P/REFERENCES OF DESIGN

TOWARDS INTERMEDIATE ZONES: ARTEFACTS OF THE UMWELT DESIGN APPROACH.

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ABSTRACT | This paper begins by recognising our environment as a more-than-human community that is temporally and spatially situated. Within this community, all living beings are acknowledged as unique individuals encountering a reality that is shaped by their predecessors. As humans, we are part of this community, and we can choose to insert ourselves in a caring manner – or not. Acknowledging contemporary spatial practices' shortcomings, the study introduces a design approach inspired by Uexküll's concept of Umwelt to engage with the more-than-human reality. The first aspect of the approach emphasizes that each individual forms their own reality and that engaging with the subjectiveness of that reality is a participatory act towards the more-than-human community. The second aspect introduces the concept of 'intermediate zones', speculative spaces of interaction and mutual influence between Umwelten. These 'intermediate zones' seek to decenter human-centred thinking and foreground the entangled nature of our shared reality. By extending Umwelt's concept, the approach fosters a framework for exercises that explore these ideas, tested through Living Labs. In the Living Labs, an increase in the participants' sensitivity towards the more-than-human community was observed. The constellation of exercises centred around Umwelt has underscored the design process as a journey of engaging-with, rather than adhering to the conventional approach of problem-solving. We believe that the designer's role undergoes a subtle yet significant evolution: transitioning from a problem solver to a curator of ritualistic practices that incorporate and propagate more-than-human perspectives.

1. A Temporally and Spatially Situated Community

In every now-moment (Bird Rose, 2012), we humans are embedded in a whole set of more-than-human relations without which we could not live. Our lives are constantly entangled and supported by a network of animals (Van Dooren, 2010; Meijer, 2019), plants (Gagliano et al., 2017), bacteria (Margulis, 1998), fungi (Tsing, 2015), viruses, and soils, by the weather (Ingold, 2007) – but also by machines, buildings, computers and other forms of technology (Wakkary, 2021). The environment we live in is a communal effort of all these individuals whose entangled activities form the currents that push the continuous unfolding of the world forward – the worlding of the world is always a becoming-with (Margulis, Sagan, 1986; Haraway, 2016; Tsing, 2015; Disalvo, Lukens, 2011).

This network does not just lie waiting to be used by us – it is not a resource instrumental to human progress. This entire network has its own influence and formative power – and it shapes us not only in an idealistic sense but also in a material sense. For example, as Donna Haraway points out, consider that only 10% of all cells in our body contain our own DNA. The other 90% of cells contain the DNA of bacteria, fungi, and protists with which we share our environment but have thus also become part of our existence in a literal, material sense.

In focusing on two types of relationships, sequential and synchronous, anthropologist Bird Rose (Bird Rose, 2012) understands this multispecies network as a real community, in the complete sense of the word, a community that has its own history, existing of a group of multispecies individuals interacting in the now-moment. For what forms us all, our customs, our institutions, our way of life, is precisely the convergence and interlocking of all these elements. And, of course, in this network, the human is today a dominant weaving force, but he does not do that, in a Heideggerian sense, 'from the outside'. Although we often fail to notice, humankind is fundamentally shaped by the more-than-human network in which it is entwined.

From such a point of view, another-than-human being, such as a crow, is actively building towards the future of its surroundings. By living his life, that crow is helping to shape the framework within which all other beings, including humans, will shape their lives now and in the future. The crow always does this as an individual – situated and shaped by a unique spatial and temporally situated more-than-human community. That crow, after all, inherits (van Dooren, 2014) at birth a reality that is already structured by his crow predecessors but equally by past generations of rats and humans, and his life depends on his ability to insert himself as well as possible and thus contribute to shaping the fabric in which he is always embedded. This is a historical, temporal and located task, not an eternal return of the now, as our cyclical understanding of nature might suggest. It is a task in which this specific crow must demonstrate his own responsiveness and creativity.

