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Designing with more-than-human temporalities

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Abstract: Time is a crucial element in design, and even more so when it comes to designing for sustainability. Many designers approach sustainability from a problem-solving perspective, according to which time is linear (and therefore quantifiable) and the future is predictable (and therefore designable). Designerly time appears quintessentially modern and human. A welcome antidote can be found in more-than-human design perspectives, where a multitude of actants and agencies and their appropriate temporalities are given consideration and space. In this paper we add to such approaches by exploring in practice two ways to engage with more-than-human temporalities: *noticing* and *care*. We illustrate how these approaches may give way to new design practices by discussing the conceptualization and construction of a music festival stage in France. We argue that such design practices integrate ecological care into the design process by attuning the designer to the different scales and rhythms of ecosystems and their more-than-human members.

Keywords: Time; more-than-human; noticing; care

1. Introduction

The precarious future marked by climate change and ecological collapse is the backdrop against which we must consider the role of design in the world. Many have begun to question its implication in the profit-centered corporate systems of production at the root of the environmental crisis (Irwin, 2015; Escobar, 2011; Walker, 2006; Wahl, 2016; Fry, 1998). While climate change has become a de-facto concern for designers, many approach sustainability as a complex problem that could be solved by merely switching to electric cars or to recycled plastic, for instance (Bendor, 2018). While logical, these technology-centric approaches do little to question the relationship between humans and the environment. They overly simplify the problem to that of "measurable or quantifiable data…[which] leads to abstraction in relation to the everyday life of most people, only to be left with the hope that the newest technology (always in the future) will 'solve' those issues" (Avila, 2022, p.36). However, history shows us that technology always has unintended and unpredictable consequences (Fry, 1998; Verbeek, 2016). Extraction, waste, toxicity, environmental degradation –

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all seem endemic to globalized industrial production, inescapable results of the modern drive for progress. These externalities demonstrate the fallacy that technological innovation – switching one energy source to another, or one material to another – will alone improve the situation. Problematically, modern culture is geared towards a narrow anthropocentric framing of progress (financial growth, convenience), while ignoring the delicate interconnections and interdependencies between human culture and the living, life-supporting capacity of ecosystems.

More-than-human design (MtHD) begins to reckon with the anthropocentrism typically underlying modern design practices. Invariably, as the industrial design profession co-evolved with mechanization, its roots are intertwined with the extractive and exploitative nature of industrial production and capitalism (Papanek, 1971). But promisingly, as sustainability concerns have gone mainstream, design researchers have taken up the task of reorienting design towards practices that value all life, "searching for alternative design approaches to support the wellbeing of the entire planet without necessarily prioritizing one species over others" (Coskun et. Al., 2022, p.1). At the core of MtHD is an appreciation of the complex interconnection of technological, social, and ecological systems, which has blurred the distinction between 'human', 'nature', and 'technology' (Braidotti, 2013; Harraway, 2016). Moving away from closed-systems with clear teleology, emphasis is placed instead on the relational nature of design through concepts such as actor-networks (Latour, 1992), assemblages (Tsing, 2015), or string figures (Harraway, 2016). In this switch, agency becomes distributed in both things and other species, thus questioning the designer's ability to independently define or control the outcome of any design (Kuijer and Giaccardi, 2018; Coulton, 2019; Wakkary, 2021). Thus, the future emerges unpredictably from unfolding relations between actors– ecosystems, water, weather, landscapes, climate, for instance (Cielemecka, 2019; Fry 2009). The question then becomes which actors does design bring together, and who, or what, is prioritized? How, with all this complexity, can we work towards a desirable and livable future for the many? By challenging the human-centered dominion over the planet, "practices that enable the perception of new registers for cohabitation, [and] renewed aesthetic standards to perceive the hostility of the retraction of life" might be developed (Avila, 2022). Importantly, only in acknowledging the agency of other things in co-constituting designed outcomes, we can begin to design with a greater humility, caution, and care for all life.

