



ECOCENE

CAPPADOCIA JOURNAL OF ENVIRONMENTAL HUMANITIES



Volume 3/Issue 1/June 2022

General Articles



Citizen Sensing with Soil, and the Intimate Alterity of Narrative Distance

Renée Hoogland

University of Amsterdam, The Netherlands

reenehoogland@hotmail.com

ORCID: 0000-0002-7954-8719

Hoogland, Renée. 2022. "Citizen Sensing with Soil, and the Intimate Alterity of Narrative Distance." *Ecocene: Cappadocia Journal of Environmental Humanities* 3, no. 1 (June): 16–28.
<https://doi.org/10.46863/ecocene.62>.

Research Article/ Received: 08.10.2021 /Accepted: 16.03.2022

This work is licensed under a Creative Commons Attribution 4.0 International License.



Citizen Sensing with Soil, and the Intimate Alterity of Narrative Distance

by Renée Hoogland



Abstract

New forms of ecological citizenship are emerging. As people wake up to an ecologically damaged world, while simultaneously experiencing the unsteady ground from which to imagine such a world, they start to take up low-cost technology to speculatively sense our surrounding ecologies. This article brings together narrative theory and environmental humanities while close-reading such a citizen sensing practice, that of *Sounding Soil* (2017—now). At stake in this sensing project is the elemental alterity of soil ecology that helps us to focalize a clear narrative distance between human voice and non-human mood. Going outside the analytical contours of normative environmental discourse and the ecocritical tradition, this article argues for the critical importance of narrative distance in sensing an ecology, because it subverts a logic of rendering the elemental as commensurable. How we pursue citizen sensing practices, therefore, is always premised on embodied, immersive, and discursively syncretic modes of speculative meaning-making: a sometimes uncomfortable but always critically improvisational engagement with elemental emergence. The dialectical tension between intimate sensing and narrative distance in *Sounding Soil* is no paradoxical story: it instead formalizes planetary narratives in which the ecology of soil materializes as a figure of alterity, not reducible to human voice.

Keywords: citizen sensing, soil, elemental soundscapes, narrative distance, ecological alterity



About the Author

Renée Hoogland is a researcher and writer from the Netherlands. A graduate of Literary Studies from the University of Amsterdam, her research interests lie at the interstices of environmental humanities, literary studies, and cultural anthropology. Renée has written on the cultural category of intimacy, infrastructural failure, and garden mediations. Her current project tracks the political ecology of the North Sea, considering new media ecologies and forms of material participation that detail the intimacy and dissonance between ecology and economy in an increasingly polluted and warming ocean. Renée is part of the editorial team of *Frame Journal of Literary Studies*.



Acknowledgments

My gratitude to Jeff Diamanti for his valuable input on earlier drafts of this article.

Citizen Sensing with Soil, and the Intimate Alterity of Narrative Distance

Renée Hoogland

This article seeks to unearth a contemporary soil mediation, one that takes the form of “citizen sensing” (Gabrys 2017, 175). The occasion for this attention to citizen sensing and soil ecology is to respond to new forms of environmental citizenship that unroll from the recognition of ecological intimacy. As the environmental humanities broadens and refines its interdisciplinary methods of analysis, archives of study, and political solidarities beyond the conventional cohort of conservationists and nature writers, our relation to the elemental seems far from unmediated and instead hinges on a tentative coming to terms with the irreducibility of an ecologically compromised world. I will argue here that the critical force of citizen sensing lies in its fostering an environmental citizenship in which the alterity of the historicized elemental comes to matter. By registering the *planetary* form of soil ecology, that is, a form that cannot be reduced to a mode of commensurability (Gabrys 2018), this paper turns to the human meaning-making processes involved in this planetary form to flesh out the narrative structures at work in citizen sensing practices.

To do so, I analytically zoom in on *Sounding Soil*, a Switzerland-based citizen sensing initiative in which amateur gardeners sense the soil ecologies in their local garden. In *Sounding Soil*, the milieu of soil ecology materializes as a matter of concern in the way that Bruno Latour imagines it: its sphere affords a sensing experience that is critical but that does not involve the type of truth-finding and predetermined analytics that the environmental sciences often radiate (2004, 242). Instead, *Sounding Soil* accumulates human sensing practices that are as much visceral as they are physical. Particularly under uncertain conditions, our efforts to grasp the ecological entities that surround us tend to take the form of cultural meaning-making: an interpretative dimension of understanding that relies on tacit knowledge and speculation. In *Sounding Soil*, these formal threads precisely establish an important *narrative distance* between the narrative voice of the human gardener and soil ecology as a focalized entity.

