

Dogs and plants as mediators for human-soil relations: exploring soil awareness from greening to gardening in Berlin

Mathilde Kærgaard Skaaning, Hussein Stuck, Judith Oesch

ABSTRACT: „The ethic and practice of attentiveness is key to the ethic and practice of care“, states Anna Krzywoszynska, an environmental social scientist researching the relationship between humans and soils in rural contexts. For urban settings, however, a lack of soil awareness as identified by soil scientists and STS scholars seems to contrast with residents' manifold practices of care for more-than-human matters, entities and species that are dependent on soil. This contribution draws on interviews with community gardeners and residents in two Berlin neighbourhoods – Neukölln and Mitte – where soils have figured either in the context of planting and cultivating, or in the context of soil unsealing and green infrastructure projects. From our research, we suggest that the study of certain mediators amidst the human-soil relationship – in our case dogs and plants – provides new insights into the entanglements of soil awareness, attentiveness, and care in urban settings.

KEYWORDS: urban soils, community gardens, green infrastructure, awareness, care and attentiveness

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Soil-idity: rethinking human-soil relations

The environmental crises of the Anthropocene requires us to adjust our gaze to not only immediately visible environmental matters, such as water, but also to what is beneath us. Being a life-giving matter and the foundation of our cities, soil is essential for sustaining life on Earth: it provides habitat for billions of organisms, acts as a water filter and is the basis of agroecosystems that provide us food, fiber and fuel. Yet, in our cities, soil is a solid, opaque surface covered by asphalt or concrete (Meulemans 2020, 256). Due to the high level of sealing, this has resulted in the almost imperceptible presence of unsealed soil in urban areas. Therefore this has created a state in our cities which can be described as *Bodenvergessenheit* (English: soil forgetfulness), meaning a careless attitude towards soil due to the decoupling from food and food production (Frielinghaus 2012).

More-than-human species, entities and matters, such as urban soils, are becoming an increasingly popular field of study within urban geography, the social sciences and anthropology, and notions such as 'multispecies entanglements' are gaining importance,

meaning that the ontological concern from humans is being extended to acknowledging the agency of more-than-humans and how these make up our world (Pitt 2018, 254; Kehr 2020, 650). Hence, scholars are challenging the status quo and suggesting new modes of living together with soil – so we can live at all (Krzywoszynska 2019; Puig de la Bellacasa 2017; Pitt 2018). Especially, within the environmental humanities we find a strong potential for re-defining and re-organising our ways of living together and in soil-identity with one another. Soil-identity can be understood as ecological and social unity, and a re-organization of the prevailing view on human-soil relations¹. Especially in urban areas, this is a timely invitation to create awareness for soil in the everyday life of urban residents and to explore human-soil relations (Gandy & Jasper 2020).

In this paper, we aim at contributing to the current research by asking questions of how the physical engagement of humans and soil in an urban context influences people's perception of urban soil and naturalness in a wider context. Through two case studies in Berlin, we seek to examine the feminist concepts of care and more-than-human entanglements and bring them into a discussion of soil awareness. To explore notions of urban soil in Berlin, we have interviewed community gardeners and residents in two different neighborhoods – Neukölln and Mitte – where soils have figured either in the context of planting and cultivating, or in the context of ground unsealing and green infrastructure projects. We argue that the many practices of care the residents and gardeners have for more-than-human entities, species and matters to some degree seem to contrast with a lack of soil awareness as identified by soil scientists and STS scholars. We further suggest that the study of certain mediators amidst the human-soil relationship – in this case dogs and plants – provides new insights into the entanglements of soil awareness, attentiveness, and care in urban settings.