When we, therefore, engage a specific location – professionally or otherwise – we are thus always interacting with the location's existing multispecies community. Relational networks are constantly being built on and around a site and in interaction with the site. Even by being present, we become active participants within these processes, integrating ourselves into the existing fabric, accounting for shaping a future more-than-human community. We can choose to do this in a caring manner or not – not because we are unique beings with a choice, but just because we are, at this moment, the most dominant species.

2. How to Engage?

In contemporary design approaches, however, there is little attention or respect for the existing more-than-human community. Such a lack of attention usually does not necessarily stem from ill will, practical objections, or time pressure but from the failure to see our surroundings as the multispecies spatially and temporally situated community that it is. In his book Ways of Being Alive (Morizot, 2022), Morizot points to a sensitivity crisis as the result of an impoverishment of what we can feel, perceive, and understand. This crisis of sensitivity stems from various factors, including technological advancements, urbanisation, and

predominantly Western cultural attitudes that prioritise human-centric perspectives over ecological interconnectedness. In short, we have created a condition in which we no longer need to be attentive to other-than-human life to thrive and are stimulated to turn inwards. The sensitivities of our human perceptual apparatus are shifting from a physical and multispecies world towards a digital one. We must relearn the 'art of attentiveness' if we aim to preserve and redefine what relationships we are able to develop with other living beings.

Our ability to form connections is hindered not only by a lack of attentiveness but also by the distance we have created between ourselves and all other living beings. It is a consequence of the humanist tradition embodied by Descartes' Bête Machine and Cartesianism (Stengers, 2007; Debaise, 2017; Driessen, 2020), constructing a bifurcation between humankind and all other life that is still deeply embedded within Western culture. For example, the notorious German philosopher Heidegger (Heidegger, 1995) reaffirms this bifurcation in a lecture series (1930) by claiming the other-than-human world is 'poor-in-world' while man is 'world-building'. We, humans, are believed to be the only ones with a history and the ability to creatively engage that history to construct a future. All other living beings are claimed to lack history and openness towards the future as they are unable to surpass their genetically determined path. In other words, we have constructed our Western reality on the belief that hard boundaries exist between us and other species while "our strong sense of difference from any other life-form, our sense of species superiority is a delusion of grandeur" (Margulis, 1998). When questioning these boundaries, it predominantly happens from our human-centred perspective, often resulting in affirming what is questioned (de Waal, 2016; Bridle, 2022). Although posthumanist studies of the last 30 years have increasingly countered this bifurcation, we simply forgot how we could relate, or in Ingold's words, correspond, with life surrounding us. In our day-to-day lives, we fail to notice how both we and they go along together in the current time (Ingold, 2017). In his book 'Being a Beast', Foster explores how he relates to the fox in his London neighbourhood, a badger family in his beloved Wales and three other earthly companions by immersing himself in the lifeworld of these individuals. "I share much more with a fox than with a fundamentalist [from Alabama]. I've lived and I live with the fox in an embodied, sensual world of wood and earth and bone and semen and cold. We met and meet in a real place" (Foster, 2016). Foster's attempt to become those animals, live or feed like them, is an immersive act of his whole bodily and sensory self. It is a radical and impossible attempt, but in its seriousness, it beautifully foregrounds the understanding of the broader phenomenological tradition that our sensory engagement is a participatory act. A focus on one's own bodily and sensory reality simultaneously broadens one's awareness by reimmersing one in a more-than-human community. "Far from restricting my access to things and the world, the body is my very means of entering into relation with all things." (Abram, 1997)

