

Re-Representations

Design-Agents in More-Than-Human Landscapes

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Abstract

This article explores the agency of representations to open up perspectives in more-than-human landscape design processes. It follows and investigates the approach of re-representations—multimodal assemblages that narrate landscapes as zones constituted by specific socio-material processes. Methods of research through and on design are combined: students' experiments of designing with representations were set up in a landscape architecture design studio at the Technical University Berlin in the context of a deeply changing wetness regime in Lusatia, Germany. These design methods are investigated by synthesizing and comparing them with the aim of reflecting them in a post-humanist, new materialist discourse on the understanding of landscape and critical mapping. The findings concentrate on the most crucial agencies these re-representations have, to reorient design processes and reshape what is understood as landscape design in the shift to more-than-human worlds.

Keywords

Re-representation, recursive design processes, more-than-human landscapes, mattering processes, transscularity, patchiness, pluralism.

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Bridging the Gap – Re-Representations in Design Processes

In the era of the so-called Anthropocene, spatial disciplines are currently reorienting their design approaches toward more-than-human worlds, with representations taking centre stage in this process. Latour and Weibel (2020) emphasize the potential of rethinking representational methods—and reorienting with them—to conceptually and spatially gain new understanding: they can reveal the Earth we inhabit as agential, more-than-human, relational, and determined by rapid and deep socio-material shifts. At the same time, resonating with discourses around critical mapping, they highlight that spatial representations are never objective and always just one way of narrating space. In landscape design processes, mappings are central methods and media—thus, Latour and Weibel's (ibid.) investigation is crucial in the shift toward more-than-human landscapes. Hegemonic maps are unable to contribute to this process—in this discourse on processual, more-than-human worlds—indeed, they are criticized for rendering landscapes as merely passive stages on which human action takes place (e.g., Ait-Touati et al., 2022).

As a response to this representational challenge in design, we follow the concept and new mapping category of 're-representing' (Neuhaus, 2025) and ask in this paper how this notion can help realign landscape design. The concept summarizes the crucial characteristics of emerging forms of representation that contribute to this change of perspective by rendering landscapes as consisting of 'mattering processes' (ibid., 2025). However, there are few examples so far that can be identified as re-representations. These examples—Gaigraphy / Terraforma and the *Feral Atlas* (Ait-Touati et al., 2022; Tsing et al., 2021)—are directed at processes of spatial exploration and conceptualization. Their design potential has been largely unexplored (Neuhaus, 2025). This is where our research endeavors come in.

This article explores how re-representations enable more-than-human design approaches and how design processes—and the understanding of design—are reoriented when approached with this concept. We investigate this question by combining research *through* and *on* design methods. To do so, an academic design studio was established at the Technical University of Berlin, in which master's students experimented with their own re-representations oriented toward design. The outcomes of the design studio serve as the case studies for this article. Although we indirectly address pedagogical questions, we emphasize general aspects of how re-representations function in design processes, to derive findings that may also be relevant in non-academic settings. This article is informed by, and builds a bridge to, the growing discourse on post-humanist, new materialist reflections on space, landscapes, and more-than-human mappings.

The article begins by summarizing the key characteristics of re-representations that are potentially relevant to design processes. It then describes the studio's framework, based on the re-representations approach and situated within the context of drought in Lusatia, Germany. The third section outlines the methodological approach underlying this article, detailing the methods used to analyze the studio projects. Finally, it examines the design agencies of re-representations identified in this research through five perspectives, illustrated by the most distinctive projects developed in the studio.

Investigating Re-Representations'

Design Agencies

The following section will elaborate on how this article, and the methodology underlying it, is informed by the concept of *re-representing*.

Re-Representations and Potential Design Agencies in Mattering Processes

The current article builds upon and is embedded in ongoing research by Anna Neuhaus (first author of this article) on re-representations as a new more-than-human mapping category. In a paper introducing this category, she highlights the importance of re-representations for landscape architecture and associated disciplines, as they have the agency to act within processes of more-than-human landscape exploration, design, and conceptualization (Neuhaus, 2025). Their characteristics relate to two main references: Gaigraphy/Terraforma and the *Feral Atlas* (Ait-Touati et al., 2022; Tsing et al., 2021). Re-representations are characterized as multimodal assemblages that refer to 'situated landscapes as patchy zones of mattering processes' (Neuhaus, 2025). The approach elaborates that 'mattering processes', which emerge in and are discussed in re-representations, simultaneously act in material, discursive, and social spheres. Mattering processes comprise those socio-material processes that constitute landscapes in their constant becomings and that become particularly apparent in events like droughts, population migration, or species decline—and through that—create challenges across disciplines (ibid., 2025).