Concepts of care, more-than-human entanglements and soil awareness

The environmental crisis is continuing despite the fact that scientific research is increasing and advancing. According to Schmidt et al. (2020), the hesitant and inadequate reactions of politics, economy and society need to be addressed by paying more attention to environmental research including the humanities and social sciences. The interdisciplinary field of environmental humanities (EH) has the potential to bring humanities and sciences together and develop creative solutions to environmental challenges (Schmidt et al. 2020, 225). Schmidt et al. justify the necessity of the interdisciplinarity of the field with the common observation that on the one hand the biosphere exists independently of humans and on the other hand it is being reshaped and formed by humans constantly. This alteration of the environment leads to political, societal and cultural causes and consequences which are the core focus of EH (ibid., 226).

As we focus our research on the human-soil relationship, we will be drawing on contributions to the EH by humanities and social sciences authors who have carried out ethnographic fieldwork with soil scientists and about human-soil relations within agriculture and community gardening. Additionally, we aim at contributing to the current research by asking questions of how the physical engagement of humans and soil in an urban context influences people's perception of urban soil and naturalness in a wider context. For doing so, we bring the feminist concepts of care and more-than-human entanglements into a discussion with the more soil-scientific notion of soil awareness.

Caring for more-than-human species, matters and entities

The relationship between human and more-than-human species, matters and entities is a central debate within the EH, social sciences and humanities. Especially, within urban geography, more-than-human communities are playing an increasingly central role within debates on urban life, and attention is drawn towards the world as multispecies entanglements (Pitt 2018, 254). Krzywoszynska (2019) suggests that we need new modes of living together with more-than-humans in order to live at all. She points to the normalization of the idea that humanity is dependent on and interconnected with the more-than-human nature (Krzywoszynska 2019, 662). In gardens, especially community gardens, boundaries between culture and nature are conflating and this makes them interesting for the discussion of human relationships with more-than-humans. Community gardens are traditionally seen as sites of care for nature and places where pro-environmental behavior is inspired by experience (Pitt 2018, 254). Puig de la Bellacasa proposes that care is a promising way of conceptualizing and acting on the interdependence of human and more-than-human lives. Following Tronto and Fischer (1993), she defines care as the following:

"(...) [care] includes everything that we do to maintain, continue and repair our world so that we can live in it as well as possible. That world includes our bodies, our selves, and our environment, all of which we seek to interweave in a complex, life-sustaining web." (Tronto 1993, as cited in Puig de la Bellacasa 2017, 3)

She further argues that it is not possible for "good care" (Puig de la Bellacasa 2017, 6) to be neutral. Different dimensions of the thought of care exist which can include maintenance doings and work, affective engagement or ethico-political involvement, but there are also different ways to show how much one cares. Puig de la Bellacasa calls it the moral marketing gloss, where green products are marketed and recycled items are purchased to demonstrate how much people care. Furthermore, she argues that caring for the self has become an omnipresent regularity "of individualized biopolitical morality" (Puig de la Bellacasa 2017, 9) and people are now requested to care for everything, primarily themselves. Nevertheless, for Puig de la Bellacasa care is too important to be diminished to these hegemonic ethics. Thus, she proposes to find new modes of re-articulation, re-conception and re-enactment of care (*ibid.*, 10).

In doing so, Puig de la Bellacasa favors decentralized and distributed agencies in the ecological matters of care. Accordingly, equivalent to these agencies is a sustaining co-existence where humans and more-than-humans depend on each other. To her, the decentralization of the human subject into more-than-human webs of care reveals the potential to reorganize human and more-than-human relations towards forms of co-existence which are not exploitative (*ibid.*, 24). Bellacasa therefore argues that doings of care not just influence but are fundamental to the sustainability and qualities of a world where technosciences and naturecultures are deeply entangled. Hence, she defines care as more binding than just being concerned because it requires active involvement (*ibid.*, 42f).

Bellacasa presents soil as an exemplary matter of care. Soil used to be the fertile ground which served the production demand. But the public perception and awareness thereof is changing. Now, perceived as endangered ecologies, soil is considered to be in need of urgent ecological care (*ibid.*, 23). Puig de la Bellacasa argues that the ways in which soils are cared for by humans depends on the understanding of soil in science and society (Puig de la Bellacasa 2017, 170).