A third challenge hindering us from seeing and approaching our surroundings as a more-than-human community is the complexity and uncertainty it brings and our inability to deal with that. Being attentive and open to an existing community implies letting go of certainty. We have to come to terms with the fact that we will never fully understand the vastness of relationships that form a specific community, nor will we ever truly be able to predict how our actions will affect it. To solve this ignorance, we instinctively exert as much control as possible over the future, using assessment guidelines, nature conservation principles and norms or masterplans to form as complete a picture as possible of the ideal community we want to realise. We constantly readjust reality to match these understandings and visions and hence fail to be attentive and listen. According to Tănăsescu, the only way forward is to accept ignorance not as something to solve but as constitutive and structural. "The centrality of ignorance amounts to a perpetual commitment to observation and study, to finding out exactly what the nature of our community is. Given, indeed, both chance and change, this is a never-ending task." (Tănăsescu, 2022). Response-ability (Haraway, 2016) is never-ending. Constitutive ignorance and vulnerability are wedded, and accepting ignorance foregrounds the vulnerability we must exert when truly engaged in being part of a more-than-human community (Puig de la Bellacasa, 2021). It is a matter of openness to change, to relationships and the fluctuating nature of these relationships, and an openness to the future while being responsive to the past. It is a commitment to making choices in our engagement with the more-than-human community. This is inevitably associated with a degree of failure and force: making choices means not making other choices, and certain things will be excluded from the future community. We must be aware of this necessary force (Ginn et al., 2014). Just

because it is necessary does not mean it is unproblematic. This realisation should prompt us to exercise a certain care: don't let your choices be too burdened by a desired ideal image, but work uninhibitedly with what is now presenting itself. It is a commitment to "take on the fraught work—never finished, never innocent—of weaving new stories out of this multiplicity: stories within stories that bring together the diversity of voices necessary to inhabit responsibly the rich patterns of interwoven inheritance that constitute our world". (Van Dooren, 2014)

3. From Umwelt to Subjective and Intermediate Realities

To address the challenges above, we have conducted multiple experiments over several years, together with art and design students, to develop an open design approach based on two distinctive ways of creatively and speculatively engaging with Jakob von Uexküll's concept of Umwelt (von Uexküll, 1934). This approach aims to generate artefacts that transcend an all-too-human representation of our shared, more-than-human environment and help us, in the process of the making, to engage our struggles in relation to the more-than-human community.

In the book 'A Stroll Through the Worlds of Animals and Men', biologist von Uexküll takes a "stroll into unfamiliar worlds" by imagining a bubble around a creature that "represents its own world, filled with perceptions it alone knows." (von Uexküll, 1934) From this perspective, we see the world as it appears to the creature, and within this world, coined by Uexküll as the animal's Umwelt, we are only interested in what is relevant to that specific animal. Uexküll uses the sea urchin as an example to map out its relation to the world. Sea urchins are sensitive to light and perceive a darkening of their environment as an incoming threat and respond by moving their spines to the perceived threat. However, the sea urchin would react similarly to any sudden darkening of their horizon – be it a ship sailing above it or a cloud temporarily blocking out the sun. Uexküll illustrates this example by juxtaposing two illustrations. The first image illustrates an underwater scene as we would perceive it: we recognise a boat, a fish and a cloud. To underscore that for a sea urchin, these differentiations do not matter but are merely experiences of moments of sudden darkness, the second image pictures the same underwater scene with blobs taking place of the (for humans) recognisable elements. This illustrates that whilst we share the same environment, we all perceive and thus interact differently. As concluded by Lee: "The perceptual apparatus of an organism is directly related to its agency within the perceptual world it inhabits." (Lee, 2018). In understanding the intimate connection between an individual's perceptual apparatus, its agency and its surroundings, we come to understand that each individual inhabits, engages and actively forms their own reality. (de Roo, Ganzevles, 2023)

We distil two key notions from Uexkull's concept of Umwelt that shape our design approach. We expand upon the concept of Umwelt, extending its application beyond its original scope with a degree of flexibility. We intentionally avoid the distinctions between plants and animals in light of ongoing discussions in plant phenomenology (Brenner et al., 2006; Struik et al., 2008) and the evolution of our anthropocentric views on sentience and intelligence (Bridle, 2022). We also believe it can be beneficial to dissolve the distinctions between the living and non-living altogether, adopting an animistic approach to our environment, as David Abram propagates and spiritual ecology. While we recognise that abiotic elements such as the wind do not possess an Umwelt, deliberately exploring such fabula can aid us in the pursuit to counter anthropocentric thinking and decenter our ways of seeing.

