative and connected to the marketing of brothels. Its lyrics thereby explicitly celebrate how nature (sexuality) has been colonized by commercialization, and they are accompanied by a soundtrack that almost any listener anywhere in the world—whatever their identity or cultural background—could acknowledge as unusually simple music if the words are removed (e.g., *karaoke* version, available online). Especially when juxtaposed against the rich legacy of music-making among African-American women artists—from Aretha Franklin and Nina Simone in previous generations, to Esperanza Spalding and Alicia Keys today—WAP seems extremely over-rated. Indeed, in most medium-sized towns, on each inhabited continent worldwide, one can find local musicians producing sounds that are arguably more interesting than WAP, with a deeper level of musicianship, a stronger connection to cultural heritage, and lyrics that prompt socially valuable reflections rather than unhealthy behaviours, yet such local musicians too often financially struggle while WAP and its ilk generate millions of dollars. Celebration of WAP is very much the same phenomenon as consumers habitually choosing to eat at McDonald’s, rather than a local restaurant, for the instant gratification of a cheap, well-marketed, and unhealthy product, since the popularity of WAP is based far more on marketing and shock value than on heritage and creative artistry.
- 7 Readers should note that IQ scores are widely known to only assess a very specific form of “intelligence” with limited validity, and are also considered

to suffer from a cultural bias. Nevertheless, the replicability of such findings raises important questions about confounding variables and conceivable causality.

- 8 We should also note here that “classical music” (or Western art music) is now more enthusiastically embraced among communities in East Asia and Latin America than anywhere else in the world (Baker, 2014; Hebert, 2012). Although much of this genre was produced generations ago by European men with aristocratic patronage, across time its connections to identity have become increasingly ambiguous in terms of ethnicity.
- 9 This way of thinking about such problems can be traced to Herbert Marcuse, Theodor Adorno, and others associated with the Frankfurt School, but arguably continues to be relevant today in many countries worldwide (Kang, 2013; Morelock, 2021). Within popular music idioms, innovative bands such as Postmodern Jukebox, and Jack Conte’s projects Pomplamoose and Scary Pockets embody a promising alternative approach to populist commodification, by developing creatively ahistorical arrangements of melodic hit songs which are freely offered as videos online.
- 10 I have written about this development elsewhere as part of my general argument that music is increasingly subservient to other media in contemporary life—as encapsulated by the phrase “content in a selfie-stick society”—due to a “glocalimbodied” lifestyle in which individuals frequently “brand” themselves via virtually disembodied social media (Hebert, 2018). To be fair, it is also worth noting here that traditional music (especially classical art music) and environmentalism itself (especially the “green” label) have sometimes also been destructively commercialized, particularly when it comes to branding and competitive pedigree.
- 11 See Hebert (2021) for a discussion of these educational issues from non-European and Indigenous perspectives. See Coppola et al. (2020) for a discussion of how diverse forms of global music heritage can be taught in higher education with interdisciplinary approaches that instill critical thinking and both cultural and environmental awareness.
- 12 For an overview of the philosophical bases for this approach, see Humphreys and Blenkinsop (2017).
- 13 For a fascinating account of how whale sounds entered the music industry, see Ritts (2017).
- 14 Upon reviewing the pre-publication proofs for this article, I learned of a new book that indicates how music streaming can have an underrecognized negative impact on the environment as well, especially when it comes to the “carbon footprint” associated with repeated listening of sound recordings (Devine, 2019).
- 15 Educational implications of the relationships between music sustainability and preservation of minority and Indigenous languages are explored in an early article by Heimonen et al. (2010). Later, the theme was examined to considerable depth in Grant (2014). Several additional studies appeared in

Schippers and Grant (2016). As oral languages are reduced for transcription and digital transliteration, they meet many of the same kinds of distortions encountered when traditional music is reduced for arrangement in a western tonal system and standardized rhythmic patterns.

¹⁶ See Husby and Hebert (2019).

¹⁷ See *Sounds of the Forest* (n.d.) and *Music Vitality and Endangerment Map* (n.d.).

¹⁸ For additional examples, see Kagan and Kirchberg (2016), Titon (2009), and Østergaard (2019).

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