Accordingly, she states that thinking with care enables the potential of soil to be more than a resource for humans (ibid., 170). The human mistreatment and neglect of soils in the last decades brought soils on the list of environmental matters calling for global care (ibid., 169). Furthermore this quote indicates that the human perception of soil is decisive for how soil is treated and thus cared for, which in turn has an immense influence on the well-being of soil. Thus, before humans can care for the needs of soil they need to raise a certain amount of awareness of soil. The human perception or awareness of soil is not very distinct compared to other environmental media such as air and water, which receive a higher amount of appreciation and attention (Frielinghaus 2012; Müller 2012). Therefore, to explore soil as a matter of care, the human awareness of soil is discussed in the following paragraph.

Soil: a cosmic disregard of an endangered ecology

The human perception and awareness of soil is colonial, Germain Meulemans (2020) argues. Meulemans is an anthropologist who conducts research at the intersection of environmental anthropology and STS. In his research he focuses on how people collaborate with materials and nonhuman organisms in understanding, constructing, and maintaining soils in cities². Meaning that when talking about soil most westerners think of farmland on which food is grown. The city is rather not perceived as a repository for soil and therefore urban soils have been neglected in modern approaches to soil (Meulemans 2020, 250). However, according to Meulemans, urban soils are an important part of the infrastructure of the biosphere, that is, the web of relationships that sustain human and non-human life (Meulemans 2020, 253).

In his article "Urban Pedogeneses – The Making of City Soils from Hard Surfacing to the Urban Soil Sciences", Meulemans narrates the brief history of the sealed soil from the point of view of the "nineteenth century figure of the enlightened city dweller" in France (Meulemans 2020, 252). He describes the nineteenth century soils as a mixture of "human and animal excreta, artisanal and food refuse, bacteria, minerals, liquids, and other things" (ibid., 255). Therefore, an obsession towards hygienism commenced in French cities during this time period and climaxed in a coordinated fight against the dirtiness of the urban soils and a turn toward waterproof and clean surfaces. In this way, a clear cut with nature was made through the process of applying a layer of broken stone, gravel, sand, cement and water and forever sealing and trapping the soil in that place. This separation also transformed the water cycle, as new networks were created that carried away the fluxes of collected rainwater and waste (ibid., 255). Meulemans describes that this led to:

"[...] a kind of cosmic disregard whereby nature is relegated to the background, to being either a pristine space or a resource and rubbish tip." (Meulemans 2020, 255).

The transformation of this new urban soil translated into how urban residents moved around in the city and interacted with the environment, but also changed everything from our footwear to contemplation of landscapes. This new way gave way to a "separation between the activities of a mind at rest and a body in transit" (ibid., 256). Thus, by paving the streets, the urban citizens no longer had to focus on the ground to walk comfortably on it. By withdrawing the attention to soil, the soil has moved to the background of urban life and the awareness thereof has decreased.

Müller, a former professor in soil sciences and geology in Germany, identifies various causes for this. One is the opacity and mere two dimensional perception of soils, also described by Meulemans. This, according to Müller and other German soil scientists, makes it difficult for people to grasp the soil with their eyes (Müller 2012, 37) and therefore a sensory experience is predominantly impossible (Frielinghaus 2012, 99). Furthermore, Müller describes the lack of features that trigger emotions and through which emotional bonds can be established. One way this could happen would be through features of cuteness or beauty, as in animals or plants. Dramatic features are also absent, because soils do not "bleed". On top of that, Müller states that soils' time-delayed reaction creates the illusion of the unlimited resilience of soils (Müller 2012, 37). Moreover, if soils are private property, they are often excluded from human protection as this is insufficiently possible. In comparison to laws for the protection of water and air, which were first introduced as early as 1957 (cf. Lexikon der Geowissenschaften 2000) and 1971 (cf. Umweltbundesamt 2017) respectively, the first soil protection laws were only established many years later; for example, in Germany only around 1998 (Müller 2012, 37).