The concept of re-representing emphasizes that each re-representation creates a narrative that (1) tells a situated story about specific mattering processes and (2) indicates the ontological and epistemological constellation in which the mattering processes are discussed. Depending on the project's orientation in which the re-representation evolves (regarding goals, disciplines involved, and tasks of inquiry), the representations build from specific initial perspectives (ibid., 2025). The approach highlights that re-representations discuss mattering processes starting from a cultural-material or (geo)scientific perspective—and from there, they cross various disciplines (see also the references to Gaigraphy/Terraforma and the *Feral Atlas*). Neuhaus indicates that they narrate more-than-human mattering processes as always situated in specific time-spatial constellations and theoretical alignments. This alignment, as well as where the processes are spatially acting, becomes approachable in the 'meta landscape representation' upon which each re-representing assemblage is based—in this mapping, the overarching narration develops (ibid., 2025). The concept elaborates that the meta landscape representations (Fig. 1) examine which mattering processes are considered and in which spatial locations—they hint at the ontological and epistemological angles from which the processes are interpreted. The meta representation is visually based: connections, dependencies, and spatial situatedness are brought together as transscalar, processual mappings (ibid., 2025). From the meta landscape representation, links between 'resonating elements' emerge (Fig. 1). These elements may consist of single elements or smaller assemblages of multimodal elements—they may be auditory, text-based, or visual and situate the narrative more deeply in the mattering processes (ibid., 2025).

Re-representations do not merely illustrate 'completed' knowledge about a space, but instead become primary agents in the processes of conceptualization and exploration of landscapes (ibid., 2025). Their agency to act in design processes has been an informed speculation in the concept of re-representing thus far, and will be investigated in this article using the following methodological framework.

Re-Representation
*Multimodal Assemblage

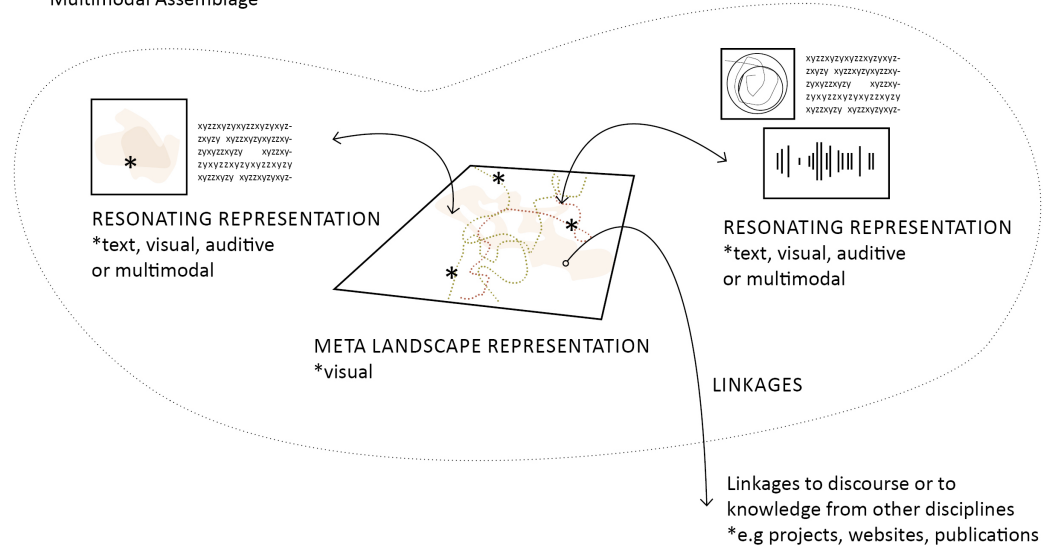


FIGURE 1 Scheme of re-representations' multimodal assemblage. The interplay of a meta landscape representation and resonating representations determines the formal characteristics of re-representations on the level of the assemblage. (Image by Neuhaus, 2025)