The first key notion is the construction of a highly personal world through a sensory engagement with what surrounds an individual. We advocate an experimental approach rooted in the inherent subjectiveness of any individual to be-in-the-world, to highlight and explore this. For this reason, we developed a set of exercises inspired by radical observation methodologies specifically focused on our own Umwelt and subjectivity. These exercises range from listening sessions to observational walks or palette collecting. By focusing on our own subjective experiences, bodily reality and sensoriality, we acknowledge the existence of our Umwelt and its relativity towards the multitude of other Umwelts. As our individual activities form areas of greater and lesser sensitivity, this focus redefines the sensitivities within our own Umwelt beyond

what we usually use. In retraining our senses to be attentive to the more-than-human world, we counter the 'sensitivity crisis' as identified by Morizot and relearn how observation is always a participatory act. (Ratcliffe, 2008)

We devised these exercises so they lead to the production of artefacts using graphical, textual and audio-visual means or other artistic expressions. These artefacts are intended to translate the qualities and reality of engaging a more-than-human world – surfacing the producer's perspective and creative reaction to their surroundings, the synaesthetic reality of a place and the impossibility of completely grasping or understanding it. As such, they communicate the visceral reality of engaging a place and its inhabitants, stimulating a response-able engagement with the more-than-human community within the broader group of stakeholders of the general design process.

A second key notion is the visual intermingling of Umwelts. The drawings in Uexküll's book, exemplifying the Umwelt of a sea urchin or a mollusc, are interpretations of the perceptual worlds of these animals, projected over how we would perceive that environment. These drawings do not aim to show reality but highlight different relevant perceptual cues within the environment for that other-than-human, transposed on how we perceive the environment. In creating these visual overlays, Uexküll unintentionally provides an intriguing pathway to explore as part of a more-than-human design approach (de Roo, Ganzevles, 2023), as there is an inherent quality in these in-between realities. We, therefore, developed a guide to develop these transpositions and leverage their qualities. Starting with an analysis of the other-than-human individual and a reading of the landscape from the individual's perspective, we work towards developing a speculated reality in between our subjective reality and the subjective reality of another-than-human individual. We call these in-betweens 'intermediate zones'. These 'intermediate zones' can take various forms, from written documents to graphical or audio-visual interpretations to site-specific interventions, provided that they encompass what makes tangible the perspective of another and immerse us in their Umwelt through our own. Following Shores' expansion of the Umwelt towards becoming-animal of Deleuze & Guattari, we propose that these 'intermediate zones' can also be realised in actually transforming our bodily reality towards the bodily reality of the other-than-human. Instead of taking on the identity of another creature, becoming-animal rather involves trying to draw near enough to it so that one enters into a "shared zone of proximity". (Shores, 2017)

The artistic quality and the speculative act of creating these 'intermediate zones, knowing full well that they will not – and can not – be a complete transposition or transformation, foreground structural ignorance and speculation as a tool to engage the more-than-human world. It is exactly this speculative character that brings out, in Forlano's words, the "imaginative and rigorous ability to defy the constraints of a typical design brief". (Forlano, 2016)

4. Living Lab

To empirically investigate the effects of our approach, we established two Living Labs over one academic year. Living labs refer to collaborative sessions built on a process of design research. The consequences of various design scenarios are actively discussed and evaluated (Lupp et al., 2021). These sessions aim to unlock knowledge, dialogue and co-creation processes, allowing iterative feedback loops. A derelict industrial marshalling yard was selected for testing as the contrast between the sites' harsh urbanised characteristic and the unintended non-human use foregrounds the existence of a more-than-human community in which we are no active participants.