Müller also clarifies that soils are largely seen as surfaces that can be built on or sealed and are considered replaceable, as they have no everyday significance for the majority of people in the Western world (Müller 2012, 38). Frielinghaus also holds this view and speaks of *Bodenvergessenheit*. In her research, she focused on soil, its conservation as a basis of life, and the related disciplines within agricultural and environmental sciences. According to her, *Bodenvergessenheit* describes an overly careless use of soil that has arisen because of the decoupling from food and food production. Most of the food in Europe today is imported and the burden of infertile soils falls on the producing countries, most of which are less developed than the West. She explains that this has led to an increased disinterest in the global soil pollution of Western society. It should be noted that the German soil scientific definition of soil awareness is closely tied to discussions about environmental awareness and protection and thus, also claims for soil protection. According to Frielinghaus, this increased absence of soil awareness has led to reduced protection of soils by society (Frielinghaus 2012, 98f). She concludes by identifying knowledge about the central role of soils in ecosystems as the key factor for the development of a positive attitude toward soil protection. This would pave the way for the emergence of willingness to act and advocate for soil protection (Frielinghaus 2012, 99).

About the interweaving of awareness, attentiveness and care

When talking about the human awareness of soil, the term awareness needs to be addressed first. Awareness is defined as "the state or condition of being aware; having knowledge; consciousness." (dictionary.com). It can be described as a point of someone's attention. In the cognitive tradition this means that where a person focuses his or her attention depends on the process by which this person selects information that is relevant to the current action (Hagendorf et al. 2011, 8). However, being aware also implies a more sensory and embodied distribution of one's attention, as the british anthropologist Tim Ingold argues:

"(...) awareness is always awareness with before it is ever awareness of. We can recognise a movement, and respond to it, before we ever fix it in our sights. The operations of the attentional mind, in short, are not cognitive but ecological." (Ingold 2017, 26, original emphasis)

This means that people not only focus their attention on a small part of the various signals and information at any given time and block out the rest, but that within a wider ecology human awareness is distributed to other agents, such as dogs or plants. Thus, by paying attention or attending to other agents within this ecology, there is a potential for creating awareness of soil. As we have discussed in the chapter above, the act of caring for soil is strongly influenced by the attentiveness that is given to the soil. Therefore, to care for soil, attention to soil is needed. Or as Krzywoszinska expresses it:

"The ethic and practice of attentiveness is key to the ethic and practice of care."
(Krzywoszinska 2019, 664)

Even though the two concepts are interwoven, they differ in certain aspects. In a soil scientific understanding, attention is something that is unidirectional. Meaning that each individual decides on its own (purposefully or not) where their attention goes. In this understanding, soil as an urban element is opaque and two-dimensional, which thereby makes a sensory experience almost impossible (Frielinghaus 2012, 99). This definition of attention does however not consider all the sensual, embodied, affective, and emotional relations between humans and soils. Thus, as suggested by Tim Ingold, we argue that attention can be understood as a more processual and environmental mode of learning or knowing (Ingold 2017, 23). Meaning that attention is not necessarily a form of intentional subjectivity as understood within soil science.

Within this framework, we suggest that the concept of care offers a conceptual body of work wherein we can start thinking about how awareness about the human-soil relationship can be re-organised and re-defined, as care requires active involvement (Puig de la Bellacasa 2017, 42f). Following the notion from Puig de la Bellacasa that care is mutual and relational, we argue in the coming section that it is through caring activities, not only for soil directly, but also through mediators, such as animals and plants, that there is a potential for creating awareness of urban soils and thus, create a world wherein we can live as well as possible (*ibid.*, 13).

Exploring green tramway tracks and a community garden in Berlin

In order to explore the implications of care and awareness in regard to urban soils and the inhabitants, two different case studies have been selected. Both studies deal with the perception of urban soil. The first project explores the relationship of inhabitants of a neighborhood with the unsealing of the soil along a green infrastructure project and the second explores the relationship of a people from a neighborhood with their urban soils through gardening.

