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REVIEW

Songs for our soils. How soil themes have been represented in popular song

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ABSTRACT

The soil–culture relationship has been investigated from various points of view. Surprisingly, however, there is a marked absence of papers investigating the way such a fragile resource has been represented in popular song. Many lyrics disclose how such a resource is lived, perceived, represented, and objectified in everyday human life by ordinary people. This paper observes that many of the greatest songwriters and interpreters on the international scene, from all musical genres, have dealt with soil, often from innovative and audacious perspectives. From the prosaic metaphor of the life cycle or as a medium for crops, the soil resource has also been cast as a means of pain, sacrifice, or even redemption. Sometimes seen as a secret world, a helpless creature, treated with a visionary or yet psychedelic approach, the soil has been represented in myriad ways. During the 1970s, several protest songs, which had the ability to raise awareness and mobilize millions of people in favor of the environmentalists cause, were based on ideological positions closely connected to soil issues, such as soil sealing and erosion. These (soil) songs are now considered the first environmentalist songs in the history of music. As soil scientists, we have often serious problems in communicating soil issues for a global audience, and, consequently, the worldwide political agenda often shows a dramatic lack of interest in such concerns. It is perhaps surprising that popular songs have still not become more common methods for sharing, educating, and sensitizing ordinary people, students, and scholars from every field of study, about soil concerns. Without trying to claim it as some sort of panacea, popular song (as already understood by ecologists and climatologists) can represent a powerful means of increasing public visibility and awareness about soil resource.

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1. Introduction

In many ancient cultures, as those occupying the Maya (Wells and Mihok 2010) or Sardinian regions (Capra *et al.* 2015, 2016), knowledge about how to take care of soil was transmitted, in addition to oral stories and parables, through songs. During the 1950s, the Pochveniks, i.e., the ‘poets of the soil,’ belonging to the Literary Union circle, first developed a genre known as ‘geological’ songs, identified as the origin of the ‘bard’ genre. The Pochveniks were also known as ‘soil-heads’ because they were intimately animated by the deep ‘desire to dig out the unvarnished truth from under the cover of lies and propaganda’ (Belasky 2010). During the 1960s, the Soviet Union experienced the bard songs as a new music genre and in the 1970s, these genre became part of the Soviet mainstream culture (Belasky 2010). In 1959, the trailblazer country singer Johnny Cash released his first ‘concept’ album *Songs of our Soils* (1959) in which several songs relate the heartfelt relationship between human life and soils, such as a devastating farm flood (‘Five feet high and rising’), or peasants whose land was tragically affected by deadly famine (‘The man on the hill’).

These few paradigmatic examples simply show how soil can be a concern of song lyrics. Indeed, an impressive number of songs have been (directly or indirectly) inspired or dedicated to soil, showing us a totally different way in which such a fragile resource can be represented in the art of music.

Soil scientists and agronomists are mainly connected to the ‘soil-object sphere’ with its geographical allocation, spatial limits, physical–chemical features, taxonomic characteristics, and many other *tangible* traits (primary qualities). For musicians, and artists in general, the secondary qualities or the ‘cultural aspects’ (Descola 2010) and the ways in which this resource is lived, perceived, represented, and objectified in everyday human life are the real concern. Whether, and to what extent, such viewpoints are or are not dissociated or opposed has previously been addressed (Allen 2012; Descola 2010), but surprisingly, even if papers and books (Landa and Feller 2010; Minami 2009) have been written in order to investigate the close relationship between soil and several cultural aspects (such as arts, literature, language, ethics, cinema, philosophy, and even religion), there is an marked shortage of papers investigating how the soil resource has been represented in popular song. This is a paradoxical situation since many of us undoubtedly recognize the importance of music not only for every day aspects of our life but even during our professional activities. To give just one notable example, the great geographer and soil scientist Francis D. Hole was one of the first soil scientists to deeply understand the importance of music for this discipline. As an amateur violinist, he authored several songs (Hole 1985–1989, 2001) ‘extolling the glories and mysteries of soil,’ to use the inspired words of M. C. Anderson (Barak 2002). As already realized by this memorable

soil scientist, confirming the ideas previously reached by Hans Jenny (Stuart and Jenny 1984), we have to popularize the subject of the soil not only in order to attract young people to careers in soil science but also to give 'common people' a chance to discover and enjoy 'the earth beneath their feet' (Hole 1989, 1994). Since many musicians, with their lyrics, have already achieved this aim, the present paper explores how soil themes have been represented, perceived, and already popularized in popular song. In conclusion, the final part of the paper will focus on possibilities of approaching popular song as a means to share knowledge and to increase public visibility and awareness about soil resource.

2. About the concept of 'popular song' and the methodological approach

The definition of 'popular song,' and its parent 'popular music,' remains hotly debated. This paper does not aim to present a definitive understanding, basing our approach on that followed by Shepherd *et al.* (2003) who include lyrics in the *Continuum Encyclopedia of Popular Music of the World*, which develops out of work by the International Association for Study in Popular Music (IASPM). We will use their approach, because it is founded on concepts that can be easily understood even by a nonexpert audience. For the IASPM, the principal test for understanding a song as popular is whether it has been so regarded by communities of practitioners or users. In this way, the IASPM clearly decided to follow a tendency of inclusiveness rather than exclusiveness. 'The defining feature of popular song lies in the interaction of everyday words and music' summarizes Moore (2012), confirming the notions of inclusiveness and popularity at the base of the popular song concept. However, this does not necessarily mean that songs of purely or mainly local importance are automatically included, since the term 'popular' necessitates the possibility of a global audience. Based on the same concepts of inclusiveness and popularity, the present investigation has been restricted to Anglophone songs and to the post-World War II period, when the introduction of vinyl in 1948, by Columbia, led to an unprecedented spread of popular songs (Middleton 1990). These limits have been imposed not only for the sake of brevity but also because this investigation certainly doesn't claim to be exhaustive on a such broad topic. It rather represents a first contribution on a subject hitherto scarcely investigated.