Each Living Lab was a six-credit interdisciplinary course taught on-site once a week in 4-hours blocks. The second- and final-year bachelor students participating came from various academic backgrounds, ranging from art to design disciplines. The overall goal of the Living Labs was to test the developed exercises around the concept of Umwelt based on the students' retention of key concepts and realisation of a shift in sensitivities as designers towards multispecies communities through ongoing and end-of-course evaluations with an invited jury.

Students were asked to fill out a questionnaire to establish a baseline of their knowledge. Students were asked to use a notebook to document their thoughts, ideas and experiments throughout the course. We emphasised the production of artefacts through various exercises to move the research forward. The exercises forming the design approach aim to stimulate students' sensitivity towards the more-than-human community, encourage them to integrate themselves within that community, and propose design interventions exemplifying and communicating their relationship with the more-than-human community. A selection of exercises is detailed below.

The first two weeks introduced key concepts in posthumanist discourse and let students get acquainted with the site. We invited species experts to uncover traces left behind by other-than-human actors and to expand students' knowledge of the site. Under their guidance, students first-handedly experienced the impoverishment of their sensory sensitivities compared to the abilities of our experts to, for instance, detect the smell of a fox.

By introducing exercises in the form of non-human persona cards (Tomitsch et al., 2021) and species passports (Weisser, 2019), students were stimulated to expand their knowledge of the actors on the site.

In the subsequent four weeks, students were given exercises to explore the site and attune to it from the perspective of their own Umwelt – referencing the first key quality we identified in von Uexküll's theory. These exercises consisted of observation exercises (Bodily Observations, EX1) in various forms, focussing on our senses as well as the site. They help students discover the subjectivity and sensitivity of their senses and introduce observation as a participatory act. Senses enable interaction, bind the individual to material reality, and help to stay with the trouble. As such, cultivating our senses becomes an ethical act of more-than-human acknowledgement.

Through the exercise of palette collecting (Palette Collecting, EX2), students were challenged to collect objects or observations on site. Collecting, following an intuited pattern, frees us from our expectations and enables us to form new subjective perspectives and understandings. Moreover, ideating patterns in the collections activate long-term memory as our personal history informs the patterns we see and develop. Rearranging the found elements gives them meaning. This stone is no longer just a stone; it's a stone that stands in relation to other elements because, by collecting it, you introduce these relations. It is a way to acquire and express identity together with a location, eventually strengthening your situatedness in the physical world. Collecting is a creative engagement weaving your story through the landscape, resulting in a landscape that is fully alive and active.

A third exercise meant to develop a sensitivity towards the derelict marshalling yard was observing one specific actor (One Actor Observation, EX3). Daily, we encounter other-than-humans but often rely on our preconceived notions to 'classify' and move on. For instance, we roughly know how a feral pigeon looks and how it acts and are therefore less attentive to that specific pigeon in that environment. The observant transforms from an alien and accidental observer to an immersed individual, transforming the relationship we have with the environment to which that individual belongs.
In the next four-week period, we introduced other exercises that relate to the idea of 'intermediate zones' that we drew from the second key quality we described in von Uexküll's conceptualisation of Umwelt.

An introductory exercise was Multispecies Storyboarding (Multispecies Storyboarding, EX4). Drawing from the practice of storyboarding in HCI and design (Truong et al. 2006), this exercise revolves around understanding how actors interact with a spatial object. The goal of this tool is to acquire a better understanding of the importance and appearance of the object within different Umwelten by retelling a narrative from different perspectives. Where humans approach an object from their perspective, experiences and viewpoint of utility, other-than-human actors can dedicate a completely different meaning or utility to that same object. For instance, where humans might view a shed primarily as a storage space, other-than-humans, such as crows, see the structure as a safe place to land and observe their surroundings. By identifying the role of the object for multispecies interactions, a layered understanding is built around this object, where various Umwelten overlap – informing the creation of 'intermediate zones'.