Already at the beginning of the 20th century, special railroad tracks were built for tramways, thus enabling the first greening of these tracks with grass (Giese 1916, *Verkehrstechnische Woche* 10)³. Due to increasing track construction problems, greening was not further *pursued*⁴. With the growing environmental awareness from about 30 years ago, the first tramway companies started to develop their own track greening *systems*⁵. The 'Green Tramway Track *Project*'⁶ in Berlin has been around since the fall of the Berlin Wall in about 1989. Properly executed greening has ecological, economic and design effects on and for the *city*⁷. Nevertheless, the track of a tramway represents an ideal habitat for plants. The interesting part about this type of urban unsealing of the soils along the tramway tracks

is the lack of contestation for space (tramway tracks often have a dedicated space which is not shared with cars and therefore appropriated for greening) – which in general, space in cities is very contested as conflicting land use practices compete against each other, in the case of the tramway tracks is not the case. It is important to point out that only parts where the tram has its dedicated tracks – meaning that it is not shared with cars or other public transport models – can sedum plants be installed.

After a distributional analysis of the Green Tramway Tracks was conducted, a neighborhood in Wedding was identified to test the soil (un)awareness of the inhabitants. This area is especially interesting because the concrete on the tram tracks was removed and replaced with grass. The interviews were conducted during the second strong wave of Covid-19 before the vaccines were approved and during a lockdown. Thus, this second wave of the pandemic had an impact on the amount of people who were willing to participate in this research and on the comfort of such participants, as it had to be carried out on an open street.

Qualitative data was gathered through both a questionnaire and a 20-minute interview. The questionnaire helped to determine the socio economic status, salary, migration background, age, etc. of the interviewees. The interviewees were selected randomly on the street of that neighborhood. Through a series of questions, the in-person interview assisted in eliciting people's perceptions of urban soils and soil justice. The transcriptions were done selectively, according to the information relevant for this paper and then coded deductively using aspects of soil awareness and soil justice. The relevant passages were then interpreted in order to find overarching topics and connecting points. Two pictures were used in order to help focus the conversation about sealed and unsealed soils along the tramway tracks in that neighborhood. This proved to be a helpful tool for eliciting more focused answers. All four informants were from the Brüsseler Neighborhood and they all said that there are not many parks nor green spaces close by and most of them go every day (minimum 1-3 times a week) to a green space and they are in agreement that it is difficult to access these areas. The second case study was held in Neukölln at the community garden Karma Kultur. Karma Kultur is placed in an old orchard meadow in the heart of Rixdorf, and has been functioning as an urban community garden since 2017. As in many other community gardens, the piece of land is gardened and cultivated by a group of people collectively. The garden consists of several raised beds in which the gardeners plant flowers, vegetables and berries. The gardening and watering is divided between the participants, while a couple of people also do the administrative tasks and handle possible conflicts. Several studies show that community gardening has become an increasingly important component of sustainable community development strategies, particularly in disadvantaged neighborhoods (Hapstead & Quinn 2005; Hess & Winner 2007).

In the case of Karma Kultur, the method of individual interviews with a discursive-dialogical process was used (Witzel 1982). This procedure should initially contribute to an open, informal, and communicative discussion situation. The pivotal point of the methodical approach and thus, also the starting point of communication between interviewers and interviewees, is the urban community garden, hence, the interviews were carried out at Karma Kultur where the interviewees had the possibility of both showing and telling. Nevertheless, questions were considered before the interviews were carried out. When selecting the interviewees, it was first and foremost important that they were active within the Karma Kultur community garden. As both time and possibilities of building rapport were limited, we were restricted to interviewing two people. At the same time we did the interviews, we learned that the Karma Kultur team was in the middle of a conflict with some of

the neighbors to the garden, hence the atmosphere concerning this space was tense. This may possibly have influenced the interviewees in how they felt on this particular day and how they saw their own engagement in the community garden.