Even if not exclusively, we have approached popular songs from a pedological perspective. Obviously, this is neither the only one approach that can be used nor the only one to be used in the present investigation. During the last two decades, there has emerged a new urgency for the study of popular music alongside the development of new critical and theoretical approaches with emphasis to cultural context, reception, and subject position (Moore 2012). From this point of view, our perspective represents a further important contribution. This is a factual condition since, as Middleton (1990) argues, listeners' experiences are necessary in completing a song's meaning: 'although we can say what they are not about, we can only specify a range of possibilities as to what they might be thought to be about' (Moore 2012). Our pedological

perspective can thus be a key ingredient in this 'range of possibilities.' Since this investigation has been influenced by this perspective, and in order to make reading easier, the paper has been organized according to the different meanings and ideological messages by which the soil has been represented in our corpus of popular songs. In Table 1, a complete list of all these songs, arranged in chronological order, is reported.

3. About the use of the word 'soil' in song lyrics

As will become clear, the word 'soil' is seldom used by songwriters to indicate idyllic feelings and emotions. Other words such as 'earth,' 'ground,' and 'land' are generally preferred and used for these purposes (Table 1) despite the fact that they can be seen, from a pure etymological perspective, as synonymous. There are different reasons for this. The term 'soil' seems to be perceived as a term which hardly fits the rhetoric and overall message of a song. Moreover, even if all these four words are generally used by musicians to indicate the upper (loose) layer of a land that is cultivable or which is able to host life (mainly plants and open-air human activities) and to be an oneric representation of wild nature, the word 'soil' is mainly used with a negative connotation. Indeed, it is often inflected to signify asperity, dirtiness, corruption, contamination, pollution, degradation, and even human wickedness. Roger Waters' *Ça Ira* (2005, an opera inspired by a libretto on the French Revolution) contains the song 'Let us break all the shields,' which shows how the soil can represent something lowly and dirty. 'Let us break all the shields, and soil the ermine' is the incipit of the song (contained in the first Act) in which the oppressed people are invited to rebel (by a 'troublemaker') against the privileges granted the French aristocracy. From a stylistic point of view, the use of the word (soil) as verb rather than noun shows a way to metaphorically bring the nobility down to at the (soil) level of the people. In 'Triptych' (1974), by the English rock band Roxy Music, Bryan Ferry articulates 'here the soil is barren, here, nothing grows' to describe the arrival of the apocalypse. The Irish songwriter Hozier sums up this concept in more simple words 'In the madness and soil' ('Take me to church,' 2013) as a metaphor for his frustration against the rigid rules imposed by some kinds of societies. Neneh Cherry, with a surprising pedological approach, sings 'Hard black soil called the Chernozem' as incipit of 'Hornbeam' (1996), an autobiographic narration in which she states with pride that she comes from the street, the grim, the 'hard black soil.'

4. Soil meanings in popular song's ideological messages

4.1. A medium hosting human cultural heritage and a metaphor of the life cycle

'In the beginning of it all there was the land' is the first verse of the song 'Now and then' (The Kinks, 1989), in which they present the concept, frequently used by musicians, that the soil is perceived like a metaphor for the very essence of human roots. The soil hosts our daily activities, recording it like an historical archive. Our history lives in soil memory as

Table 1. List of considered popular songs (in chronological order).