In *Narrative Discourse* (1983), Gérard Genette seeks to identify the varying degrees of distance and involvement within which narrators intervene in their narrative. This helps determine the narrative distance between narrator and narrated (162). In narratology, narrative distance is a matter of perception: narrative voice is not necessarily responsible for the diegetic mood of a particular focalization (163). That is to say, while narrative voice restricts its narration to the perception of a focalized subject, narrative distance determines the extent of this restriction.

While working with these narrative concepts might feel rather outdated, in *Environment and Narrative* (2020) Erin James and Eric Morel argue for the importance of turning to the narrative techniques we use in order to render the meaning of biophysical ecologies (5). At the same time, these techniques—such as narrative distance—have simultaneously posed some challenges to the ecocritical tradition. In our attempt to move *closer* to the nonhuman to better understand it, we have reduced the narrative distance between human voice and the focalized nonhuman, and subsequent critiques of anthropomorphism reaffirm that we have lost certain things in doing so.

This reduced narrative distance between human voice and the focalized nonhuman, however, continues to inform normative environmental discourse, a discourse in which the human aspires to fully comprehend ecology, if not *speak* for it (even when coded as “listening”). I take issue with this narrative proximity precisely because it stands in the way of planetary reciprocity—a social regime of caring that is distributed among human and nonhuman, negotiating each on their own terms. My argument in this article, therefore, develops out of this reducing narrative distance within environmental discourse, where human voice unproblematically filters and focalizes ecological entities. Instead, I argue that what is at stake in *Sounding Soil* is the “elemental alterity” (Diamanti 2021, 3) of subsoil that mediates a clear-cut narrative distance between human voice and soil ecology as a focalized milieu. This makes subsoil irreducible to human-voiced narration, critically obstructing any smooth translation of ecological events into narrative. The critical importance of this is that *Sounding Soil*, in its narrative irreducibility, subverts a global logic of rendering elemental expressions commensurable—radically revising the scales from which to make meaning of subsoil ecologies.

Making Meaning in the Garden

In May 2018, a not-so optimistic scientific study on the quality of soil in Zurich-based gardens circulated disconcertingly on several garden forums. Based on soil samples in eighty-five gardens, the research concludes there are high levels of soil disturbance partly

caused by lead contamination. But what especially unsettled many gardeners was the study's foregrounding of "garden management practices" as "the driving factor that influence[s] soil quality" (Tresch et al. 2018, 1). This information precipitated concern among nationwide gardeners in Switzerland about the possible (in)animate condition of their local garden soil. Not coincidentally, in the following months one hundred and eighty-two amateur gardeners joined *Sounding Soil*, an "open research and art system" developed by the sonic artist Marcus Maeder.¹ This citizen sensing project grows out of the speculation that soil's acoustic activity is an indicator of its animate condition (and thus health). *Sounding Soil*, therefore, collaborates with gardeners to gather the sensing "data" of Swiss soils in the form of sonic recordings.

This commitment toward forming a visceral cartography of garden soil was publicly accessible nationwide to citizens. Participating gardeners first borrowed a recording device that they established in their local garden. After self-monitoring the garden's soil ecology through a digital remote controlled via a mobile application, the participants shared their interpretations of the sonic recordings on the digital platform of *Sounding Soil* (Biovision 2019). Apart from one rather straightforward anticipatory corollary—"the greater the variety of living organisms in the soil, the more complex the sound" (Lettau 2020, para. 14)—no predetermined empiricism underscored *Sounding Soil*. The participants were thus free to loosely categorize the sonic manifestations themselves and formalize their interpretations accordingly (Maeder et al. 2019).

Listening to these soil soundscapes was, at first, an uncanny experience for the gardeners. In the first minutes of many recordings, the different garden soils manifest their animate condition as they render a sonic tangle of unfamiliar sounds. These sonic expressions can perhaps best be described, as two participants phrase it, a "raucous orchestra of myriad elements" that "creaks and hums, slurps and scratches" (Lettau 2020, para. 2). The soil's unfamiliar expressions trouble the use of any structured and descriptive language in the participant observations. One gardener responds to the sounds: "[b]ut what are these tiny creatures doing in this compost-rich earth? There are simply not enough *verbs*. Creak, crackle, nibble, cheep, rumble, jolt, bang, rattle. Or even chew and gargle?" (Lettau 2020, para. 2, emphasis added). The difficulty of interpretation here clearly lies in the human impossibility of articulating the soil's ecological alterity verbatim. But the added aesthetic value of these listed verbs is also that they offer a narratological glimpse into the narrative distance which complicates the scope of *Sounding Soil*—distanced as the vacillation between different scales of involvement and as the distance of the narrator in the narrated. Listening to soil is not neatly horizontal to narrating soil. As narrating the nonhuman soil sounds becomes tricky here to the human

observer, the *impediment* to interpretation is a crucial praxis in understanding the narrative structures at work in *Sounding Soil*.