The materialization of soil awareness and care

Through the two case studies in Berlin, we are seeking to explore how awareness and care for soil in an urban context materializes. Early in the research process, it became clear that the two concepts are closely interrelated but different at the same time; a lack of soil awareness as identified by soil scientists and STS scholars seems to contrast with the various practices of care for soil. Thus, the following questions became the focal points of our research: what is urban soil awareness and soil care? How is this expressed in the everyday life of urban dwellers? And which implications could this have for the human-soil relationship and interactions in the city? In the following we will discuss these questions in relation to our findings from the community garden Karma Kultur in Neukölln and the unsealed tram tracks in Wedding.

Awareness through mediators

On a typical gray day in early spring in Berlin, we went out to the tram tracks on the intersection of Seestraße with Genter Straße Street in the neighborhood of Wedding to conduct our field work. Waiting at the tram tracks, a woman in her mid-30s approached us with her Sheepdog. After the initial greetings — both with dog and human — we started questioning her about her everyday life and relation to urban soils. "Before this interview, I had never thought so in depth about soil" she stated, and emphasized that it was only due to her dog that she would even think about the condition of soil in the city. She expressed how she observed a change in her relation to urban soils through the acquisition of her dog. She explained it like this:

"I regularly have to go out when my dog needs to do its 'business' and she likes to sniff the ground and walk on the [unsealed] soil [...] as I walk with her, I pay more attention to the different soil textures, states, color, etc., getting to know where her favorite [soil] spots are."

Later the same day, we found out that this notion was shared by several other people, who would also have their daily routines around or near the tram tracks. All the interview partners at the unsealed tram tracks expressed a clear unawareness or indifference when directly asked about their knowledge of and relationship to urban soils. When asked if they would ever think of or be affected by soil, everyone clearly stated "No", "Never" and "No, no, really never!". Some even expressed irritation by the question, only adding to the notion that the awareness or attention to soil is not an immediately obvious part of the daily life of urban dwellers, as posed by Meulemans (2020). Meulemans attributes this urban soil unawareness by city dwellers to the way they historically have been engaging in the making of or interaction of soils, and how these soils (in)directly impact their lives — which in a city where the majority of the soil has been sealed, is very low (Meulemans 2020, 252).

Other participants at the green tram tracks brought up an additional more-than-human intermediary which confronted them to think about soils, namely their house plants. It was reiterated several times throughout our conversations that house plants, and their health/condition helped the neighborhood residents to think about urban soils. One person for example said that:

"There was a time when I would really carefully observe the soil to know if it was healthy or had any illnesses."

Thus, bringing soil into one's own home through house plants could be seen as another way of bringing attention or awareness to soil. By caring for the plant's health, the plant became a mediator to think about and assess the health/condition of the soil, namely

"(...) if the plants are getting enough water or too much water or they need more light."

This shows that a more-than-human intermediary, such as a house pet or plant, may force a confrontation between urban dwellers and their soils, and thus, create an awareness. Just being aware however, does not provide an unequivocal moral compass or spark practices of care, as Pitt argues (Pitt 2018, 259). For the participants at the green tram tracks, soils become more of an observation than an actual engagement or involvement. For example, the participants expressed that they preferred driving in the tram or waiting at the stop with unsealed soils as they experienced a connection to nature. They also felt relaxed around the green spaces, but did not consciously think about the soil, unless for example their dog was there. Hence, it can be said that paying attention to an intermediary which the human cares for and has a different relation to soil than humans, such as a house plant or a dog, humans' attention can be drawn towards soil.