Research through Design - Designing (with) Re-Representations

To situate the experiments within a mattering process that could challenge the design agencies of re-representations, the studio's re-representation experiments focused on the concept of 'wetness' and its mattering processes in Lusatia. The notion of wetness, according to Mathur and da Cunha (2020), opens up more-than-human perspectives on landscapes—countering the term and understanding of 'water' as a substance conceptualized, managed, and designed by humans. Lusatia—from the Sorbian 'swampy'—provides a fruitful testing ground for design agencies in precarious, contested, and relatively under-investigated situations of dryness. For more than a century, up to 75% of the waters of Berlin's iconic Spree River have originated from groundwater sources to enable coal mining in Lusatia (Umweltbundesamt Deutschland, 2023). The transition away from coal has triggered a continuous decrease in mine-water discharge, compounded by warmer and drier conditions due to climate change (ibid., 2023). The studio was established to examine how perspectives for more-than-human futures and interventions in the mattering processes of wetness might be developed through re-representations.

In any setting, interdisciplinary knowledge exchange is essential for investigating mattering processes and the multiple dimensions relevant to re-representations (Neuhaus, 2025). We therefore integrated diverse professional perspectives on representing wetness and its mattering processes in Lusatia, collected in a provisional studio archive.

The design studio format allows for free experimentation with re-representations. The studio encouraged students to navigate design challenges by composing their own re-representations, selecting and combining relevant strands. Core criteria (such as assemblage form) were established through assigned tasks.

Wetness—as an actor, matter of concern, and socio-material process—is too extensive to be exhaustively narrated or designed. It entangles more-than-human actors across air, soils, and material/immaterial spheres in transscalar ways (Mathur and da Cunha, 2020). Acknowledging this complexity, students approached wetness through re-representations focused on specific more-than-human actors and their regional entanglements, drawing on concepts of ‘actors’ (e.g., Latour, 2005) and ‘kin-making’ (Haraway, 2016). Mushrooms, pyrite, mosses, *Phytophthora*, and water pumps served as guiding actors for student groups. An additional group developed a condensed, overarching studio narrative in a single re-representation. These collaborative works were designed to culminate in a website (insidewetness.org).

Research on Design: Investigating the Studio’s Re-representations

There is currently no established methodology for analyzing re-representations within design processes. While some mapping elements build on conventional methods, their design dimensions extend far beyond these—fostering epistemological and ontological reorientations toward more-than-human design. To address this challenge, we developed an investigative framework based on re-representation characteristics, combining deductive (mapping analysis) and inductive (discourse analysis) methods (Neuhaus, 2025).

This research examines three interacting dimensions of re-representations: agency, form, and mattering processes (ibid., 2025). ‘Agency’ denotes the capacity to explore and design landscapes as zones of mattering processes; ‘form’ refers to the enabling formal characteristics; and ‘mattering processes’ examines which socio-material aspects are narrated. Our analysis focuses on five key agencies that emerged from the studio: (1) unfolding design narratives, (2) engaging pluralistic perspectives, (3) designing through condensations/shifts/gaps, (4) recursive design processes, and (5) interweaving situated narratives.

For each agency cluster, we analyze one to three exemplary studio projects. Using qualitative—comparative and synthesizing—mapping analysis, we examine the formal characteristics enabling these agencies. The interplay of mapping and discourse analysis reveals how mattering processes are discussed within landscape design contexts.

This analytical approach does not seek definitive conclusions about re-representations’ agencies in more-than-human design, but rather offers initial insights into their potentials and limitations.

Findings: The Designing Agency of Re-Representations in Mattering Processes

Unfolding Design Narratives in Mattering Processes

This chapter elaborates how design narratives unfold in re-representations. The design narrative refers to the specific, explicitly and implicitly expressed story and method of storytelling: how the exploration and design are approached and what is valued as relevant in this particular setting. The studio groups used as references—'Mushrooms', 'Pyrite', and 'Unseen Connections'—will be introduced here to highlight the broad spectrum of possible design narratives, their diverse unfolding, and their commonalities. The project outlines will focus on their material and theoretical situatedness, and how these factors are enabled by the formal structure of the re-representations.

The re-representations of all three groups position their design narration ontologically and epistemologically within the meta landscape representations. Each practices landscape design through re-representing as a distinctive approach to discussing mattering processes. The design narrations of the 'Pyrite' and 'Unseen Connections' groups emerge by combining scientific approaches with bodily perception—'Pyrite' focusing on physically visible phenomena and 'Unseen Connections' on processes invisible to the human eye. Their respective meta landscape representations (Figs. 2, 3) unfold different design narratives identifying crucial socio-material processes—one proceeding from surface to depth ('Pyrite'), the other from subsurface to surface ('Unseen Connections'). The 'Mushrooms' group focuses on repetitive more-than-human 'intra-action' (interactions that determine and transform all involved actors; see Barad, 2007) through practices and rituals.