A few minutes into most soundscapes, the unfamiliar soil sounds are occasionally placed in the auditory background when more familiar human-based sounds surface. Notice the shift now from verbs to nouns in the calibrated observations from the gardeners: in a “worm compost” one participant hears “train noise, [and] children” while another gardener interprets “cows nearby, and highway traffic” in the soundscape.² By registering the sonic familiarity of these anthropogenic sounds as nouns, the materiality of human history as *media* in the milieu of soil ecology is listed here. Now the sensing participants also seek to demarcate their listening observations on the unfamiliar soil expressions. The rather unconventional verbs—“nibbling, crawling, digging”—are replaced by more descriptive nouns that formulate speculative keywords and phrases. In a Basel-located vegetable garden, one participant grants “many unknown sounds” to the green space but also hears “probably a lot of isopods.”³ Other participants now sense “communicating animals in the ground, possibly ants,” “most likely vibrations of grasshoppers,” and “possible garden chafer activity.”⁴ The precariousness (and doubt) of these interpretations signifies the human speculation that the soil expressions demand. While the presence of human activity in the soil soundscapes thus invites a more detailed interpretation (a loose list of enigmatic verbs to describe the animacy of soil is considered too one-sided), the persisting alterity of the soil sounds simultaneously impedes the transparency and clarity of these interpretations.

The impediment to (human) interpretation that characterizes *Sounding Soil* is firmly tied to an ecological citizenship that puts sensing at the base of understanding. Jennifer Gabrys, who works with eco-sensing in her ongoing interdisciplinary project *Citizen Sense*, indexes these sensing practices as “techniques for feeling environments through different experiential registers” (2017, 177), practices which unfold through “speculative” encounters with our surrounding ecologies (174). Citizen sensing, Gabrys argues, comes to have relevance once it (re)arranges environmental concerns and the narrative structures in these concerns. For the anthropologist Stefan Helmreich, it is therefore inevitable that the distinction between “opacity/transparency” falls away in what he calls “intimate sensing”: the experience of full immersion in an ecology, an “experience felt as at once immediate and hypermediated” (2009, 142–43). Sensing an ecology, in other words, is not about “raw information, it is about meaning” (Helmreich 2009, 133). This places mediated meaning-making at the heart of citizen sensing and articulates the function of interpretative impediments, for they mark the necessary distinction between

knowing an object and *sensing* an ecology. In the latter, the human is never an omniscient narrator—its interpretations ever speculative and compromised.

This speculative excess that comes with listening to garden soil returns in the interpretative divergence between the *Sounding Soil*'s participants. In two uploaded soil soundscapes from two Bex-located gardens, which are situated in close proximity on the digitalized map of *Sounding Soil*, the interpretations of similar sounds radically diverge. The recordings offer a sonic encounter with a seemingly automatic sound, not very loud in tone but ceaselessly continual in its rhythm. But while both gardeners indeed sense “mechanical impacts” in the garden soil, for one participant these sounds are developed “possibly by birds,” whereas the other participant traces the sonic expressions back to the “nearby construction site.”⁵ The latter gardener most likely refers here to the Bex salt extraction mines wherein salt deposits were discovered in the seventeenth century but are still mined today, yielding more than 35,000 tons of salt each year (Fiaux, n.d.). What interests me here is that the diverging interpretations of these similar sounds underscore how the process of meaning-making is not only mediated by the garden's soil ecology but also by the participants' pre-established imaginary of “the garden.” To horizontalize sonic “mechanical impacts” with “bird sounds,” as the technical vocabulary of the first gardener instantiates, might very well inhabit the more familiar garden narrative that situates its ecological sphere outside any industrial envelope. It is an interpretation reminiscent of the “machine-in-the-garden” trope that the literary critic Leo Marx envisioned, by which he meant a sudden interruption in literary texts of pastoral scenery by human industrial history (2000, 15).