Mixed emotions: attentiveness and care for urban soils

At the Karma Kultur community garden, the relation to and awareness of soil was similar to the participants at the green tram tracks, but at the same time inherently different. We met with two of the gardeners, both male and in their thirties, on a warm and sunny day in May. The two gardeners showed us around the garden and introduced us to their different practices, while at the same time talking about their difficulties as a gardening community. They had just been in a conflict with some of their neighbors concerning noise and drug users using the space at night, and their tool shed had been burned to the ground (they did not know who had done this). Furthermore, we immediately felt that there were some tensions between the two gardeners and another person who were tending to some of the flower beds. These tensions have of course had an influence on how the gardeners felt on this specific day when we visited them and the emphasis they would put on different aspects of community gardening. Nevertheless, this also shows that caring for community gardens is a contested area of urban life.

After we had been shown around the garden, we sat down underneath an old apple tree and had a more in-depth conversation about the importance of the garden and the gardeners' relation to urban soil. It quickly became clear that the Karma Kultur community garden is very much about letting the gardens grow organically and letting things happen in

unplanned and spontaneous ways. In this sense, it can be understood that they are trying not to harness the soils and non-human species, but to care for the garden and soil with attentiveness, and let it develop 'as well as possible' (Puig de la Bellacasa 2017, 3). However, it became clear that soil is not a part of the gardeners' daily life. One of the gardeners contemplated a bit over the question and stated:

"[...] I never think about soil in my daily life, just in the Schrebergarden (another community garden in Berlin) where I garden, or here. Otherwise I'm not thinking about soil"

However, by being in contact with the soil and interacting with it, an awareness of the state of the soil is created. This can be exemplified by how the interviewees were talking about "*premium soil which is very expensive*", "*the difficulty of the sandy environment*" in the garden and how "it's not nice to have a deeper look into the soil here" as there might be needles or dog feces in it. Thus, soil awareness is created through the act of caring for the garden, but it does not necessarily mean that soil is directly cared for. As Pitt also argues, in a community garden tending to something might not mean to actually care (Pitt 2018, 259). Caring can take many forms, and in the case of the community garden, we do not see actual practices of care towards the soils. Instead, it could be understood that the gardeners and soils have a common goal, namely, to flourish. In this sense, one could speculate in calling the gardeners and soils a community (ibid., 192).

In the community garden, caring for the plants and seeing things grow, both socially and naturally, and knowing about the positive influence of their actions on the environment, can be understood as the mediators for creating soil awareness. Here, it is the action of caring or attending to the community garden's needs that create this awareness, not the other way around:

"(...) insects and plants, is the first thing you think, when you think about gardening, or care for nature, definitely",

whereas for the participants at the tram tracks, it was reiterated that house plants and their health/condition helped the neighborhood inhabitants think about urban soils. Nonetheless, this decentralization into more-than-human webs of care, as Puig de la Bellacasa argues, shows the possibility of an ethical reorganization of human-more-than-human relations towards forms of co-existence which are not exploitive, as seen within the Karma Kultur community garden (ibid., 24). Furthermore, just by caring for the community garden in this manner, Karma Kultur is disrupting anthropocentric temporalities, we argue. Their presence in the garden is not driven by a productionist or future-driven set of values, but is putting forward alternative, ethical and affective ecologies of care, as Puig de la Bellacasa puts it (ibid., 23). Nevertheless, it is interesting to notice again what exactly is deemed a matter of care in the community garden. They might not be working against the soil or being in a bad relationship, but it is also not exactly an affectionate one. To them, there is a function of soils and a wider web they together are part of, as soils serve as a greater means to achieve a thriving garden. Thus, in contrast to the tram tracks, the care practices at the community garden do foster a relation to urban soils that goes beyond awareness, but urban soils are not deemed the most urgent matter of care either.

The physical nature of soil lacks features that trigger emotions through which emotional bonds can be established, Müller argues (2012, 37). In contrast to this, the mediators we

identified in our case studies, namely dogs and plants, do have features of 'cuteness' and 'beauty' which facilitate the creation of emotional bonds (Müller 2012, 37). These bonds towards the mediators enable humans to grow an awareness for soil and start caring for it. This goes to show how a care-network emerges. Thus, we argue, in terms of letting your dog run loose around the unsealed tram tracks or loosening the soil to plant seeds in a community garden, being in contact with soil, even unconsciously, does create an awareness – and hopefully a more caring relationship in the future.