As we will explore in this paper, the way designers conceptualize time is an important ingredient to reframe design within ecology, and not outside of it. The distributed understanding of agency in a complex and interconnected world of collapsing ecologies and emerging technologies necessitates a different perspective of time than the modern one – acknowledging multiplicity, temporal coordination, contingency, and emergence. Specifically, we criticize the modern, Western productivist view of time as linear, constant, quantified, and tied to notions of progress (Kumar, 1978; Mumford, 1963). Such a conception of time does little to

acknowledge the temporal differences that exist across places, peoples, and ecosystems. Importantly, ecological relations require taking different timescales into account (Bird Rose, 2012).

Following an analysis of the problematic aspects of modern technoscientific time, this paper contributes to the ongoing discourse around more-than-human temporalities, by exploring how such temporalities can prompt design practices that are ecologically situated, sensitive to other beings, relational, and regenerative. We do this by exploring two concepts – noticing and care – that can be helpful temporal tools for designers.

We then test these concepts in practice, exploring what they mean for designing. To do so, we describe and analyze the design and construction of an experimental stage for a music festival. The festival was situated in a forested valley, a permanent home for a diversity of species, and a temporary gathering place for humans. As we will show, noticing local temporalities and making time for care in design can shift our approach to enacting changes in the material world, towards a more humble and symbiotic co-habitation within ecosystems.

2. Temporalities in design

2.1 Modern time

Mainstream design is steeped in the rationalism of science and technology. From the enlightenment onwards, scientific developments were embodied in technologies of increasing complexity and might. This went together with an instrumentalization of the environment for human purposes. Narrowly framing problems in terms of their individuated mechanical principles meant that designers could systematically optimize tech for greater speed, efficiency, and output while failing to see the delicate interconnectedness of social and natural phenomena (Banham, 1980). Now, this combination of thinking-and-doing (design and production) has manifested itself in a planet completely under the influence of humans and increasingly under strain.

With a mechanized view of the world (Dijksterhuis, 1961) emerged the modern conception of time (modern time): linear, quantifiable, accelerating with technological progress. Following the industrial revolution, the time to travel from A to B shrunk with the steam engine; the time to work no longer depended on daylight; the time for crops to grow no longer depended on natural growth and nutrient cycles of plants and animals. Everything could be shortened, increased, or sped up, and time became something to be optimized, controlled (Mumford, 1932; Odell, 2023). Clocks were useful to organize labor, structuring society around regimented work hours (ibid). Manufacturing processes were designed to optimize productivity at the expense of worker skilling and self-actualization (Marx, 1906). Just as at work productivity goals became pervasive, reducing the time to produce an output, in domestic life this productive drive pervaded our sense of time – think of short but effective workout videos, side hustles, packing everything into the best possible vacation. Modern life paced to a hurried, productive, daily grind, feels strange against the precarious temporal backdrop of the 'end of history', the sixth extinction, the Anthropocene.

Sociologist Barbara Adam's work extensively critiques the relationship between modern time and environmental damage, and the fallacy of approaching sustainability from this temporal perspective. She writes:

> "Our understanding of the temporal dimension of socio-environmental life is pretty much exhausted with knowledge about the time of calendars and clocks, … intimately tied to the conceptual principles of Newtonian physics and the linear perspective, which encompass within their knowledge frame assumptions about linear causality on the one hand and reversibility on the other, as well as abstraction, rationalisation and objectivity" (Adam, 2005, p.8).

Problematically, a universal, abstract, notion of time fails to reckon with the multiple local temporalities of functioning ecosystems, and the latent, emergent, and unpredictable effects of technologies on those ecosystems. In this sense, time plays a role in abstracting design practice from environmental reality. Functioning ecosystems and geosystems work at differing timescales – think pollinators, soil fertility, or aquifers. Since designing is about the future, if we imagine this future through a productivist anthropocentric virtualization (clock time, predictions, problem-solving) we risk attempting to control ecology as opposed to fitting within it, caring for it, and co-existing. Futures become reduced to one future.