The second gardener's interpretation, in contrast, underscores the social realism of the garden's ecology by moving it into the Swiss public debate on soil salinity. Whereas Swiss salt mines embody a sense of national pride (the Bex mines even serve as a major tourist attraction), the salt industry is simultaneously held co-responsible for elevated salt contents in some subsoil areas: an important cause of anthropocentric soil degradation (ESDC, 2021). But even though the dialogical presence here of both human extraction discourse and the elemental expression of soil does present a higher level of proximity between human narrator and narrated soil, the soil soundscapes mediate a narrative atmosphere that is not entirely reducible to human voice. This is because, as the sonic recording of *Sounding Soil* comes to metabolize a historicist elementality in its bearing of both subsoil elementality and resource extraction, it resets the concern of soil degradation. Importantly, the concern of soil salinity is typically anchored in *industrial* discourse, a discourse that prefigures human voice. Due to its negative impact on agricultural management, salinization of soil is dominantly designated as a form of land

degradation. But where “land” is discursively commensurable (and thus easily owned and industrialized), the concern of soil salinity in *Sounding Soil* is not limited to human parameters.

While the human gardener is narrating the recording here, and speculatively verbs the historicity of soil extraction, the diegetic presence of unfamiliar soil sounds resists any legible (and reliable) focalization of soil degradation. In the intimate sonic encounter with soil degradation, the citizen-sensing subject cannot filter the alterity of soil ecology into a reducible focalization, nor automatically translate its narrative atmosphere into a political mode of observation. The human listener, in other words, can *sense* subsoil ecology and make meaning about the way it materializes as a matter of concern, but the soil’s expressive force simultaneously outstrips any anthropocentric empiricism in the gardener’s interpretative register. It is therefore not very surprising that the gardener’s sensing observations end marginally with a modestly speculative “unhealthy garden soil?”⁶

A Sonic Cartography of Soil

In sensing an ecology, the visceral encounters with both its expressive alterity and its familiar traces of human involvement happen all at once and call for intimate speculation. The formal structure of citizen *sensing* practices, therefore, deviates from citizen *science* projects, a form of ecological citizenship that is discussed more diligently within the environmental humanities (e.g., Jørgensen and Jørgensen 2020). While citizen science similarly figures a participatory and collective form of attuning to an ecology, in its pursuit of “generat[ing] and consum[ing] scientific knowledge about the environment” (Jørgensen and Jørgensen 2020, 1345) environmental citizen science still emanates from the conventional structures within the environmental sciences in that it seeks to achieve a mutual agreement on the interpretation of “ecological data.” Citizen sensing, on the contrary, affords physical, visceral, and meaningful encounters that resist any cohesive interpretation.

In the narrative scope of *Sounding Soil*, it thus becomes a little less important *who* is speaking and more important *through* who or what we are perceiving. With this I mean to say that in *Sounding Soil*, the gardeners are sensing the mood and not type of nonhuman voice. What is at stake in this narrative distinction is a critical diversion from the strand of ecocritical discourse that seeks for narration that “gives a voice to [the] nonhuman” in order to “place them on a continuum with humans, rather than constructing them as opposites” (Bernaerts et al. 2014, 74). The slipperiness of this strand lies in its hasty contention that, for lack of a better narrative approach, ascribing voice to the nonhuman

might be the best we have to better understand them. But this case for one narrative with multiple voices does away with the important consideration of how narrative meaning-making is both impeded and facilitated by nonhuman expressions. Narrative voice, in this consideration, remains strictly a human voice but is removed from its centrality in a narrative.

This helps explain why in the narrative of *Sounding Soil*, the soil recordings mobilize a sonic modality in which *silence* also comes to matter. One participant recalls how “we carefully insert the microphone. What do we hear? Zilch. A lifeless frontier?” (Lettau 2020, para. 3). Another gardener, who similarly encounters mere sonic silence, remarks “little activity, soil very dry” and someone else simply hears “a swoosh from the nearby forest.”⁷ Whereas some participants allocate this soil silence to a lack of rain—stressing the garden’s relationality with weather forces—others attribute it to pesticides and chemical use, uncomfortably pondering their own gardening management practices (Luthi 2019).