In the case of both of the case studies it can be seen that urban soil awareness and care are more complex and entangled notions than Meulemans' thesis regarding the "ignored urban soils" by the "enlightened city dweller" (Meulemans 2020, 252). One of our main findings from the two case studies is thus, that awareness and care of soil in an urban setting transpires through mediators, such as plants and pets.

Plants and dogs as mediators for overcoming 'Bodenvergessenheit' in an urban setting?

The two case studies have explored different ways of how people think and engage with soil in an urban context. On the one hand an awareness of soil might exist due to a mediating organism such as having a dog that is dependent on being walked outside and gravitates naturally towards exposed soil. On the other hand we also found that through caring for plants [another intermediate organism] or a community garden [intermediating space], awareness for urban soils is also created. Interestingly, the participants never consciously considered urban soils in their daily life. This study found that this goes in accordance with the notion of *Bodenvergessenheit*. Their existing awareness only came to light after the participants clearly stated that they did not think about soil.

From our research, we suggest that the study of certain mediators amidst the human-soil relationship – in our case dogs and plants – provides new insights into the entanglements of soil awareness, attentiveness, and care in urban settings. We argue that for urban areas, a lack of soil awareness, as identified by soil scientists and STS scholars, may take on a different meaning or expression due to the residents' many care practices for the more-than humans that are dependent on soil. Therefore, we further suggest that the study of certain mediators amidst the human-soil relationship provides new insights into the entanglements of soil awareness, attentiveness, and care in urban settings.

It was observed that through educational means our understanding of and awareness of soil developed and deepened – even our own care practices. Thus, a partial answer to the problem of *Bodenvergessenheit* could be sound education in soil, along lines of the environmental crisis that we are currently in. The topic of soil is also given insufficient consideration in school lessons, as Jöhler and Müller criticizes (Jöhler & Müller 2012, 38). Although an important sensitisation in society can be achieved through a well-founded mediation, it should be asked here whether it is necessary that all citizens have to deal with urban soils or whether it is sufficient if the corresponding expert bodies and authorities do so as the responsible parties. Nevertheless, entangled relationships and encounters between humans and more-than-humans are at the core of nearly all urban health challenges, hence we find it important to consider difficult questions, such as the ones posed by Puig de la Bellacasa (2017): What does it mean to live with more-than-humans? How can we build care full relations that acknowledge the interdependence and difference of species? This might be a starting point for countering *Bodenvergessenheit* and towards a

multispecies entanglement which is not exploitative. However, the question of what the potential of this indicated care network is needs further empirical investigation. Furthermore, this empirical research also contradicts the cognitivist definition of soil. We argue that urban soil awareness goes beyond conscious acknowledgement, and extends to the senses, interactions and experiences, as also suggested by Ingold.

To conclude, the study of certain mediators amidst the human-soil relationship provides new insights into the entanglements of soil awareness, attentiveness, and care in urban settings. In our paper we have suggested that the mediators, namely dogs and pets, are beneficial for overcoming the emotional gap between humans and soil which exists due to for example the soil's physical conditions. Humans care for their mediators and this enables a growing awareness of soil. By caring for a plant or dog, people might start caring for soil.

Notes

- 1 Soildarity: term derived from Dr. Laura Kemmer's course at Humboldt University: Soildarity: Exploring human-environment relations in Berlin 'from the ground'.
- 2 <https://www.anthropocene-curriculum.org/contributors/germain-meulemans>
- 3 See tramway tracks' history: <http://www.gruengleisnetzwerk.de/Gleisbegruenung.html> (accessed 22.11.2022)
- 4 *ibid.*
- 5 *ibid.*
- 6 See here for more information: <http://www.gruengleisnetzwerk.de/> (accessed 22.11.2022)
- 7 *ibid.*

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