2.2 More-than-human time

If modern time goes hand in hand with industrial society and its domination over the living-web, what other approaches could work differently? Before the clock, time was largely associated with natural cycles and embodied experiences. As anthropologist David Abram observes:

> "To indigenous, oral cultures, the ceaseless flux that we call 'time' is overwhelmingly cyclical in character. The senses of an oral people are still attuned to the land around them, still conversant with the expressive speech of the winds and the forest birds, still participant with the sensuous cosmos. Time, in such a world, is not separable from the circular life of the sun and the moon, from the cycling of the seasons, the death and rebirth of the animals—from the eternal return of the greening earth" (Abram, 1997, p.112).

From the Pintupi tribesmen of Australia to the Apache and Sioux Nations of North America, time was connected with place, attuned to the seasons, plants, animals. Interestingly, this local, cyclical, sensorial time brings with it a different perspective of agency. While modern time situates agency squarely in the hands of the human, pre-modern cultures tend to have a much more distributed notion of agency, where different creatures, important places, weather, the sun, were all understood as having a role in creating the future alongside humans (Bastian, 2009).

In its reaction against the anthropocentrism of modernity, more-than-human approaches have begun to consider the importance of other temporalities, more closely resembling the cyclical, local and situated ones of pre-modern societies. We see this temporal turn beginning within Human Computer Interaction (HCI), responding to the accelerating deployment of digital systems and their social effect on users fractured routines, attention and mental

wellbeing (Odom et. al, 2012; Cheng et. al., 2011; Lindley, 2015; Pschetz; 2013;). Taking a more general perspective on the relation between time and design, Pschetz et al. (2018) propose *Temporal Design* to look at time as a plurality, "emerging out of relations between cultural, social, economic and political forces", with the goal of helping designers to enable more inclusive ways to understand time. Design-researchers have been exploring these temporal relationships through a variety of artefacts, such as a habitat for silkworms that generates ambient music (Iketa et. Al, 2023), a slow computer that incorporates algae into its computation (Iketa & Barati, 2023), or a cyano-chromic interface that "overcomes" the "temporal dissonance" between humans and micro-organisms (Zhou et. Al, 2023). The scope of these projects takes non-humans as mono-species, abstracted, lab-ready, confined to a vessel or dish or tank, and relates to them through "relatively short-term interactions, delimited to situations of use or specific devices" (Rahm-Skågeby & Rahm, 2022). Here, we contribute to the discourse by a) acknowledging ecology and its temporalities as a complex and interconnected web; b) refusing to mediate human-ecological relations with a layer of digital technology for the sake of "innovation!"; and c) trying to apply these concepts to a real-world project, thus considering how they might influence production on a larger scale.

We are inspired by recent work on MtHD and temporality which more substantially addresses the unfolding ecological crisis by acknowledging the importance of temporalities to functioning ecosystems, as well as the longer timeframes from which we must situate the Anthropocene (Rapp et. Al, 2022). What we see here is a shift away from a plural but human-centric understanding of time as a cultural construction, instead seeing time as something that is also experienced, embodied, or lived by non-humans. It calls on designers to begin to pay attention to our ecological surroundings (Light et. al, 2017); to consider relations and interdependencies with non-humans that might bring renewed ethics and solidarity with the living world more broadly. This requires placing an importance on materiality, situating each design action within the wider more-than-human web, challenging designers to ask what traces will persist into the near and distant future. This "includes acknowledging that humans are inseparable from other planet-shaping powers", meaning attention must be placed on the relation between design activities – i.e. production – and the geological and ecological rhythms of a stable planet (Rahm-Skågeby & Rahm, 2022).

As more-than-human time is multifaceted and locally contingent, how can designers incorporate this into real-world design projects? In the subsequent section, we outline two concepts that are useful to explore more-than-human temporalities, which, importantly, exist outside of the frames and rhythms of industrial society, and thus challenge the hegemonic perspective of time as linear, quantified, commodified, and progressive.

2.3 Concept 1: Noticing

The first concept we will explore is *noticing*. To notice is to become aware, to pay special attention, to register, to treat something as worthy of recognition. Here, we draw from the work of Anna Tsing (2015; 2017), where noticing is a way to recognize the interconnections between social, political, cultural, and environmental systems. Noticing as a research tool

undermines the totalizing narratives of capitalism, searching instead for specific situated instances of collaboration and diversity. We also build from the work of Rosen et. al (2022), who focus on the "situated experience of noticing, and in particular how it moves attention from the experience of self to the experience of oneself as part of the environment".