These speculative interpretations are critical because the sonic modality of soil (even in its silence) emerges here as a matter of concern. To be clear, in everyday life our propensity is to hear *things* and not *sounds* (Heidegger 2001, 26): we tend to hear a car rather than the combustion of fossil fuels. This is because listening mostly involves a simultaneous optical encounter, but it also ties in with the predominance of the human voice in sonic encounters, where enigmatic sounds are reduced to an anthropocentric understanding of materiality. If we would hear the combustion of fossil fuels every time an engine starts, then hard-to-grasp concerns about fossil-fuel-related climate change might overdetermine the already familiar car. In *Sounding Soil*, it is in the decentralized role of human voice within practices of listening that the silence of soil ecology comes to matter as an expressive force. Soil’s irreducibility to an anthropogenic voice, in other words, cannot be “thingified” (Heidegger 2001, 172) but rather unfolds as a sonic source for the speculative concern of subsoil health.

Citizen sensing with soil ecologies is thus necessarily, as Gayatri Spivak would say, a “narrative of the impossible” (2003, 18) in which elemental alterity remains discontinuous in plot. The critical force of this is that *Sounding Soil* does not impose some type of narrative order on the “disorder” of sensing with soil. In these sensing practices, the milieu of soil ecology does not emerge as a figure of control and stability—some fixed object of analysis. This is important because, as Jennifer Gabrys reminds us, “stability could be a way to rid the planet of its alterity: to make it knowable and so manageable within a universal science” (2018, para. 20). Instead, in the narrative distance between human narration and environmental events, the soil ecologies in the *Sounding Soil*

soundscapes refuse to be settled or fixed. Where the focalizing capacities of the human voice are limited in these moments, making their interpretations patently unreliable, the elemental expressions of soil (even in its occasional silence) reset the concern of subsoil health.

From Noisy Interference to Narrative Irreducibility

Just like in more conventional narratives, the process of meaning-making in *Sounding Soil* involves some unexpected plots. To be clear, there is an interpretative register at the center of any process of narrative understanding. But in the case of *Sounding Soil*, this interpretation is bound up with a speculative element as well, an anticipatory form of meaning-making that syncs up with the uncomfortable feeling of suspense which the materiality of soil in ecologically compromised environments can mobilize. This feeling of suspense is established at the moment when most of the soil soundscapes share a comparable sonic interference, one which sets in motion a visceral modality that sets global capitalism in relation to soil ecology. Because whereas *Sounding Soil* was initially used by gardeners to sense subsoil layers, it is the unforeseen sound of *air* traffic that causes a sonic disruption in many of the recordings. In this disruption, the threshold of alterity (i.e., unfamiliar soil expressions) and familiarity (i.e., anthropogenic sounds of highways or mining sites) is at once overshadowed by the relentless sound of a passing airplane.

It is in this sound interference that a sonic boundary dissolves: that of subterrestrial ecologies and global capitalism in the air. For one, this is the sound of ecological intimacy as it materializes in the milieu of subsoil. But it is also what the anthropologist Kath Weston would identify as “the sound of people trying to make visceral and political sense of the damaged ecologies that late capitalism has bequeathed them” (2017, 11). This sentiment returns in the observations of the *Sounding Soil* participants. One gardener senses “little sound activity, aircraft noise” (notice the affective distinction between “sound” and “noise”) and horizontalizes the inanimate condition of the garden soil to the sonic presence of air traffic.⁸ Another participant hesitantly remarks “planes, should we be worried?”⁹ What interests me in these comments is how the familiarity of air traffic, as the ubiquitous sound of global capitalism, is now getting defamiliarized when it is heard as a diegetic (i.e., internal) sound in the soil soundscape. The “sound” of passing airplanes turns into “noise” once its relationality with the garden soil becomes sensible. In turn, the *we* in the remark “should we be worried?” refers not only to the high degree of human involvement in this relational mode but also questions the role of human voice in this mode. This same voice, after all, epitomizes the sonic modality of global air traffic.

Noise, this gardener seemingly puts forward, is the predominance of human voice in the sonic expressions of subsoil ecology.