In this exercise, it is possible to understand how abiotic elements interact with the object, for example, how the course of wind changes due to the shed, leading to ripples into other Umwelten. These insights can then inform speculations about potential acts of care that could influence existing relationships or pinpoint moments in each individual's timeline that hold promise for connection.

In 'Appropriating Non-Human Form' (Appropriating Non-Human Form, EX5), we speculatively explore becoming another-than-human being as a creative and liberating way to bind the bodily self to the bodily reality of the other-than-human individual, eventually resulting in an 'intermediate zone' in which possible entanglements can be ideated. "The ways in which, inevitably, I perceive and describe a badger's scent world involve things that have no representative at all in the badger's own world. They are purely human artifice (...) I can't know what the immediate burst of a dog's mercury scent does in a badger's brain, but does it really matter?" (Foster, 2016) A gap between you and the other will always exist, but by taking on other-than-human forms, we inch closer to each other by creating an 'intermediate zone'. In changing our morphology and sensory capacities through the use and development of sensory-shifting tools and prosthetics, we are able to perceive the world more like other-than-human beings. In focusing on the meanings these perceptions have and the effects they generate in us and the other-than-human individual, we can give meaning to that 'intermediate zone'. In these attempts, we do not aim to replicate an experience or become that being altogether; we strive to creatively extrapolate that experience into a mediation, a space for new meaning and relationships to emerge.

We can employ technological tools that extend our senses to aid these exercises. Incorporating existing and emerging technologies allows us to decenter our human perspective temporarily. For instance, we understand our site differently by using night vision cameras and thermal optics. Using LiDAR technology, we can inch closer to understanding how a bat might perceive the environment. Furthermore, the emerging field of generative AI opens up a vast array of possibilities for sensing, decoding and visualising these intermediate zones.

The final exercise provided to the students was to explore entangling Umwelten (Entangling Umwelten, EX6). Building on desk research captured in the species passports and non-human personas and by comparing the sensitivities inherent in our senses with those of other-than-human actors, infused with the learnings from the previous exercises EX4-5, we can speculate on the different perceptions of a specific context. These speculations should not only account for the primary functions of the senses (i.e. locating food, finding kin) but should also consider how the anatomical structure of the individual might influence the possible sensitivities of the senses.

This speculative exploration requires rendering intermediate zones visually as the designer has to mediate between representing their own Umwelt and questioning how to represent the Umwelts of their chosen actors. This speculated entanglement provokes opportunities to consider "numerous overlapping worlds in which many kinds of things and many ways of seeing and being are possible" (Bridle, 2022). This comparative analysis aims to illuminate potential conflicts and opportunities within our co-existing effect-worlds, offering a deeper understanding of our shared environment from multiple perspectives.

5. Reflections

By incorporating the concept of Umwelt into our exercises, we have anchored our design approach in Art Science – a hybrid practice where artistic production and methodologies are fused with scientific research and principles. This hybridity is crucial as speculative 'intermediate zones' can only effectively contribute to decentering the design discourse when deeply rooted in biological realities. This grounding ensures that these speculative environments are not only imaginative but also resonate with current scientific understandings of the more-than-human world, thereby enriching the exploration in this field. This groundedness is achieved by drafting lifecycles or species passports and collaborating with biologists, trackers or nature conservationists. At the same time, this approach ensures ecological professionals' involvement and remaining interest, evidenced in both Living Labs. Concurrently, the development of

‘intermediate zones’ for decentering the human crucially hinges on the experiential component, as underscored by DiSalvo and Lukens (DiSalvo, Lukens, 2011). This aspect is vital in ensuring that these zones not only conceptually but also tangibly shift perspectives away from a human-centric view, fostering a more immersive and engaging experience that resonates with and challenges the audience.