The 'Unseen Connections' project reveals crucial, typically invisible processes in Lusatia's wet-mattering processes that only become perceptible during singular events like droughts and subsequent tree infestations. Focusing on *Phytophthora*—a microscopic plant pathogen—this project questions human sensory capacities for exploring wet-mattering processes across scales. The design narration examines *Phytophthora*'s space-mattering relations in monoculture forests, traced spatially in the meta landscape representation as a processual section. Resonating representations deepen aspects of *Phytophthora*'s agencies and perceptibility through devices like looping, non-linear videos.

In the 'Pyrite' project's re-representation, this mineral (pyrite/iron ochre) anchors a design narration where scientific inquiry interacts with bodily perception. The central motif—why water bodies appear ochre—is particularly evident in the meta landscape representation, where visually perceptible pyrite effects (e.g., ochre coloration) are overlaid with scientific data on water-body critical loads.

Both approaches develop landscape design narrations that seek not to explain wetness comprehensively, but to examine specific mattering processes through specific constellations of perspectives. The re-representation evolves highly complex, location-specific design narrations—achievable only through the interaction between meta representations and resonating representations (overall narrative and deepened aspects).

Unlike other groups, the 'Mushrooms' project (Fig. 4) examines cultural practices and rituals of mushroom-picking in Berlin and Lusatia, revealing socio-material wetness-related landscape shifts. A circular meta landscape representation explores human-mushroom intra-actions—through gathering rituals—across seasonal and wetness-based cycles, particularly within what Bruno Latour (2018) terms the 'New Climatic Regime'. Here, mattering processes occupy spacetimes of soil, plant growth, and astrophysical constellations governing seasonal rhythms. Resonating representations further develop this knowledge through punctual spatial references, culminating in acupuncture-like designs manifesting through ritualized practices.

Engaging in Pluralistic Perspectives: More-than-human Actors as Guides and Co-designers

As described, studio projects engaged non-human actors and their wetness entanglements. Each re-representation, as an exploratory/design tool, incorporated interdisciplinary empirical knowledge about these actors and their drought-mediated dependencies. Focusing on more-than-human actors enabled situated landscape design evolving from investigating specific mattering processes—not dissolving human perspectives but broadening them. The 'Pyrite' and 'Unseen Connections' projects exemplify how more-than-human perspectives co-guided the processes through the re-representations.

In the 'Pyrite' project, pyrite's socio-material agency determines the meta landscape representation's formal structure: a transscalar section (Fig. 3) in ochre hues. The group re-represents scales, sections, and perspectives of pyrite's agencies—and their (un)intended consequences—in Lusatia and Berlin. The meta representation reveals pyrite as a deep-time geological actor causing landscape ochreation. Surfacing through coal extraction, pyrite disperses through Lusatia's waterways, conflicting with fish and dragonflies, drastically reducing biodiversity. Three key sites condense pyrite's more-than-human intra-actions in resonating representations: Welzow opencast mine (iron oxidation source), Seese post-mining lakes (pyrite soaking), and Lehde (pyrite flow). These entangled landscapes reveal crucial more-than-human co-becomings in wetness.

Comparing 'Pyrite' and 'Unseen Connections' (Fig. 2) shows how mattering landscapes shift depending on central actors. 'Unseen Connections' is guided by *Phytophthora*, a waterborne oak pathogen in Lusatia's monoculture forests. Its transscalar sectional representation reveals wet-mattering processes operating across greater transscalar ranges than pyrite—from global wind dispersal to molecular soil interactions. Tracing *Phytophthora* highlights unseen material connections and transscalar agencies from atmospheric transport to soil processes.

Through re-representations, pyrite and *Phytophthora* became material guides for exploring plural imaginaries of Lusatia's transformation. Re-representations prove fruitful for illuminating wet-mattering dependencies by examining specific actors' entanglements. However, the studio's re-representations did not fully exploit interdisciplinary knowledge integration potential regarding more-than-human actors—an avenue for future research through, for example, cross-disciplinary source linkages.