The sonic dissolve of soil “sounds” and air traffic “noise” situates a mode of sensing an ecology that unfolds across scales that are still largely unaccustomed to normative environmental discourse. As the sensing participants now place the “underworld cacophony” of soil alongside the “soundtrack of climate change” (Lettau 2020, para. 17), the continual rhythm of passing airplanes in the soundscape with a varying intensity—sonic intensity that marks their endless coming and going—configures a new concern regarding soil. “To the best of our knowledge,” *Sounding Soil* assumes, “no study has investigated the ecological effects of noise pollution in soil” (Maeder et al. 2019, 7). But even though this rearrangement of environmental concern casts soil ecology as an intimate conjunction of both elemental and human categories, it refrains from carving out the soil soundscapes as one coherent image in which these entanglements unfold. The speculative remarks on the *Sounding Soil* digital platform offer no clear-cut answers when it comes to subsoil health: at times the remarks contradict each other, and often they end with a question mark. The narrative distance at work in these remarks matters to my argument in this article, because even though narrative voice here captures the environmental intimacy between soil ecology and human history, it simultaneously fails to translate this intimacy into a reducible narration. In other words, the elemental alterity of the soil soundscapes is responsible for a narrative atmosphere in which human voice can only provide limited information. This leads to a distance between human narration and ecological event but, importantly, distance does not horizontalize detachment. For the critical theorist Derek Woods, this is a matter of scale variance. This variance, which we can find in narrative and aesthetic form, critically refuses a domestication of human and nonhuman scale, allowing for “disjunctures and incommensurable differences among scales” (2014, 135). Decentralizing human voice—or for Derek Woods anthropocentric scale perception—in social theory or environmental science means forestalling the rendering of nonhuman ecologies as a spatial container, as a reducible object that offers a totalizing perspective on the world.

In the media ecology of *Sounding Soil*, narrative and scalar incommensurability similarly unsettles the milieu of soil ecology. On its open-access platform, gardeners upload the soil recordings alongside their written remarks and speculative interpretations. This sensing reciprocity materializes as a digitalized sound map that provides a cartography of all the soil soundscapes (Biovision 2019). It stands out that this sound map (perhaps any map at all) takes on the aerial opticality that sonically returns in many of the recordings as air traffic noise. At first sight, the way this map seemingly

inhabits the remote top-down perspective visualizes the scalar commensurability that Woods problematizes—an airplane modality that settles soil ecology into a fixed figure of global logics. Elizabeth DeLoughrey links this “modern way of imagining the earth as totality” to “colonial histories of spatial enclosure” (2014, 261) and critically reminds us that the history of mapping environments ties in with colonial practices of naming, categorizing, and monitoring the (non)human. When it comes to subsoil, this history of spatial enclosure and commensurability returns in the global logics of Geographic Information Systems (GIS) that structurally catalog soil ecologies—providing full information on their geographic location, texture, drainage, fertility, and economic value (LandIS 2021).

But on the *Sounding Soil* map, there is initially not much to discover. Whereas it indeed offers a full geographical perspective of Switzerland, the sound map lacks any written information or graphic categories that could contribute to a sense of visual adjustment. The white-colored map only pictures the entry points to the localized gardens with soil recordings. Some indistinct blue areas signal water bodies and a couple of black lines register regional borders. To digitally “enter” a soil recording, users have to zoom in on the sound map and find the respective garden. After listening through a soundscape of soil mesofauna, birds, mining activities, trains, weather forces, silences, and passing airplanes, users are forced to zoom out—inhabit an aerial perspective again—to sonically immerse themselves into another soundscape. The soil recordings, however, are difficult to find and the zoom effect is anything but smooth—a visual smoothness in which, for Woods, the “human subject-voice” unproblematically transcends scale disjunctures (2014, 134). Instead, on the *Sounding Soil* map, the venture of zooming in and out unfolds as a disconcerting activity in itself and thus the initial totalizing perspective of the sound map carries no aesthetic surplus: its visibility does not accumulate any form of knowledge or information. To make meaning of the digitalized map at all, one is reduced to listening through the (mostly 7-minute) soil soundscapes.

In its visual modesty, the digital map moves beyond a totalizing and controlling aesthetic of (sub)soil ecologies. The map demands a fluctuating and speculative perspective, hereby situating soil as an ecology that captures manifold sonic narratives, spanning scales of the local, global, and planetary. The sound map tells us as much about the ecological expressions of soil in situ as it provides a sense of human history that threads its way through these expressions. And yet, the formal scope of zooming in and out on the *Sounding Soil* platform makes us, again, critically experiment with and reflect on narrative distance: at what cartographic perspective do we begin to voice narratives?

And to what degree is this (human) voice responsible for the mood that these soundscapes mobilize?