Main genre: folk and pop						
Genre	Year	Artist	Song	Album	Label and city	
Jazz/Folk	1930	The Carolina Tar Heels	Got the farm land blues	Smith H. E. (1952), <i>Anthology of American Folk Music</i>	Folkways Records, New York	
Folk	1940	Woody Guthrie	RMA	<i>Dust Bowl Ballads</i>	Victor Records, Camden	
Folk	1944	Woody Guthrie	This land is your land	ORS	Victor Records, Camden	
Country	1959	Frankie Miller	Black land farmer	ORS	4 Star Records, Hollywood	
Folk/Country	1959	Johnny Cash	Five feet high and rising	<i>Songs of our Soils</i>	Columbia Records, New York	
Folk/Country	1959	Johnny Cash	The man on the hill	<i>Songs of our Soils</i>	Columbia Records, New York	
Art rock	1964	David Bowie	There is a happy land	<i>David Bowie</i>	Deram Records, London	
Folk	1966	Peter Seeger	Cement octopus	<i>God Bless the Grass</i>	Columbia Records, New York	
Folk	1966	Peter Seeger	God bless the grass	<i>God Bless the Grass</i>	Columbia Records, New York	
Rock	1967	The Beatles	Strawberry fields forever	<i>Magical Mystery Tour</i>	Parlophone, London	
Rock	1970	America	A horse with no name	<i>America</i>	Warner, New York	
Folk/Pop	1970	Simon and Garfunkel	El Condor Pasa (If I Could)	<i>Bridge Over Troubled Water</i>	Columbia Records, New York	
Folk	1971	Bob Dylan	You ain't goin' nowhere	<i>Bob Dylan's Greatest Hits Vol. II</i>	CBS Records, New York	
Folk	1971	Joni Mitchell	Big yellow taxi	<i>Ladies of the Canyon</i>	Reprise Records, New York	
Progressive rock	1972	Genesis	Supper's ready	<i>Foxtrot</i>	Charisma Records, London	
Progressive rock	1972	Genesis	Watcher of the skies	<i>Foxtrot</i>	Charisma Records, London	
Pop	1972	The Beach Boys	You need a mess of help to stand alone	<i>Carl and the Passions – 'So Tough'</i>	Brother Records, Los Angeles	
Folk	1973	Johnny Cash	The good earth	<i>Any Old Wind That Blows</i>	Columbia Records, New York	
Rock	1974	Roxy Music	Triptych	<i>Country Life</i>	Polydor Records, London	
Rock and roll/ Country	1975	Conway Twitty	Jason's farm	<i>This Time I've Hurt Her More Than She Loves Me</i>	MCA Records, New York	
Folk	1975	Johnny Cash	Look at them beans	<i>Look at Them Beans</i>	Columbia Records, New York	
Rock	1975	Kansas	Song for America	<i>Song for America</i>	Kirshner Records, New York	
Rock	1976	Queen	White man	<i>A Day at the Races</i>	EMI/Parlophone, London	
Hard rock	1983	Motörhead	Dancing on your grave	<i>Another Perfect Day</i>	Bronze Records, London	
Country rock	1985	Charlie Daniels Band	American farmer	<i>Me and the Boys</i>	Epic Record, New York	
Folk pop	1985	Joni Mitchell	Ethiopia	<i>Dog Eat Dog</i>	Geffen Records, New York	
Alternative rock	1986	Nick Cave and the Bad Seed	Sad waters	<i>Your Funeral ... My Trial</i>	Mute Records, London	
Alternative rock	1986	Nick Cave and the Bad Seed	The carnay	<i>Your Funeral ... My Trial</i>	Mute Records, London	
Alternative rock	1986	The Smiths	I know it's over	<i>The Queen is Dead</i>	Rough Trade Records, London	
Folk	1987	Nanci Griffith	Trouble in the fields	<i>Lone Star State of Mind</i>	MCA Records, New York	
Psychedelic rock	1988	Syd Barrett	Swan Lee (Silas Lang)	<i>Opel</i>	Harvest Records, London	
Rock	1989	Lou Reed	The last great American whale	<i>New York</i>	Sire Records, London	
Rock	1989	The Kinks	Now and then	<i>UK Jive</i>	MCA Records, New York	
Art rock	1990	Brian Eno and John Cale	One word	<i>Wrong Way Up</i>	Opal Records, Woodbridge	
Alternative hip hop	1992	Arrested Development	Children play with earth	<i>3 Years, 5 Months & 2 Days in the Life Of...</i>	Chrysalis Records, London	
Folk	1992	Tish Hinojosa	Something in the rain	<i>Culture Swing</i>	New Rounder, Nashville	
Rock	1995	Bruce Springsteen	This hard land	<i>Greatest Hits</i>	Columbia Records, New York	
Soul/Folk	1995	Tracy Chapman	Cold feet	<i>New Beginning</i>	Elektra Records, New York	
Pop	1996	Neneh Cherry	Hornebeam	<i>Man</i>	Virgin Records, New York	
Pop rock/Art rock	2000	Peter Gabriel	The time of the turning	<i>OVO</i>	Real World Records, Box	
Folk/Rock	2002	Bright Eyes	Bowl of oranges	<i>Lifted, or, The Story is in the Soil, Keep Your Ear to the Ground</i>	Saddle Creek Records, Omaha	
Folk	2004	Leonard Cohen	The faith	<i>Dear Heather</i>	Columbia Records, New York	
Rock	2004	Neil Young	RMA	<i>Greendale</i>	Reprise Records, New York	
Rock	2005	Neil Young	Falling off the face of the Earth	<i>Prairie Wind</i>	Reprise Records, New York	
Classical/Opera	2005	Roger Waters	Let us break all the shields	<i>Ça Ira</i>	Sony Classical, New York	
Alternative country	2006	Greg Graffin	RMA	<i>Cold as the Clay</i>	ANTI Records, Los Angeles	
Doom metal	2006	Katatonia	Soil's song	<i>The Great Cold Distance</i>	Peaceville Records, Cleckheaton	
Pop	2007	Missy Higgins	Sugar cane	<i>On a Clear Night</i>	Reprise Records, New York	
R&B	2008	Van Morrison	End of the land	<i>Keep It Simple</i>	Lost Highway Records, Nashville	

(Continued)

Table 1. (Continued).

Main genre: folk and pop						
Genre	Year	Artist	Song	Album	Label and city	
Progressive metal	2010	Borknagar	Abrasion tide	<i>Universal</i>	Century Media Records, Dortmund	
Rock	2010	Neil Young	Peaceful valley boulevard	<i>le Noise</i>	Reprise Record, NewYork	
Doom metal	2011	Noothgrush	Erode the person	<i>Erode the Person</i>	Streaks Records, Berlin	
Pop	2013	Hozier	Take me to church	<i>Take Me to Church</i>	Reprise Records, New York	
Death metal	2014	Autopsy	Burial	<i>Tourniquets, Hacksaws and Graves</i>	Peaceville Records, Cleckheaton	
Rock	2014	Neil Young	Who's gonna stand up?	<i>Storytone</i>	Rubyworks Records, Dublin	
Black metal	2015	Marduk	Wartheland	<i>Frontschwein</i>	Century Media Records, Dortmund	
Rock	2015	Neil Young	RMA	<i>The Monsanto Years</i>	Rubyworks Records, Dublin	
Progressive metal	2016	Borknagar	Erodent	<i>Winter Thrice</i>	Century Media Records, Dortmund	

ORS: Originally released as single; RMA: reference was made to the album.