Noticing in the context of design urges designers to work towards projects that draw attention to both the beauty of the more-than-human world, *and* the pain that human activities are causing (Light et. al., 2017). Several researchers have explored how digital technologies might enhance our ability to notice: interactive gloves for mushroom foraging that can sense moisture (Liu et. al, 2018), or different sensing technologies in the context of gardening (Rosen et al., 2022). But we question the literal translation of noticing to digital implements that create legible data for humans: are we not failing to notice how the production of these technologies is damaging somewhere else? Noticing as an ontological tool, situating design and its material impacts within the wider ecological space, is perhaps a more valid approach to reorient design in general – to reconsider how we produce things to meet our needs. In short, noticing is a way of being in the world. To translate this to design, a perspective on its materiality is key, where decentering the human designer begins by "noticing, reading and appreciating the material's life history prior to and extending beyond the design moment without framing it solely in terms of its value to humans" (Dew and Rosner, 2018, p.9). We stress here that the material impact of design *must* be acknowledged.

Importantly, noticing is a way to challenge the frame of modern time: "Each living thing remakes the world through seasonal pulses of growth, lifetime reproductive patterns, and geographies of expansion. Within a given species, too, there are multiple time-making projects, as organisms enlist each other and coordinate in making landscapes." (Tsing, 2015, p.21). What we suggest is that *noticing* the more-than-human temporalities and rhythms that are intertwined in and through the design process can shed light on those parts of design which might exist outside of the drive for productivity. Understanding whose time is prioritized can be useful to notice the exploitation or commodification of some for the benefit of others. As a design becomes manifest in the form of a material artifact, new relations emerge through reconfigurations of matter. For instance, a wooden bench might connect an oak tree, a lumberjack, an owl, a trucker, a sawmill, a carpenter: a network of actors all with distinct tempos. How do their temporalities relate to one another? In what Tsing refers to as polyphony, does one rhythm make space for another, creating an overarching musicality, or is drowned out by the monotone of human production and progress?

2.4 Concept 2: Care

The second concept we will explore is care. Joan Tronto defines care as "everything that we do to maintain, continue, and repair 'our world' so that we can live in it as well as possible. That world includes our bodies, our selves, and our environment, all of which we seek to interweave in a complex, life-sustaining web" (Tronto 1993, p. 103). The lack of care in modern neoliberal society has led to what The Care Collective (2020) decries as a "crisis of care". A focus on individuality, personal well-being, and self-improvement has eroded social and

communal relations, with people less able to care or be cared for (Place, 2022). Care is intrinsically relational and reciprocal, as it moves beyond empathy alone, to an active engagement in providing for someone or something (Key et. al, 2022).

In *Matters of Care* (2017), Maria Puig de la Bellacasa considers care in a more-than-human context. For her, care implies a relational ontology, beginning with an acknowledgement that every living being gives and receives care in some capacity. At a most basic level, entities are entangled with one another, and the benefit of one can be the benefit of another. For example, she discusses how soil ecology research has begun to view "soil communities" as living entities, composed of organic matter and minerals, but also a diversity of organisms. Bellacasa suggests that including humans as part of soil communities opens space for human-soil relations structured around care, where "the carer also depends on soil's capacity to 'take care' of a number of processes that are vital to more than her existence" (ibid, p.192). Here, care "brings us to thinking from the perspective of the maintenance of a many-sided web of relations involved in the very possibility of ecosystem services rather than only of benefit to humans" (ibid, p.188).

Importantly, she shows how this means tuning into the different temporal rhythms of that being cared for:

> "By exploring this elusive but important feature of the doings of care – that is, the recalcitrance of the temporality of care to the productionist rhythms - care time entails 'making time' to get involved with a diversity of timelines that make the web of more-than-human agencies" (ibid, p.171).