The narratological self-reflection that is intrinsic to sensing an ecology veers away from any form of regulation and predetermination in environmental discourse. But the dialectical tension between *intimate* sensing and narrative *distance* in *Sounding Soil* is no paradoxical story: it instead formalizes planetary narratives in which the ecology of soil materializes as a figure of incommensurability, the precise analytical propensity that citizen sensing as a speculative form of ecological citizenship seeks to inhabit. *Sounding Soil*, therefore, affords alternative forms of being across social scales. According to some participants, the soil soundscapes called for a collective responsibility that shifted “from their [own] gardening to [their] shopping to [their] voting at the polls” (Lüthi 2019, para. 3). While I consider this shift of concern less horizontal and more provisional, the remark does underscore the various degrees of narrative distance that stretch the narrative structures of *Sounding Soil*. The narratological (re)arrangement of concern—depending on the degree of involvement or distance between human gardener and recorded soil—brings into focus the structural exchange between social relation and ecological expression that shape the narrative scope of *Sounding Soil*.

In the prevalence of narrative distance between human narrator and the focalized elementality of soil, wherein the latter is not simply reduced to human voice, the reciprocity of this exchange reminds us that the social relations in *Sounding Soil* are as much mediating as they are products themselves of elemental expressions. The geographer Kathryn Yussof would call this “geosocial stratification”: the recognition that geological formations (in our case the subsoil underground) antecede as the already “given ground of social relations” (2017, 106). This is not to do away with the concern of anthropocentric soil disturbance: far from it. But in *Sounding Soil*’s speculative practices of meaning-making, the elemental alterity of soil cannot be reduced to any regulating and controlling modality of a human voice that would overshadow such a concern. The narrative mood of *Sounding Soil* is therefore not shaped exclusively by human voice: in its narrative scope it situates the gardener participants as, in Gayatri Spivak’s words, “planetary subjects rather than global agents” (2003, 73).

Citizen sensing is, therefore, less about, as Astrida Neimanis et al. phrase it, “enacting ‘good environmental citizenship,’” and more about “experimenting with and cultivating new environmental imaginaries . . . and for understanding that such imaginaries are negotiated, shaped and contested through entanglements of bodies, technologies, and stories of all kinds” (2015, 90). Therefore, how we pursue citizen sensing practices is always premised on embodied, immersive, and discursively syncretic

modes of speculative meaning-making: a sometimes uncomfortable but always improvisational and critical engagement with elemental emergence. Turning to the narrative structures at work in these engagements helps in fleshing out the sensing modality in which the human cannot restrict its voiced narration to the elementality of subsoil. In *Sounding Soil*, this is a mode of sensing that refuses to syncretize listening to ecological event and speaking for ecological event, a distinction in which the animating force of ecological entities comes to not only matter, but to critically inform our concepts, categories, and narratives on their own term.

Notes

¹ *Sounding Soil* is an interdisciplinary collaboration between Marcus Maeder, Biovision, Zurich University of the Arts/the Institute for Computer Music and Sound Technology, the Swiss Federal Institute for Forest, Snow and Landscape Research, the NABO, the Institute for Terrestrial Ecosystems, and the USYS TdLab (Biovision, 2019).

² "Zurich (Hunzikerareal) ZH" (25.05.2020) and "Grindewald BE" (12.07.2017) recordings, Biovision 2019.

³ "Amsteg UR" (28.07.2022) recording, Biovision 2019.

⁴ "Stalla Chapella GR" (02.06.2020), "Mörschwil SG" (15.06.2017), and "Wil ZH" (26.09.2019) recordings, Biovision 2019.

⁵ "Schupfart AG" (25.07.2020) and "Aigle VS" (11.09.2018) recordings, Biovision 2019.

⁶ "Aigle VS" (11.09.2018) recording, Biovision 2019.

⁷ "Möhlin AG" (14.06.2017) and "Ependes FR" (12.07.2017) recordings, Biovision 2019.

⁸ "Beatenberg BE" (28.06.2018) recording, Biovision 2019.

⁹ "Koppigen BE" (08.08.2018) recording, Biovision 2019.

References

- Bernaerts, Lars, Marco Caracciolo, Luc Herman, and Bart Vervaeck. 2014. "The Storied Life of Non-Human Narrators." *Narrative* 22, no. 1 (January): 68–93. <https://doi.org/10.1353/nar.2014.0002>.
- Biovision. 2019. "Listen—Sounding Soil." *Sounding Soil*, November 2019. <https://www.soundingsoil.ch/en/listen/>.
- DeLoughrey, Elizabeth. 2014. "Satellite Planetarity and the Ends of the Earth." *Public Culture* 26, no. 2 (May): 257–80. <https://doi.org/10.1215/08992363-2392057>.
- Diamanti, Jeff. 2021. *Climate and Capital in the Age of Petroleum: Locating Terminal Landscapes*. London: Bloomsbury Publishing.
- (ESDC) European Soil Data Centre. 2021. "Soil Salinization." Last modified September 23, 2021. https://esdac.jrc.ec.europa.eu/themes/soil-salinization#tabs-0-resources_by_type=1.
- Fiaux, Alain. (n.d.). "Bex Salt Mines: History and How Salt is Mined." Accessed September 23, 2021. <https://www.villars-diablerets.ch/en/Z12610/bex-salt-mines-history-and-how-salt-is-mined>.