recalled by the Bright Eyes, in the title of the album *Lifted, or, The Story is in the Soil, Keep Your Ear to the Ground* (2002). So, if we have not the ability to spiritually and intellectually raise ourselves, we have to keep our feet on the ground (the return at the mother earth) where, carefully listening to it, we will finally find our roots. Here, as in many other lyrics, the soil represents the home of humanity's heritage. This meaning animates the song 'Bowl of oranges,' from the same album (Table 1), whose authors state 'our lives are fractions of a whole ... like a story told by the fault lines and the soil.' 'Remember this soil by Augustus John? These are the ones I found in Rome' sing Brian Eno and John Cale to emphasize that even the most complicated aspects of our life, such as love, can be reassumed in 'One word' (1990). So in using this refrain, they tell us that we can find our ancestral roots into the soil and that it is still again another simple, single word. In 'Supper's ready' (1972) by Genesis (Table 1), the strong relationship between human heritage versus soil is empathized in 'You've been here all the time, like it or not, like what you got, you're under the soil, yes deep in the soil,' probably signifying that we intensively live every aspect of our life in close relationship with the soil, definitively becoming part of it. However, in 'Willow Farm' (one of the seven different sections of the larger song), nothing is at it seems – as it is made clear in the lyrics (e.g., 'the frog was a prince, the prince was a brick, the brick was an egg,' etc.) and some of the timbres (e.g., the 'mum to mud to mad to dad' setting). So, when you're 'deep in the soil,' perhaps you aren't? Indeed, this is a rare moment in the track, where a word is literally echoed ('the soil, the soil, the soil, the soil'), and yet, it is only above ground that a sound can echo – in the soil, it will be deadened. On the opposite, musicians have the ability to tell us even about the incredible story of humanity, in very few words. In 'The faith' (2004), Leonard Cohen wanders from the times when the only power was a club, passing through the refined statement of the thinking mind ('The club, the wheel, the mind') to the vital importance of the soil for the whole of humankind ('The blood, the soil, the faith').

The parallelism between home and soil (or land), i.e., my country is rooted in its soils, has always been a common trope. Bob Dylan sang 'Strap yourself to the tree with roots' ('You ain't goin' nowhere,' 1971), to describe the difficulties people

have in achieving a harmony with the natural world by forgetting their own origins. In his view, the return to nature is more an act of willful, self-enforced immobility rather than of freedom (Ingram 2010). In the famous ballad 'This land is your land' (1944), by Woody Guthrie, this concept reaches an extremity with the verse 'This land was made for you and me.' However, the same chauvinistic approach, typical among USA musicians, can be found elsewhere. In 'White man' (1976), Queen are extremely resolute when, in the third strophe of the first verse, Freddy Mercury sing 'From this soil my people came, in this soil remain.' Interestingly, the first strophe ('I'm a simple man'), even if musically straightforward, hides immense power (as in the guitar tone, displayed as intro) – there's potential threat there. That power is expressed in the chorus but, as is clear in the center of the song, is this threat from or toward the 'white man'? This aspect could (perhaps intentionally) be read both ways. 'Words on your stone' at the close draws us full circle, equating this to the soil of the opening verse.

A really interesting case is the song 'Wartheland' (2015) by Swedish black metal band Marduk. The song title comes from the German 'Reichsgau Wartheland,' i.e., a Nazi German administrative subdivision of Polish territory annexed in 1939. The song relives the invasion of Poland from the German perspective, by using a stylistic approach devoid of hypocrisy, deliberately prosaic, but aiming at bringing back the feeling of that obscurantist environment characterizing the chauvinistic Nazi regime ('Totalitarian command!, Plow and sword, Proclaiming repression with force, Blood and soil mixed as one, Ending expression once more'). In this case, the soil/homeland relationship has a totally different shade; the central theme is that of the earth claimed through assumed geo-political reasons. A subsequent verse ('Wartheland – the soil bleeds black again, Expelled – Polish exodus') recalls the infamous principles of the 'Lebensraum' (from the German 'living space') by which Slavs were removed in favor of those of German ancestry.

Many musicians have used the soil as a metaphor of the entire human life cycle, from birth in the mother earth to ultimate return to the soil. In the live song 'I know it's over' (1986) by The Smiths, the incipit ('I can feel the soil falling over my head') is obsessively repeated at the end of the lyric to

increase drama and to clearly emphasize that the end, in general terms, is coming. The image of 'soil falling' (presumably on the coffin) is desperately overdramatic for the content, and this is compounded by the inept attempts at vocal display in the payout. Perhaps it's supposed to be ironic. Interesting, the musical background is deliberately blank and could fit almost any sort of expression. In the macabre and horrific world often pictured in the heavy metal genre, the soil is frequently associated with the burial act. The name of leading Brazilian 'trash' metallists Sepultura comes from a translation of Motörhead's song 'Dancing on your grave' (1983). Additional paradigmatic examples are well represented by 'Soil's song' (2006), by Swedish group of Katatonia, and 'Burial' (2014), by USA group Autopsy, obsessively focused on burial ('Evacuate, assemble here, Soil's song in your throat, Future death in your reach' and 'This soil is your master, These walls are eternal').