In this formulation, care differs from productivity, with the former emerging from an appreciation, involvement, and support for other species, without necessarily receiving a *direct* benefit. Thus, care implies making time to give back. Understanding the important reciprocal care relations between humans and other species also means valuing other times as much as our own (Otkay et. al, 2023). Thus, care implies patience for the times of other species, such as seasonal changes, decomposition, nutrient cycles, or plant growth.

Applying care to design means replacing a one-sided extraction of value with a reciprocal, mutually beneficial relationship between design and the more-than-human world it invariably draws upon. With this, "alternative engagements with time are at stake that not only evoke a different mode of production, but a different mode of life, including a different relationship to work" (De la Bellacasa, 2017, p.200). This involves taking a step back from the function-oriented time typically central to a project (getting the thing built as efficiently as possible). To bring other species into the fold of design, to care about the reciprocal relations between design and other species, means making time. Importantly, this approach begins to erode the narrow temporal boundaries of production and human use, expanding the responsibility of the designer. In this sense, design becomes a question of what activities can simultaneously combine more-than-human care while attending materially to human needs. Given this material relationship between design and the environment, we emphasize materiality as an important point of consideration.

3. Method for practical exploration

In what follows, we explore *noticing* and *care* for more-than-human time in a real-world project: the design and fabrication of a stage for a music festival in southern France. The festival occurs yearly in a forested valley, and so the organizers, conscious about the impact of their festival on the local ecosystem, issued a design brief to incorporate sustainable and regenerative practices into the stage design. The location for the stage was fixed, as were certain technical requirements (location of AV equipment). In response, we proposed a stage concept that attempted to increase biodiversity, by remaining on site for use by other species over the course of the entire year.

Looking at design from a more-than-human lens forces the designer to acknowledge that each project is locally and contextually situated. For this reason, exploring how these concepts might affect practice requires *practicing design* insofar as only a real project can bring together different actors, generate relations, and leave space for the unknown. During the design process, the design researcher kept an ongoing journal to record events, relations, or interactions that were pertinent. In addition, we documented extensively with photos and videos. These resources were then used to reflect on how noticing and care influenced the design and construction process of the stage.

4. Aspects in practice

4.1 Different Times: A festival in a more-than-human Valley

The context of the music festival is an interesting case to explore how different temporalities overlap and influence the relationships between more-than-human actors. The festival DNA draws on its natural setting, which offered a nice starting point in terms of the human-ecological relations. Importantly, we began the design process by acknowledging the clear power imbalance between the way festivals typically *use* space, as temporary visitors, and the way the ecosystem *is* the space. Time helps us understand how these relationships are imbalanced. The festival consists of a two-day human gathering of several hundred people, while many of the species that inhabit the forest valley are permanent residents and experience a disturbance to their normal temporal patterns. Collapsing the separation between ‘the festival’ and ‘the valley’ means acknowledging that both play a critical role in constituting the specific assemblage that occurs in this place. Thus, our design approach tried to bridge the temporalities of both festival and valley. Acknowledging the stage as a perturbation, but also a part of the temporal patterns of the valley, opened a design space in which we could expand the notion of “users” or “stakeholders” to include other species. In this light, we designed the stage to remain on site for the year (figures 1 and 2).



Figure 1 The stage for humans was used to host DJs over the course of a two-day festival.

4.2 Noticing the Valley's rhythms

With this, noticing involved paying special attention to what more-than-humans the stage would bring together, and the temporal rhythms of these different actors. While we had a productive aim – to build a stage – we were curious how we could bridge with other temporalities unrelated to our design goal.

Noticing took two different stages: noticing from afar, during the design process, and noticing on site, during the building process. The project reality required us to design remotely, while we acknowledged the need to consider the local context. Noticing afar thus consisted of desktop research, with the help of an ecologist, on the biotopes existing in the area, and on the climate, increasingly hot and dry. We noticed the presence of commercial lavender fields, cattle, and horses; satellite imagery showed the valley a green refuge among a sea of agricultural uses; a small creek flowing through the valley is a vital source of water in the hot summer months. A combination of maps, photos and videos from the festival organizers, later accompanied by conversations with people on site, helped create a picture of the more-than-human population of the area (Figure 3). The difficulty here led us to favor a design that we intentionally left open-ended; with a modular scaffolding structure that could be adjusted on-site; with a certainty that the actual stage would surely differ from our drawings.