- Gabrys, Jennifer. 2017. "Citizen Sensing, Air Pollution and Fracking: From 'Caring About Your Air' to Speculative Practices of Evidencing Harm." *The Sociological Review* 65, no. 2 (June): 172–192. <https://doi.org/10.1177/0081176917710421>.
- . 2018. "Becoming Planetary." *E-Flux Journal*, 2 October 2018. <https://www.e-flux.com/architecture/accumulation/217051/becoming-planetary/>.
- Genette, Gérard. 1983. *Narrative Discourse: An Essay in Method*. Ithaca, New York: Cornell University Press.
- Heidegger, Martin. 2001. *Poetry, Language, Thought*. Translated by Albert Hofstadter. New York: Harper Perennial Modern Classics.
- Helmreich, Stefan. 2009. "Intimate Sensing." In *Simulation and its Discontents*, edited by Sherry Turkle, 129–50. Cambridge: The MIT Press. <https://doi.org/10.7551/mitpress/8200.001.0001>.
- James, Erin, and Eric Morel, eds. 2020. *Environment and Narrative: New Directions in Econarratology*. Columbus, Ohio: The Ohio State University Press.
- Jørgensen, Finn Arne, and Dolly Jørgensen. 2020. "Citizen Science for Environmental Citizenship." *Conservation Biology* 35 (4): 1344–47.
- LandIS. 2021. "Soilscapes Map." Accessed October 2, 2021. <http://www.landis.org.uk/soilscapes/>.
- Latour, Bruno. 2004. "Why Has Critique Run Out of Steam? From Matters of Fact to Matters of Concern." *Critical Inquiry* 30, no. 2 (Winter): 225–48. <https://doi.org/10.1086/421123>.
- Lettau, Marc. 2020. "The Sound of Home Soil." *Swiss Community*, 25 November 2020. <https://www.swisscommunity.org/en/news-media/swiss-review/article/the-sound-of-home-soil>.
- Lüthi, Peter. 2019. "Crazy How it Sounds!" *Biovision*, 15 December 2019. <https://www.biovision.ch/en/news/sounding-soil-crazy-how-it-sounds/>.
- Maeder, Marcus, Martin M. Gossner, Armin Keller, and Martin Neukom. 2019. "Sounding Soil: An Acoustic, Ecological & Artistic Investigation of Soil Life." *Soundscape* 18 (1): 5–14. <https://www.dora.lib4ri.ch/wsl/islandora/object/wsl%3A21340>.
- Marx, Leo. [1964] 2000. *The Machine in the Garden: Technology and the Pastoral Ideal in America*. Oxford: Oxford University Press.
- Neimanis, Astrida, Cecilia Åsberg, and Johan Hedrén. 2015. "Four Problems, Four Directions for Environmental Humanities: Toward Critical Posthumanities for the Anthropocene." *Ethics and the Environment* 20, no. 1 (Spring): 67–97. <https://doi.org/10.2979/ethicsenviro.20.1.67>.
- Spivak, Gayatri Chakravorty. 2003. *Death of a Discipline*. New York City: Columbia University Press.
- Tresch, Simon, Marco Moretti, Renée-Claire Le Bayon, Paul Mäder, Andrea Zanetta, David Frey, and Andreas Fliessbach. 2018. "A Gardener's Influence on Urban Soil Quality." *Frontiers in Environmental Science* 6, no. 25 (May): 1–17. <https://doi.org/10.3389/fenvs.2018.00025>.
- Weston, Kath. 2017. *Animate Planet: Making Visceral Sense of Living in a High-Tech Ecologically Damaged World*. Durham: Duke University Press.
- Woods, Derek. 2014. "Scale Critique for the Anthropocene." *The Minnesota Review* 83: 133–42.
- Yussof, Kathryn. 2017. "Geosocial Strata." *Theory, Culture & Society* 34, no. 2–3 (January): 105–27. <https://doi.org/10.1177/0263276416688543>.