4.2. Soil as means of pain and redemption

Many artists have portrayed the soil in a very disenchanting way, as a ruthless means of strain and pains that often bears no fruit. Ingram (2010), in contrast with the pastoral tradition, exemplified by John Denver's songs that often idealize the natural world as a home, suggestively calls these songs anti-pastoral. Indeed, such lyrics usually associate the soil with hardship and suffering, rather than with the common pastoral utopian contemplation. Several examples come from 'earthy music,' i.e., the blues and folk-country, due to their agrarian and proletarian origins. Johnny Cash, one of the singers who wrote most on soil, in 'Look at them beans' (1975) leaves nothing to the imagination with the words 'Is buried in God's good earth it's just fertilizer for the soil' to describe the end of a man who has spent his whole life taking care of the land, with enormous sacrifices, without enjoying its crop. Cash describes the soil here without any kindness; indeed, the soil just represents a cruel means of submission to hard work that, finally, doesn't pay, presenting a relationship of love and hate between the country singer and the 'earth.' A dichotomy dramatically summarized in 'The good earth' (1973). In the first verse, Cash uses a cruel metaphor to describe the earth as something that 'binds your hands with chains of clay that are so hard to break.' But when the protagonist leaves the 'good earth' and travels 'far and ... wide,' he finally realizes that he had 'made a big mistake.' So, there is no choice but to 'turn back and to work with hands in soil tryin' to pay' his 'due.' Even if the soil is here represented as the quintessence of his origins ('the good earth'), it is also described as a cruel means of taking its due. From a musical point of view, it is notable that the 'negative' view of 'earth' as an impediment (first verse) has a bare accompaniment which often signifies authenticity (in some discourses, of course) while the remainder ('earth' as welcoming) is sonically richer. Like Cash, many other artists have portrayed the soil in the same disenchanting way. Harry Smith's famous *Anthology of American Folk Music* includes 'Got the farm land blues' (The Carolina Tar Heels, 1930), in which are told the troubled vicissitudes of a farmer. After that a thief steals his chicken, his corn crib, and his car tires, the forces of nature (represented by a violent storm,

followed by an invasion of boll weevils) turn on him totally destroying his crop. The song ends with the farmer moving to the city and resigning himself to the superior forces of hostile nature (Ingram 2010). In Bruce Springsteen's 'This hard land' (1995), the situation of American downtrodden farm workers is described with rough honesty. While the music is a completely blank, comfortable canvas which does nothing to support or amplify the lyrics, Springsteen's phrasing represents the main point of interest ('Well, hey there mister, can you tell me what happened to the seeds I've sown ... where they fall from, from my hand back into the dirt of this hard land'); always 'this hard land' rather than 'this *hard* land,' implying that it's just one of many.

However, soil can be seen also as a sort of redemption as well as a means to demonstrate singers' own virtues and honesty. In Van Morrison's 'End of the land' (2008), the songwriter uses an intimate style to summarize the thread of an entire lifetime. So, 'When too many demands have destroyed all' his 'plans,' the artist finds just one solution to relieve his restlessness, namely 'going down, going down, going down to the end of the land.' In 'Cold feet' (1995), Tracy Chapman tells the story of a man who, starting from the time when he was a child, finally became, after several sacrifices, an honest man. To emphasize the concept of honesty and sacrifice, she uses the soil in a highly symbolic way 'He'd struggled all his life to be an honest man, proud that the dirt on his palms was the soil of the land.' In Arrested Development's 'Children play with earth' (1988), an anthemic appeal to African children to reject European acculturation, the soil is seen as the way to return to the most important way of life (Ingram 2010). By inviting African children to 'dig your hands in the dirt,' rather than play with videogames and watch television, the soil is pictured as a symbol of virtue and innocence, in opposition of the corrupted technological means proposed by western society.

4.3. A secret (sometimes psychedelic) living world

Several lyrics have used the prosaic metaphor of the soil as a fertile medium hosting life. In such cases, lyrics can be very simple and even (deliberately) rhetorical as 'I need some soil 'fore my grass will grow' in 'You need a mess of help to stand alone' (1972) by The Beach Boys. Soil can be seen by musicians even as a sort of food for plants. 'So grow tall sugarcane, eat that soil, drink the rain' sang Missy Higgins in her ballad 'Sugar cane' (2007). Soil is also viewed, especially in country and folk songs, as a holy object, a medium by which to approach God. In Frankie Miller's 'Black land farmer' (1959), 'a simple man' considered himself 'the luckiest man ever born, cause the lord gave me ... a blackland farm.' But the soil requires love and when it ends, soils inevitably became unfertile. Like when Jason 'broke the soil and planted seed ... the land refused to yield' until the arrival of a 'woman ... a daughter of a soil' and thanks to her love 'the land grew rich ... and all things good grew on' 'Jason's farm' (Conway Twitty, 1975). This idyllic representation is brutally disrupted when love tragically ends 'and nothing grows no more on Jason's Farm' and 'the land once rich and green is dead and dry,' a cruel depiction of the dichotomy of love (depicted by a fertile soil) versus sadness (a dry soil where nothing developed).

However, more cryptic words have been used on this topic. In 'The time of the turning' (2000), Peter Gabriel presents (human) change through life generated from the soil 'All the earth breaks ... and the seeds are folded in the soil ... then the rains fall, while the roots reach out right through the ground.' In 'Sad waters' (1986) and 'The carnay' (1986) by Nick Cave and the Bad Seeds, the soil is portrayed as a sort of melancholic helpless creature: 'Take a naked root for a lovers seat, that rose out of the bitten soil' or 'Until nothing was left, nothing left at all, except the body of sorrow, that rose in time, to float upon the surface of the eaten soil.' 'There is a happy land' (1964) is considered David Bowie's attempt to convey the common mind of childhood. 'There's a special place in the rhubarb fields underneath the leaves' are his words to describe the soil as a mysterious and magic place. A secret silent world ('The land in silence stands') is used in a dreamlike way by Syd Barrett in his psychedelic 'Swan Lee (Silas Lang)' (1988), part of a narrative tradition launched by The Beatles's 'Strawberry fields forever' (1967) depicting a world where 'nothing is real.' The song, one of the first lyrics of the so-called psychedelic rock era, was inspired by Lennon's memories of playing in the garden of Strawberry Field, a Salvation Army children's home in Liverpool (Miles 1997). What is particularly striking is the dislocation of Lennon's voice from the remainder of the texture – it's as if they're in different locations entirely. The production is eminently suitable for the expression 'nothing is real,' even if it is simply a feature of then contemporary technology.