Figure 2 Following the festival, the stage elements (VJ screen, DJ booth) were removed, while the remainder was left on site to be appropriated by other species. The rock tower, insect tower, and compost wall remain. We intended to remove the floor, but this proved impossible due to mistakes in the building process and, ironically, time pressures.

During our research we also discovered ruins of gothic and roman churches surrounding the festival site. We noticed how these ruins, in their post-use collapse, became reabsorbed into the landscape and appropriated by different species. For instance, plants grew out of the walls, birds nested on the collapsed ramparts, and the crumbling structures provided shade and structure for animals to dwell. From this vantage of deep-time, natural local materials have the benefit of seamlessly returning to the earth without disturbing the shorter temporal rhythms of other species – whether with wood decomposing or stone remaining steadfast. Much like Bellacasa's example of soil as a multi-species life-web, a ruin is an apt analogy for such a system extended to the domain of architecture or design.

We set up camp for two weeks before the festival, immersing ourselves in the valley throughout the build-up (figure 4). There we became absorbed in the valley's rhythms, assisted by a lack of cell reception that isolated us from the outside world. Working hours were influenced not by the clock but by the availability of daylight and the heat of the sun. We noticed the grass, cut before we arrived, slowly beginning to grow again, while the paths we used to walk from our camp to the construction site became pronounced, as our footsteps compressed the ground. We began to observe the specific drainage of water around the stage, accounting for the way water flowed by adjusting the foundations and building drainage ditches. We noticed the insects underneath the earth as we cleared soil, trying not to damage the roots of an old tree.

The slow rhythms of the valley were soon contrasted by the bustle of preparations for the festival. To acquire tools, we had to consider store opening hours. To source part of the material (the rest was reclaimed on site), we had to deal with the schedule of the lumber yard. A small generator hummed noisily against the quiet chatter of birds, allowing us to work and

live into the dark. A certain productive energy persisted, as we had to finish the stage in time for the festival. Several days of rain forced us to place tarps over our build site.

Meals and work meetings would structure and punctuate our working days, a point of relaxation and a coming together away from production. Noticing also led to speculating, as we begun to imagine the ways in which our stage would be taken over by the valley's temporalities by the slow growth of grass, ivy, and plants upon the structure, to the slower decomposition of the wood and compost we embedded within it.

4.2 Care for the Valley

In the project, caring meant making time – both in design and construction – to integrate ourselves and our stage in the situated web of relations existing in the forest. To integrate, and not just to extract, means giving as well as receiving. This manifest itself as work that went beyond the purposes of the festival, for the sake of developing a mutually beneficial relationship with the forest. We considered the way the stage could bring together and mediate relations between different users of the space. This mediating potential extends beyond our ability to fully control it through design, thus asks us to tread lightly. Thinking at different timescales helped us to consider the stage from different perspectives. At a most basic level, it is useful for the festival. But, moving beyond this narrow framing of our design, and expanding on its being as a part of the valley community, we unlock new possibilities for what design might be. As a herd of grazing animals moves through a grassland, they care about others by providing important nutrients to plants and grasses in the form of their manure. How might this analogy be extended to that of a festival? What if we consider ourselves as just as much a part of 'nature' as the birds, bees, trees, grasses, and soils?



Figure 3 Noticing remotely: While not ideal, the project required that we used a variety of sources to try to notice the rhythms of the place remotely, using photos/videos/desktop research.



Figure 4 Different temporalities across the project. The productive tempo of the building process contrasted with the rhythms of other species, but was bridged by certain restful moments of appreciation for these other temporalities.