While the group of exercises strikes a balance between speculation and grounded research, individual exercises often lean more heavily toward one specific aspect. Allowing participants the freedom to choose their path through the exercises opens up opportunities for exploration and personal engagement with the material. However, we noticed the students tended to gloss over the science/research-oriented exercises and relied on preconceived ideas and simple anthropomorphisms to tackle the speculative parts of the design approach. This was more pronounced in the projects of art students. This could be correlated to art studies, generally having a less focused scientific groundedness. One project focused on feral pigeons and, following detailed observations developed a headmount for humans to see the world as a pigeon. In this case, the project did not dive deep enough into the different senses of a feral pigeon in relation to its life cycle and day-to-day survival to realise an ‘intermediate zone’. Another student created an Instagram page to share insights on the speculated emotional condition of the wind, yet overlooked researching fundamental meteorological phenomena driving local wind patterns, like thermal shifts from differences in paving materials. Therefore, this exploration felt flat as it couldn’t be effectively linked to the site’s materiality and was disregarded further in the process.

While we support tailoring the design approach to an individual’s project – with room to introduce or exclude exercises as seen fit – the aforementioned observations highlight the importance of engaging with exercises that significantly differ from one’s own expertise. Neglecting this leads to an unbalanced approach that hinders the exploration of ‘intermediate zones’. Following other design approaches, we strongly advocate for an iterative process, as the knowledge developed in each step can strengthen or steer preceding exercises in new directions.

During the two Living Labs, the students started to pose critical questions as they developed an increasing sense of curiosity and wonder. “Why do we attribute so little value to what already exists?” “Why has the publicly accessible part of the site been cleared of spontaneous scrub vegetation?” Many students were emotionally shaken when a bulldozer came and eradicated most of the existing life to establish a temporary parking lot. This common practice does not normally elicit the same strong emotional response or feelings of grief. The zones on the site, still awaiting ‘clearing’, slowly drew the students’ attention, as these zones felt like the more-than-human community could still further develop – that there is a starting point to build relationships.

Considering the short time frame of the Living Labs as well as the beyond-human scale of the site, students could never become experts of the site and its more-than-human community. Despite that, students did manage to develop a sensitivity towards the existing community. In one project, a student connected his family history to the researched history of the Italian poplar trees on site. As a landscape architect, he abstained from drafting an architectural plan for the end-of-course evaluation. Instead, he developed several proposals, some of which consolidated his bond to the poplar trees, aimed at fostering the flourishing of the trees, notwithstanding the substantial and forthcoming transformations of the site.

Students indicated several reasons as to why their sensitivity grew throughout the Living Lab. Some referred to specific exercises as pivotal moments, and other students highlighted the encounters these exercises triggered. Others simply referred to immersing themselves in the more-than-human community by spending 30+ hours on-site thinking about that topic. Throughout the 10 weeks, the concept of a more-than-human community took root in the students' minds, leading us to argue that the design approach laid the foundations to become a reponse-able actor within that community.

The growing sensitivity to the topic made some students question conceptualising physical interventions on-site for the end-of-course evaluations. They posed that it contradicted the ideological objective of the assignment, where inscribing ourselves in the more-than-human community meant not yet again to

produce something. “We already make too much; can’t we just not make anything?” Following this enquiry, some students focused on the observational exercises - developing artefacts that foregrounded their personal encounters with the site. This led to interesting discussions, linking the critique with the idea that humans are somehow always an ecologically destructive species (Tănăsescu, 2022), that human actions are somehow unnatural (Vogel, 2011), or the perception that the thriving of a more-than-human community does not involve some sort of violence.