The Norwegian band Borknagar present a totally different case from those previously investigated. In its recordings, common recourse to the Norse mythological universe is melded with both natural physical processes and spiritual aspects. From this point of view, songs such as 'Abrasion tide' (2010) and 'Erodent' (2016) are emblematic cases where natural erosive processes, with their ability to shape the pedolandscape, are used as a metaphor for the spiritual evolution of human existence ('We're ensnared by the fate if persistence, As the forces of nature interact, To weather slope and mountain, close and by distance, Creating expanding ventifacts'). These songs have become anthems about the ruthless power of nature in which the soil is also perceived as cultural heritage ('Waves that raves the coastal line, Rain that reaps the breeding soil, That wind pierces the heart of man, That the fire burns all creatures around, The ground we walked, the ground we fought'). What is surprising in their lyrics is the abundance of details spent describing the entire scenario; the soil, perceived here as a fundamental part of the landscape, is the main protagonist belonging to a spiritual space where humanity plays a completely marginal role. However, rather than an utopian 'natural vision' of the surrounding wild environment, Borknagar adopt a sort of Darwinian approach where the nature is the main real force responsible for environmental modification and species selection ('An archaic course across the outer core, Seasons transform while remodeling the Solum, Above the altering scenery stars soar, Watching the drama like diffuse phantoms').

4.4. Soil overexploitation and protest songs

Environmental issues have become the subject matter of many lyrics. Songwriters and composers, from a wide range

of styles (from folk to jazz album; Table 1), have strongly protested against what they feel to be the degradation of the Earth (Ingram 2010). Several musicians have also written about problems related to soil overexploitation, investigating such a dramatic issue with surprising wit and undisguised indignation. From this point of view, many songs have played a vital role in environmental protest groups all over the world, helping to foster shared belief systems and to promote ideological messages (Ingram 2010).

The Woody Guthrie's *Dust Bowl Ballads* (1940) focused on the terrible economic hardship that many migrant workers faced in California. It is now considered a milestone of folk music and the first concept album in the history of popular music. The whole album chronicles the American Dust Bowl, a direct consequence of severe drought and failure in the application of dryland farming methods to prevent soil wind erosion. The musical tradition made famous by Guthrie founded a fertile ground on which developed US genres like folk and country, which have been always characterized by the ability to represent a cultural cross-section of rural society.

A paradigmatic example can be easily found in 1983, when the American agricultural economy collapsed due to high interest rates and low prices depressing farming in the mid-west and central south. Many farmers were thrown into poverty since banks foreclosed on their loans. Country and folk songs have tended to condense their response to such realities into a populist attack on the banks (Ingram 2010). 'Trouble in the fields' (Nanci Griffith, 1987) well summarized the revulsion of country singers against the banks. The narrator describe bankers 'like locusts ... turning away our yield' and leaving 'our pockets full of nothing.' But just as 'our parents' survived the Great Depression, 'when they stood out in ... empty fields in dust as deep as snow,' so the narrator finds hope in hard work and love for 'our native soil.' Other singers have refused a simple response to such complex economic realities. In 'American farmer' (1985), The Charlie Daniels Band develops, unusually for country music (Ingram 2010), an unconditional condemnation of government policies toward the farmer 'with dirt on his hands and a loan on his back.' So, in 'selling his land to the big corporations,' the farmer has 'been ... treated like an outlaw' and the government forgets that if the farmer doesn't work 'then the people don't eat.' In Tish Hinojosa's 'Something in the rain' (1992), the Texan folk-singer explore the causes of farmer poverty from a different perspective and with shattering strength. In a very poor family, the youngest daughter is dying, and his brother comes to realize that all the family's troubles are ultimately caused by 'the sins of man whose profits rape the land.' The crop-spraying airplanes, which the boy used to believe 'cure the plants so things can grow,' have been poisoning the land with pesticides (Ingram 2010). The novelty in Hinojosa's song comes from the fact that there is nothing about the inevitability of nature. Farmers' troubles are due to a system in which the same farmers have their responsibility 'until we break the killing chains.'

Even if the soil-farmer relationship has attracted many songwriters, other soil issues have inspired influential musicians worldwide. Neil Young has always been a staunch supporter of environmental struggles, writing albums and songs in which also

the theme of soil degradation is a matter of concern (*Greendale*, 2004; 'Falling off the face of the Earth,' 2005; 'Peaceful valley boulevard,' 2010). For example, in 'Who's gonna stand up?' (2014), an environmental activism anthem, he launched his desperate cry to 'protect the land from the greed of man ... protect the plants and renew the soil' picturing a condition in which Earth's natural resources have already been abundantly exploited and it is therefore time that someone 'stand up and save the Earth.' In his recent concept album *The Monsanto Years* (2015), he fiercely criticize the famous company. In the first verse of the homonymous song, his disenchantment for the future emerges with concern through words veiled with pessimism, 'you never know what the future holds in the shallow soil of Monsanto,' while the backing voices create a rather disturbing sound. In his view, not only must soil be used with care, but people should rebel against its abuse for purposes of profit.