We started by considering the persistence of the materials assembled as “stage” into the year, and how they might co-evolve with the ecosystem. What does this mean concretely for the design? The forest exists in continual cycles of growth and decay, and, as the stage is a ‘dead’ object, its biological materials will undergo decomposition over time. This was used as a design feature, with elements purposefully built to decompose, and in the process creating biomes for different species to adapt. Three of these ‘regenerative actors’ were drawn from natural landscaping practices aimed at promoting biodiversity and species habitat. The first, a wall made of compost, was intended to hold waste generated over the course of the festival, arranging it spatially to act simultaneously as an ornamental feature of the stage as well as to promote insect habitat post-festival (figure 5). Second, we included a column made of wood, intended to decompose over time. The wood placed here consisted of off-cuts from the construction process, turning the waste generated during the construction of the stage over to wood bugs and other insects which thrive on decomposing material. Finally, we included a column made of rocks, in which soil was embedded. The intention here was to provide habitat to small mammals as well as birds and enable plants to grow on the structure.



Figure 6 Three 'regenerative actors': the rock tower(left), decomposing wood tower(middle), and compost wall(right), were designed to care for other species, helping to create habitats within the stage, and acknowledging their temporal rhythms outside of that of the festival.

4.3 Reflections

The design of the stage as something that will touch multiple timescales – staying onsite for years, co-evolving with the forest, becoming a ruin – raised interesting questions for festival organizers as well as festival goers as they became aware of these other timescales. What will happen next year when the festival returns? Who will care for the stage, for its upkeep and use, while caring for the other species that also make use of it? People joked "what if a bird sets up its nest in the rock tower, what will we do at next year's festival?" Interestingly, the stage already was provoking a dialogue, or a negotiation, around the use of space relative to other species, to a broad public audience which unlike at a design-fair, did not come to consume discourse. The presence of the stage in-situ for longer than is ordinary, and its planned but unpredictable co-evolution, challenges everyone to think more broadly about the festival as having a continual material existence there, challenging the logic of consume-dispose we are all accustomed to. This dialogue is the first step in creating lasting practices of care, shifting design from a passing human endeavor to continual more-than-human negotiation, an instance of designing-with (Wakkary, 2021).

Ultimately, there were clear contrasts between the productive approach to time that a festival buildup invokes, and the non-productive more-than-human timescales that work through the festival site. The stage brought awareness to the temporalities of other actors – the nesting patterns of a bird, or the decay of wood – but also of the human time pressures that make noticing and caring more difficult. Here is where the challenges – financial, logistical, technical, practical – of applying theory in the real world become visible. While our process had clear limitations – eg. the need to design remotely – making time to pay attention to and care for things outside of the functional scope of the project is already a step in the right direction. Finally, we note that this opening-up means embracing contingency, leaving room for unexpected but symbiotic relationships to emerge across design, especially ones that propose a more caring form of being-together.

5. Conclusion

More-than-human temporalities can help us to unveil the complex, interdependent, reciprocal relations that make up the web of life. Noticing other temporalities outside of the productive timeframe of a project can help designers to see which actors are prioritized over others. It is within these other tempos that we can make time to care for overlooked stakeholders, acknowledging that what is good for life is good for humans.

From our experience, noticing and caring both required a situated framing of the project: knowing the specific location, materials, neighbors, weather, climate. In a very alive way, this coming together of actors implies a complex dynamic of different temporalities, rhythms, and tempos. This is difficult to grasp with abstractions, and is best experienced, sensed, felt, in all its specificity. In this sense, design must be rooted, and thus we challenge design as implicated in a globalized system of extraction and production. The material nature of design means it will invariably influence *specific* places and ecologies. Thus, we ask how design practices can aim for a higher degree of rootedness, meeting the material needs of humans while simultaneously taking responsibility for the other species that also help us to meet those needs. As design projects human intentionality into the future, how can we ensure that our agency does not stifle that of other beings – that our time is not the only time? In a more practical sense, we ask also how the material supply and eventual dispersion that design draws upon (both of which include their own temporalities outside of a design project) can act symbiotically within place-specific ecologies? To conclude, the overlapping temporalities of both matter flows and life-gatherings must be considered with all the imagination, empathy, and care that design can muster if we are to reorient design in service to life.

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