Designing in Condensings, Shifts, and Gaps

Re-representations possess the agency to reveal crucial moments where mattering processes are determined by condensings, gaps, and shifts. These moments expose where relationships, dependencies, and connections between actors and processes converge or disintegrate (Neuhaus, 2025). The studio research demonstrated these are also the moments where design interventions can root themselves in mattering processes.

The ‘Unseen Connections’ project (Fig. 2) exemplifies all these departure points for design approaches. The re-representation simultaneously highlights gaps and breaks in knowledge, communication, and physicochemical processes like disease and infestation. Its meta landscape representation reveals how unnoticed wetness processes condense in material encounters between infected winds/water droplets and oak trees. The forest’s health condition and wetness regime emerge through their deep dependencies—disease events are shown in relation to wetness regime shifts, such as drought-stressed trees. This initial condensing and shift informs ecological-level design interventions, like proposing greater tree diversity.

The meta landscape representation also portrays mattering processes as fragmented across knowledge and communication spheres. The sectional triptych (Fig. 2) is formally structured by different modes of knowing, sensing, and encountering unseen connections. The first section examines hydrological/hydrogeological measurement methods; the second explores phenomenological, bodily experiences of wet connections; the third addresses current perceptibility gaps through designs combining sensors and embodied experiences to create a dynamic archive and collective perception practices.

The ‘Mushroom’ project investigated cultural mushroom-picking rituals and their climatic/cultural shifts (Fig. 4). Its cyclic meta representation, developed with mycological expertise, tracked three focal species (*Fomes fomentarius*, *Armillaria gallica*, *Russula atropurpurea*) whose life cycles are shifting later annually, likely due to temperature-wetness changes. The representation highlights socio-material intensifications (e.g., picking) and knowledge gaps about fungal growth under shifting wetness, centering designs on rituals that heighten awareness of mushrooms as wetness indicators—intensifying future more-than-human wetness relationships.

This demonstrates re-representations’ crucial agency in revealing connections, emerging patterns, fragmented understandings, and disrupted processes to identify potential intentional shifts in mattering processes.