In 'Ethiopia' (1985), Joni Mitchell depicted a dramatic framework of famine and ravage, where soil erosion issues are represented in just a few extremely powerful words 'Your top soil flies away.' 'Creatures shaped this planet's soil, now their reign has come to an end, has life again destroyed life ... this is the end of man's long union with Earth' is the admonishment of Genesis ('Watcher of the skies,' 1972), made by imaginary aliens watching the earth from the sky, in proceeding with this irrational soil exploitation. Note how singer Peter Gabriel enunciates 'soil' (almost two distinct vowels rather than a diphthong, and almost reveling in the final 'l'), a highly unusual articulation perhaps calling attention to the word as rare within popular song discourse. Lou Reed's 'The last great American whale' (1989) is a sardonically violent ballad narrating the bizarre story of 'the chief of a local tribe' that 'killed a racist mayor's son and he'd been on death row since 1958.' The great whale, summoned out of the sea by his 'tribal brothers,' 'caused a huge tidal wave' that 'freed the chief.' The whale is shot dead by 'some local yokel member' of the National Rifle Association, who mistook it for the Indian chief. The song end with a savage moral affirming that 'Americans don't care for much of anything, land and water the least.' From a musical perspective, the deadpan delivery and the refusal to 'round off' the song (it just comes to an abrupt, unprepared end) perhaps amplify the fear and disgust expressed in this final statement; this appears to be a standard technique for singing of folk ballads many of which recount equivalent horrors.

In an uncommon, maybe unexpected, scenario, even exponents of academia are recognized as important interpreters, such as the revelatory case of Greg Graffin, leader and songwriter of the famous punk-rock band Bad Religion. With a degree in Geology and a PhD in Zoology (with a dissertation on evolution), he has been guest lecturer on life sciences, paleontology, and evolution at UCLA and Cornell University. This background has always influenced his lyrics but is probably expressed at the highest level in his own solo project with the emblematic title *Cold as the Clay* (2006). The album (Table 1), based on a very personal reinterpretation of North American folk traditions, includes the title song which addresses the theme of the dramatic landscape changes induced by human activities ('The land was converted, the river was moved, the village expanded, some say it's improved, but the lingering feature is a grim attitude').

In the 1970s, the Heavy Metal genre, mainly thanks to the Black Sabbath, begins to talk about the environment from a very different perspective. Even if musicians and metal bands are usually associated with a stereotyped imagine (faces painted in a cadaveric way, black leather jackets, black nails, and an anti-religious inspiration), they also used to be photographed in a snow-covered or forested background. In their propaganda, the soil is perceived in a multifaceted way, from obscure, gloomy, gothic connotations (as previously discussed) to a purer aspect of an unkind nature. This second facet can be discovered in Noothgrush's 'Erode the person' (2011), which portrays soil erosion and degradation as an obscure metaphor of the decline of human society ('Born into a state of decay, the spirit, like soil, erodes, devoid of sustenance, all life withers').

The problem of soil sealing, mainly perceived as an issue linked to a messy urbanization, has been represented in many famous lyrics. Artists have often approached the problem with such impressive involvement that many of that songs can be now considered milestones in the history of popular music. The Peter Seeger's album *God bless the grass* (1966) is considered the first album in music history wholly composed of songs about environmental issues (Ingram 2010). Though often neglected, this important album is strongly focused on the issue of soil sealing. The song that gives the album its title is an eloquent example. 'God bless the grass that grows through the crack, they roll the concrete over it to try and keep it back, the concrete gets tired of what it has to do, it breaks and it buckles and the grass grows thru' being a song where nature takes its revenge on humans. In 'A horse with no name' (1970), America is in no doubt about our relation with the soil. The use of a determinedly static melody (almost entirely on one pitch) and the minimal chord changes evokes an unchanging state, the sense that the 'desert' does indeed stretch for 2, 3 days. So after a 9-day journey through it (together with 'ocean' the two keywords of the song) where 'the ground was dry' and a 'sky with no clouds' loom over the horizon, the imaginary protagonist understands that the desert can be an unexpected surprise ('There were plants and birds, and rocks and things') but is so saddened that it concludes that 'under the cities lies a heart made of ground, but the humans will give no love.' Interestingly, 'ocean' is dealt with in the same way, supporting the contention that 'the ocean is a desert.' Only in the chorus is there any attempt to vary the melody – at the second hearing of the varied version, we hear that it 'felt good to be out of the rain,' but the subsequent repetitions of that varied line suggest that if 'felt good' only momentarily. Another obvious example is Simon and Garfunkel's 'El Condor Pasa (If I Could)' (1970). Originating in 1913 as an orchestral piece (simply *El Condor Pasa*) by the Peruvian composer Daniel Alomía Robles, Simon and Garfunkel's version adds lyrics in English by Paul Simon. The lyric is inspired by the flight of the condor both as a symbol of freedom and an ambiguous allegory readable in countless ways. Looking at the soil perspective, the final verse suggests that the condor (the representation of pristine nature) helplessly assists the devastation of the landscape. Through a simple comparison 'I'd rather be a forest than a street ... I'd rather feel the earth beneath my feet', the narrator describes

with disarming effectiveness the transition from a natural landscape to an urban one. The statement of preferring the woods to the city fits somewhat with the idea of preferring freedom rather than a static urban environment. In Joni Mitchell's 'Big yellow taxi' (1971), there is clear reference not only to soil sealing ('They paved paradise to put up a parking lot') but also other soil issues ('Hey farmer, farmer, put away that DDT now'). It's worth emphasizing that what are now considered among the first environmentalist songs (Ingram 2010) have been strongly inspired by soil issues.

'Song for America' (Kansas, 1975) takes further steps in the same direction, even if it is rather more complex and ambitious. It develops like a sort of chronicle describing the changes in land use in the USA. The texture of the introduction, musically speaking, sets out a big stage – potentially representative of endless plains. At the beginning, it was 'a virgin land of forest green' where 'all life abounds' and with 'no human hand.' This part is musically accompanied by a rich metrical (four based to five based) change. In opposition, the coming of humanity (with the new conquests that discovered a 'land of beauty and abundance') is musically marked by more regular meter and prominent syncopations (which tend to connote 'dance,' presumably a very human activity). The text baldly describes what happens after human arrival: 'Across the sea there came a multitude ... Filled with visions of Utopia ... Ravage, plunder, see no wonder, rape and kill and tear asunder, chop the forest, plow it under.' The consequences of such devastation are rendered by an urban landscape in which 'highways scar the mountainsides, buildings to the sky ... houses stand in endless rows.' The final verse is given the same musical material as the opening, implying that the 'broad open spaces' and the 'human congestion' are fundamentally the same.