> “Flourishing always involves a constitutive violence; flourishing does not imply an ‘anything goes’ free-for-all but requires that some collectives prosper at the expense of others. This perspective requires us to see non-humans not always as victims nor humans as perpetrators. Rather, flourishing involves many species knotted together, often imbricated in human landscapes or economy, working with and against other multispecies assemblies.” (Ginn et al., 2014)

These debates led us to question the design process in the context of response-able engaging a more-than-human community. Do we keep understanding design as a process working towards some sort of pivotal interventionist moment to solve a problem, or should we understand the moment we enter the site as the start of the intervention? How can we even speak about a pre-intervention stage in this post-anthropocentric world? The learning process to engage a more-than-human community becomes the intervention to “increase the affordance of the built environment to life and to expanded forms of cohabitation”. (Leveratto, 2024)

The accumulation of artefacts gathered in the provided notebooks was crucial for initiating and conveying this transformation, as it reflected the students' efforts to interact with and respond to the existing affordance of other-than-human individuals. Our understanding of the artefacts developed further during the Living Labs, particularly as some students engaged in performative acts, dug holes or cultivated plants from cuttings. Others pursued more expected creative endeavours ranging from drawings and sketches to audiovisual works. Expanding on our notion of artefacts, we regarded all these pursuits as results of the process of engaging with the more-than-human. Thus, we experienced how design in the more-than-human reality mirrors the practice of gardening (Cléments, 2015), slowly attuning the self and the community to each other through incremental acts. Each act is an opening up to that community, to remain attentive and to acknowledge we are learning to find our place precisely because we will always be unable to know exactly what that means.

Through interactions with the more-than-human community, the role of the designer transitions from external entity with a defined objective to an active participant within that community, and ideally, its advocate—capable of voicing concerns beyond human-centric ones and navigating the intricacies of the multispecies interactions amid spatial transformations.

6. Conclusion

This paper begins by recognising our environment as a more-than-human, temporally and spatially situated community. Within this community, all living beings are acknowledged as unique individuals encountering a reality shaped by their predecessors. The ability of an individual to survive and thrive within that community depends on their ability to insert themselves and shape the fabric in which one is found. This is a responsive and creative act. As humans, we are part of this community, and we can choose to insert ourselves in a caring manner – or not. Contemporary spatial practices indicate our struggle: we often fail to recognise our place within this community, to see ourselves as equals within this community, or struggle to engage with the structural ignorance that comes with this.

To address these challenges, we developed a design approach based on two distinctive ways of creatively and speculatively engaging with Uexküll’s concept of Umwelt. The first aspect of our approach emphasises that each individual forms their own reality and that engaging with the subjectiveness of that reality is a

participatory act towards the more-than-human community. The second aspect introduces the concept of 'intermediate zones', speculative spaces of interaction and mutual influence between Umwelten. These 'intermediate zones' seek to decenter human-centred thinking and foreground the entangled nature of our shared reality. Through these lenses, we interpret the concept of Umwelt beyond its original scope, offering a framework for exercises that directly or indirectly relate to these key features. The effectiveness of this approach has been tested through Living Labs, providing insights on the exercises and the overarching shift in sensitivity towards the more-than-human world.

In the Living Labs, we observed an increase in the participants' sensitivity towards the more-than-human community. Not only in acknowledging the existence of that community but also in recognising our non-central or relative position within it. While it is premature to conclude that this heightened sensitivity translates into a lasting, productive force in the subsequent design attitude (given the limited scope of the living labs), our use of Umwelt as a red thread throughout the various exercises has contributed to an increased awareness of the 'intermediate zones' where designers operate.

Moreover, the constellation of exercises centred around Umwelt has underscored the design process as a journey of engaging-with, resembling the nurturing practices seen in gardening, rather than adhering to the conventional problem-solving approach. In this context, we believe that the designer's role undergoes a subtle yet significant evolution: transitioning from a problem solver to a curator of ritualistic practices that incorporate and propagate more-than-human perspectives.

Further research is required to evaluate the implications of this evolving role of the designer on concrete design proposals and to understand its applicability in a context where other challenges and limitations are at play. However, our findings suggest a promising avenue for redefining the designer's role in an entangled, multispecies reality. This role emphasises the importance of continuous, sensitive engagement with our environment, in which design is seen as a collaborative and caring act that accounts for the innumerable voices of the more-than-human world.

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