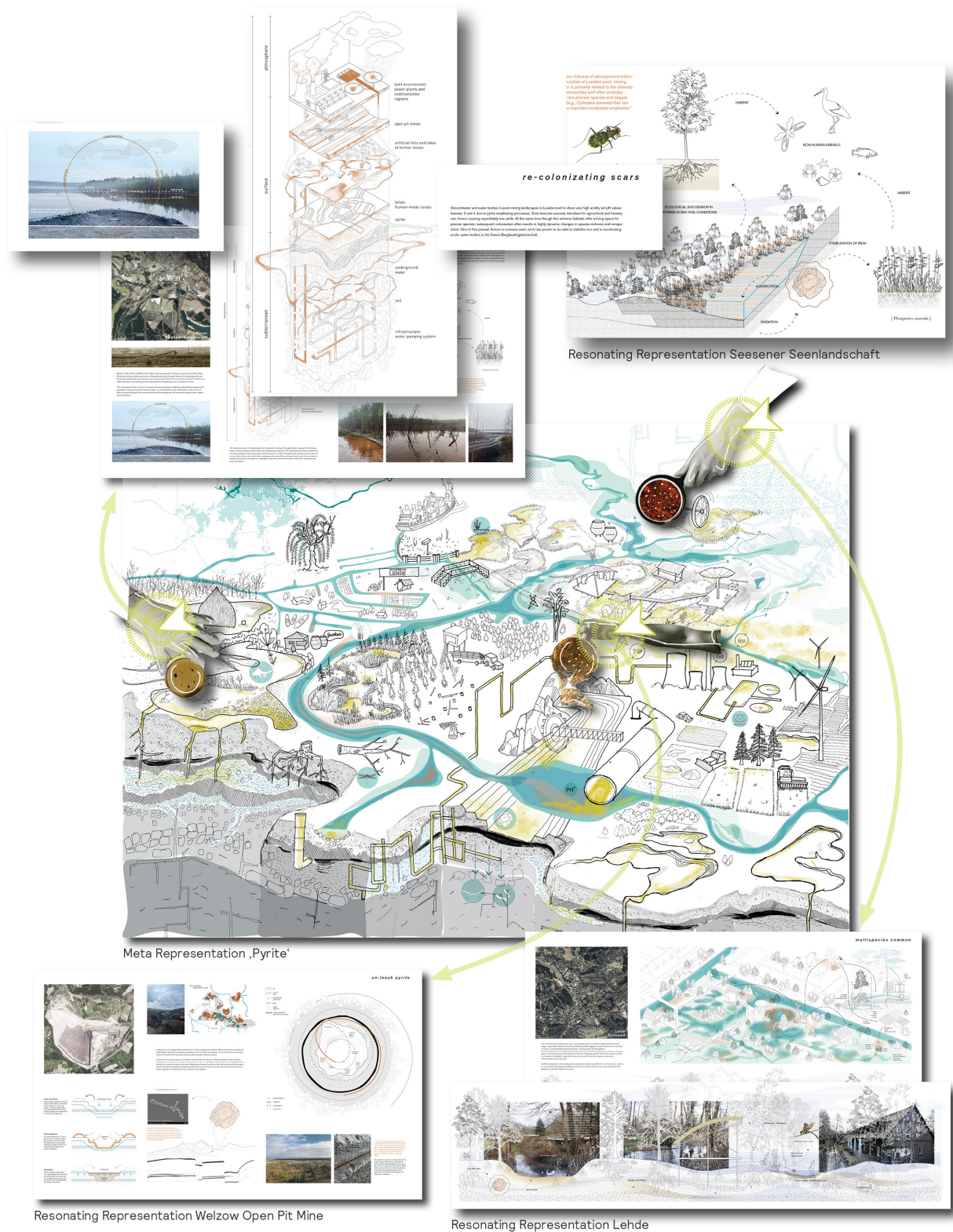


FIGURE 3 *Pyrite: a landscape of reciprocal capture.* Re-representation narrating pyrite-associated mattering processes, socio-materially situated in three landscapes: Welzow mine, Seesen open-pit lakes, and Lehde Spreewald canals. (Images by Erum Chauhan, Dilara Ucar & Jan van den Berge, 2024)

Recursive Design Approaches—Letting Designs Act in Mattering Processes

In the studio, re-representations enabled recursive design proposals—iterative movements between exploration and intervention development. Having examined design origins, we now consider why interventions’ (speculated) impacts must feed back into their originating representational elements.

The ‘Pyrite’ group’s re-representation shows designs not only emerging from but reciprocally affecting mattering processes. Three sites—Lehde, Welzow, and Seese (Fig. 3)—are united in the meta representation exploring iron ochre’s oxidation and ‘feral’ expansion as pyrite-wetness co-becomings. Resonating representations deepen each site’s processes, interweaving explorations, interventions, and their effects.

In Lehde, a more-than-human practices compendium proposes to capture pyrite in collectives, speculating on mattering process changes. Seese’s floating reed platforms dynamically interact with water levels, potentially capturing pyrite to improve aquatic ecosystems. Lehde’s intervention integrates reed-based practices into waterways and community spaces, creating more-than-human infrastructures merging ecological and social functions—deliberately acting across mattering process spheres. These designs leverage re-representations’ agency to recursively illuminate interventions and their speculated effects.

Integrating intervention impacts into re-representations facilitated ongoing interdisciplinary dialogue during—not after—the studio process. Documenting these exchanges could enrich re-representations. Future research should explore whether re-representations can accompany implemented designs, examining how processes might adapt to observed (measured/discussed) intervention impacts.



FIGURE 4 *Foraging fungi*. The re-representation is unveiling the circularity of wet-mattering processes of five mushroom species. It discusses how rituals of mushroom picking shape human-fungi-wetness relations and proposes interventions in space-time that intensify these interdependencies. (Images by Marianna Spindola Godoy & Gustavo Adrián Montemayor Magallanes, 2024)

Interweaving Situated Narratives

The pluralistic approaches of the studio projects were synthesized in an overarching re-representation by the 'Studio Narration' group, titled '*A Landscape of Patches and Threads*' (Fig. 5). This project examined whether crucial moments in deep time would emerge as decisive events for multiple studio-investigated actors. The group integrated the studio's epistemological and scientific strands, facilitating dialogue among the pluralistic approaches to mushrooms, pyrite, *Phytophthora*, mosses, and pumps within one meta landscape representation. Connections were unfolded through a non-linear, non-Euclidean spacetime landscape—a spiral exploring deep time, where phases of varying temporal depth engage in 'dialogue'.

The group identified key moments of interconnectedness on the deep time spiral. The initiation and cessation of coal extraction, associated groundwater pumping, construction of canals and pumps, and acidification of soils/waters emerged as significant mattering processes across all actors' exploration and design narratives. While past events were thoroughly elaborated, the speculative exploration of future imaginaries—particularly design-influenced futures—remained underdeveloped, representing rich potential for further investigation.