5. A means to share knowledge on soil resource

During the last decade, many influential soil scientists have made pleas about a crisis that this discipline is suffering due to the competition from other specialists, the super-specialization, the decline in field studies, and the decrease in founding sources (Díaz-Fierros 2015; Hartemink *et al.* 2008). Even if others are quite optimistic on the future of this discipline, both visions agree with the fact that soil science has been poor in communicating its successes with policy makers and the general public (Hartemink 2006). Moreover, the soil resource is considered seriously under threat at worldwide level. Soil erosion, identified as the gravest issue, leads to water quality deterioration in developed regions and to a dramatic decrease in crop yields in many developing regions (Montanarella *et al.* 2016).

Such important questions require all the efforts of the scientific, political, philosophical, and sociocultural communities in order to be adequately and properly addressed. Soil scientists have often serious problems in communicating such issues for a global audience and, consequently, the worldwide political agenda shows a dramatic lack of interest in such concerns. Yet, such problems represent the other side of the same coin, namely an inadequacy in popularizing the soil concept with all its related important features.

Present society, like it or not, morbidly depends on communication, and a good level of visibility is fundamental to reach the widest audience. Music is one of the most powerful means of communication thanks to its intrinsic ability to share emotions, intentions, and meanings among people coming from different societies, or characterized by different skills and knowledge (Miell *et al.* 2012). Even if in the *Nature* 'Science and Music' special issue, scholars from different disciplines agree that science has not yet been able to answer the fundamental question 'Why does music have such power over us?' (Parkins 2008), some effects on human communication are clear. Music can give a nonverbal alternative to traditional communication methods, stimulating the senses, feelings, and emotions, eliciting physiological and mental responses, and influencing both musical and nonmusical behavior (McDermott 2008; Sloboda 2008). Additionally, it is functional, adaptable, and applicable to many peoples, even with different backgrounds (Boxill 1985). All such features have been frequently recognized by many civilizations as a powerful means to easily transmit knowledge about soil among generations. For all these reasons, it is surprising that songs, and music in general, have still not become more common methods to share, educate, and sensitize common people, students, and scholars, from every field of study, about soil concerns. Obviously, this cannot be seen as a sort of panacea, but many songs can be adequately adopted as a key instrument to increase public visibility and awareness about soil resource. Some scientific sectors have already started to do this (Bucchi and Lorenzet 2008; Huang and Allgaier 2015). As a matter of fact, in the field of ecology, music is now considered as an important contribution to learning more about the surrounding natural environment (Turner and Freedman 2004). Ecomusicology (the study of music, culture, and nature in all the complexities of those terms), with its interdisciplinary approach combining science with art and the humanities, is now strongly contributing to these endeavors (Allen 2012). That this has been possible is also due to the existence of a growing link between music and ecophilosophical thought, according to which music, amongst all the arts, has a special affinity with ecological ideas (Ingram 2010). Additionally, it is worth recalling that it is only recently that there has been a separation of the arts and literature from science (Phillips 2012). Some of the most brilliant minds in human history (such as Wolfgang Goethe, Leonardo DaVinci, Michelangelo, Charles Darwin, Arthur Eddington) were well known for accomplishments in both the arts and sciences, with borders between them never perceived as a real constraint.

Recently, a glaringly innovative example, coming from the global change research community, has been represented by 'A song of our warming planet,' a collaboration between the University of Minnesota and the cellist Daniel Crawford (St George *et al.* 2014). Science and music came together in an innovative project aiming to easily communicate the warming of our planet year by year since the late nineteenth century. Using an approach called data sonification (the transformation of data relations into perceived relations through an acoustic signal aiming at facilitating communication or interpretation; Verhoeven *et al.* 2014), recorded global temperature has been

converted into a series of musical notes later played by Crawford. As argued by Professor St. George, in this way, scientific data that are usually not effective for common people have been converted into 'something they can feel.' Form its first release (June 2013), the song has been supported by several media (New York Times included) with its video receiving more than 200,000 visualizations. The unexpected success of this and other projects in the field of climate change (Comstock and Hocks 2016) further demonstrate that music has the ability to reach audiences who do not usually respond to traditional methods used to communicate a pure scientific data.

In recent decades, ecology and climatology have had the great ability to involve musicians, and many other artists, in their causes. This ability has resulted not only in an increase in visibility and awareness but also, as important consequence, in funds for research activities. Events, such as the Earth Day (from early 1970), have been a strategic vehicle to address the common consciousness against environmental problems and have brought these issues into the public arena.

We have to adopt such approaches in the field of soil science education and communication. Some important steps have been already taken in this direction, such as Farm Aid, an annual telethon launched by the American songwriters Willie Nelson and Neil Young in support of the American family farmer. However, many other efforts are necessary to further increase public attention toward soil issues. Indeed, as many musicians have already understood, music is not the way to change the world, but rather the means to change the quality of our perspective about it. From this point of view, as a scientific community, we can utilize music to improve civil awareness about the problems affecting the soil. Additionally, popular songs could represent a powerful tool to increase even the common use of the word 'soil.' As a matter of fact, the popular knowledge of many technical or scientific terms has been facilitated by music as, just to recall example from previous mentioned disciplines, with terms such as *ecology* or *climate change*. From this point of view, popular song, and music in general, could represent indispensable tools.

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