Contemporary spatial locations were deliberately rendered vague, prioritizing associative blurriness to challenge linear, consecutive understandings of events. This approach developed a socio-material narrative of meaningful encounters among diverse more-than-human exploration and design narratives.

As the studio's central re-representation, this narrative served as the landing page for *insidewetness.org*, enabling cross-connections among groups' space-time dependencies. The re-representation thus acquired agency to interweave processes non-linearly.

By embedding linkages at crucial spacetime moments/processes, each group's re-representations could be activated—teasing out actor-specific narrative threads, patches, and strands. The website further connected to interdisciplinary narratives of Lusatia's wetness through external project links. This web-based structure curated knowledge relationally (contrasting traditional linear formats like publications), preserving discontinuities and gaps. Exploring additional formats (e.g., exhibitions) within the re-representation framework could prove valuable.

This overarching approach emphasized dynamic actor-narrative interplay, enabling deeper engagement with landscape process complexities. It highlighted the importance of recognizing and articulating plural relationships, dependencies, and methodological approaches that shape design processes.

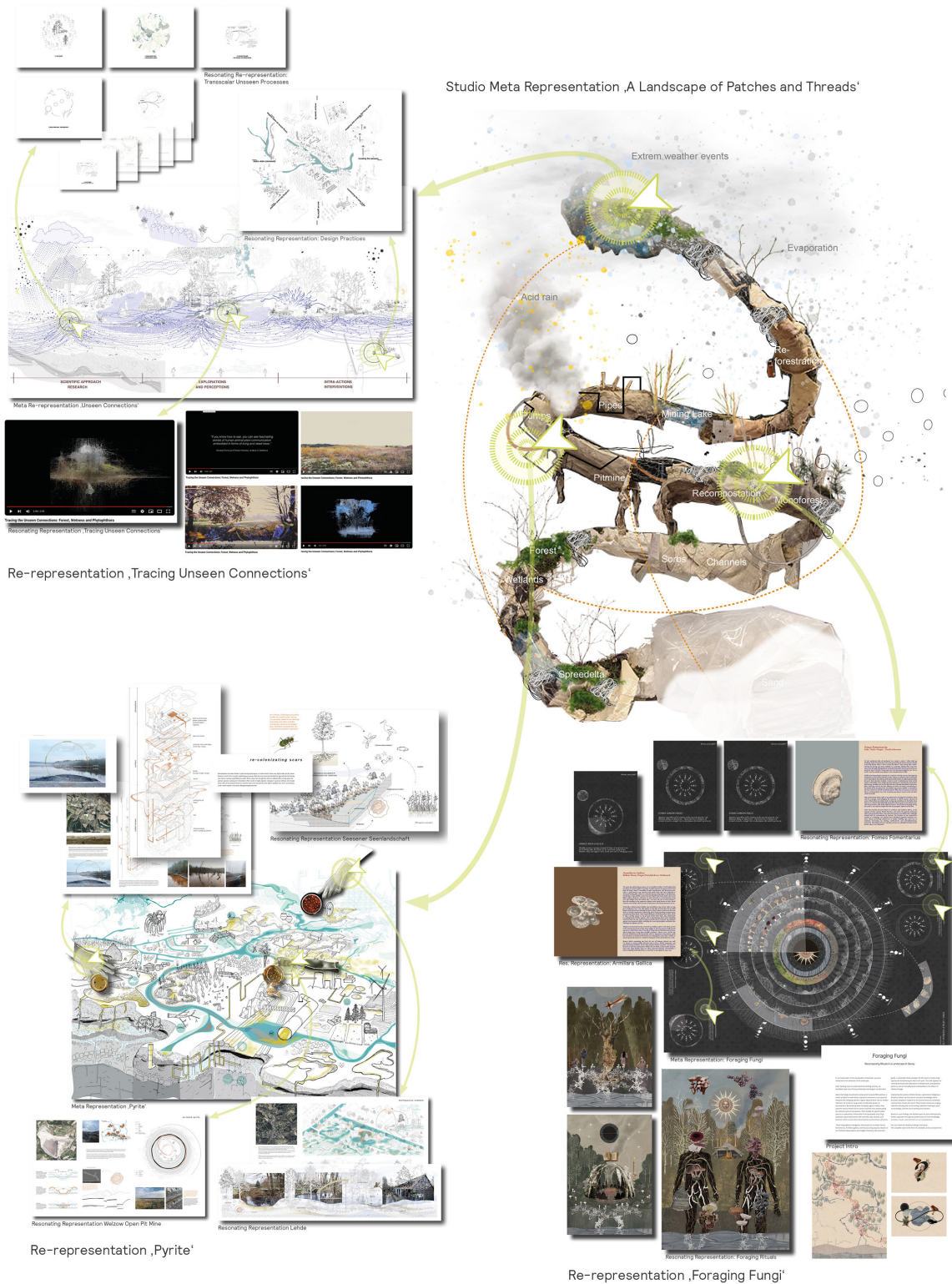


FIGURE 5 *A landscape of patches and threads.* Engendered as a space-time spiral, the studio re-representation cross-connects all projects. It reveals critical events in which many actors are affected, like the end of the ice age, the start of brown-coal mining, the fall of acid rain. Clickable buttons allow to explore the assemblages of the specific actors from here. (Images by Leoni Ina Layer & Johanna Schalm (Spiral), Jan van den Berge, Erum Chauhan, Öykü Dogru, Rodrigo Domingo Molina García, Marianna Spindola Godoy, Ada Karadogan, Gustavo Adrián Montemayor Magallanes & Dilara Ucar, 2024)

Reflection – Grounds for Further Design

Experiments with Re-representations

The following remarks reflect upon the key findings regarding the agencies and characteristics of re-representations in design processes, to illustrate how this article contributes to bridging the gap between theory and design in relation to more-than-human landscapes. Reflecting on the studio's experiments shows that re-representations can act as co-designers: they enable recursive design processes and kin-making with actors in design, having the agency to build up a narrative that interweaves exploration and design in mattering processes. This research suggests that re-representations have the agency to allow more-than-human actors to be guides in exploration–design. The starting grounds of the designs are revealed in the re-representing assemblage–condensings, gaps, and shifts in the inseparable spheres of matter, knowledge, and cultural practices. In response to the socio-material processes that are mattering in re-representations, the design interventions do not aim to 'fix' material processes, but rather to create situated possibilities of more-than-human becomings in times of rapid transformation—as in the case of Lusatia and the challenges of dealing with increasing drought and drier conditions.

In the studio's re-representations, design interventions mean provoking shifts in mattering processes and enabling the perception of these shifts. This occurs through the introduction of a variety of elements that act on the specific mattering processes—for example, physical structures, sensing elements, the triggering of manifold more-than-human practices, or the provision of communicative forms of representation, such as field guides, aimed at facilitating kinship with more-than-human actors. For Lusatia's wetnesses, this means contributing pluralistic imaginaries and possibilities of more-than-human futures—ones that challenge, and indeed break open, anthropocentric perspectives in order to address a situation of increasing dryness. However, more work needs to be done to examine whether re-representations could also form part of the implementation of design strategies—for instance, as an interactive method to enable more-than-human engagement and communication.

Whether constructed, derived from cultural practices, or enabled by sensing and measurement tools, re-representations integrate the more-than-human mattering effects of the intervention as part of the represented processes. Design becomes a situated and traceable intervention. In the studio, the recursive loops that weave the design's effects back into the mattering processes are only speculative alterations—still allowing potential effects to be discussed interdisciplinarily. Thus, clearly, there lies potential in re-representations to serve as a parallel, adaptive, investigative institution alongside interventional processes. Here, implemented designs could become mirrored in their observed (intended and unintended) effects—via measurement, sensing, ethnography, and so on—enabling continuous reflection and debate. This should be elaborated in a variety of settings.

Re-representations allow design narratives and processes to be highly situated—in socio-material processes, interdisciplinary knowledge, and ontological and epistemological frameworks. This happens through the narrations that build up in the re-representational assemblage—incorporating and referencing interdisciplinary discourse and bodies of theory. These links become visible and do not disappear under a smooth, supposedly neutral representation; instead, they render interventional statements approachable as subjects of discussion. It remains open to whom exactly the discourse is made accessible through the use of re-representations. What does become evident, however, is that design with re-representations is not the end of a process, nor does it provide 'solutions'. On the contrary, it initiates and enables exchange, and it encourages further, deeper, and more diverse interdisciplinary—and potentially transdisciplinary—exploratory design movements in mattering landscape processes.

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