



 **Mateusz Chaberski**
Jagiellonian University in Kraków

Building Liveable Futures: Dwelling as Collaborative Survival After Climate Change

ABSTRACT

Taking a cue from Tim Ingold's post-humanist reflection on building and dwelling as more-than-human practices, the article aims to revisit dwelling as a strategy of "collaborative survival" (Tsing) in the context of the ongoing climate emergency. Drawing on the findings of more-than-human geography and environmental (post)humanities, the article scrutinizes three examples of contemporary speculative projects at the intersection of architecture, design and performative arts that imagine different strategies of building with and for more-than-humans as a climate change adaptation strategy. Firstly, the installation *Refuge for Resurgence* (2021) by the Los Angeles-based design studio Superflux, a banquet table designed for humans and various species of animals, is analyzed in order to interrogate the relation between dwelling and multispecies interdependence. Secondly, the article scrutinizes the multimedia project *Pending Xenophora* (2020–22) by Mari Bastashevski, an architecture created with an endangered species of snail, to show more-than-human care (Puig de la Bellacasa) as key to surviving climate change. Finally, the article looks into the project *The Anthropocene Museum* (2020–ongoing) by the Kenyan collective Cave_bureau to unravel decolonial aspects of dwelling as collaborative survival.

Keywords: dwelling, speculative design, collaborative survival, climate change, more-than-human, the Anthropocene.

BUILDING AND DWELLING AT THE TIME OF THE ANTHROPOCENE¹

In his seminal essay “Building, Dwelling, Living: How Animals and People Make Themselves at Home in the World,” published over twenty years ago, the British anthropologist Tim Ingold convincingly argues that building and dwelling are not predominantly human practices. Analyzing different human and more-than-human² living structures, from temporary settlements of prehistoric nomadic tribes to beaver lodges and dams, Ingold questions the traditional paradigm of Western modernity, which understands building as an intentional process of the self-contained human subject who transforms raw materials according to a pre-formed design. The paradigm not only implies that dwelling is limited to occupying an already built structure understood as a mere container for life. It is founded on the search for an illusory threshold in human evolution, unaccounted for by empirical findings, beyond which humans became more advanced than animals in their capability of intentionally building environments for themselves. To move out of this impasse, Ingold puts forward “the dwelling perspective” (185) which holds that “the forms people build, whether in the imagination or on the ground, only arise within the current of their life activities” (154). Ingold draws directly on the Heideggerian analysis of the German verb *bauen* (to build), which etymologically means not only building and dwelling but also preserving and caring for a given place. In other words, building and dwelling are inextricably linked as they are both relational practices, emerging from human and more-than-human everyday interactions with environments they inhabit. Thus, what we conventionally understand as built environments are in fact crystallizations of the entangled relations between individuals and their surroundings.

Whereas Ingold’s aim was predominantly to challenge the binary opposition of nature and culture still dominant in Western anthropology in the 20th century, his post-humanist approach to building and dwelling is especially pertinent at the time of the Anthropocene, the new geological epoch in which humans have become the dominant geological force on Earth (Crutzen and Stoermer). In recent years, the name of the epoch has risen to global prominence, being taken up in academic and popular

¹ The article was written as an outcome of the research project *New Ecologies in the Performative Arts of the Last Two Decades—Pilot Studies* supported by the Polish National Science Centre (ID: 528347, project number DEC-2021/05/X/HS2/01239).

² The term *more-than-human* has recently risen to prominence across environmental (post)humanities as an attempt to move out of the human/nonhuman binary. I am purposefully using it here instead of the terms *nonhuman* and *other-than-human* to signal that the human is only a small fraction of a vast world of agentic entities (see Jacque, Otero Verzier and Pietroiusti 6–9).

contexts, as a pointer to the ongoing multipronged ecological emergency that threatens the very existence of human and more-than-human worlds. Suffice it to mention the coastal cities and human residences, especially in the Pacific region, at risk of perishing submerged by rising global sea levels and the habitats of species living in the Amazon forest endangered by unprecedented large-scale deforestation. In this context, what is at stake in human and more-than-human building and dwelling practices is not only making oneself at home in the world, as Ingold insisted, but—more importantly—surviving the Anthropocene and sustaining liveable conditions in its aftermath.

The challenge is overtly addressed by the recent spate of transdisciplinary projects at the intersection of architecture, design, performative arts and ecoactivism which design environments that would enable humans and more-than-humans to adapt to the negative effects of climate change. A case in point are the projects presented at the 2022 exhibition *Our Time on Earth*, curated by Luke Kemp, Caroline Till and Kate Franklin at the Barbican Centre in London. For example, the project *Symbiocene* (2022) by designer Julia Watson, architect Smith Mordak and sustainability engineer Buro Happold shows how technologies of Indigenous peoples, such as floating habitable reed islands of the Ma'dan people of Iraq, might be used to build structures that would resist mass-scale flooding. On the other hand, the multi-channel audio-visual installation *2040—Sensible Zone* (2022) by the collective Territorial Agency combines aerial photographs and data analysis to explore the zone where the biosphere interacts with ocean, atmosphere and land to maintain Earth in homeostasis. The project treats the zone as a potential site of human and more-than-human inhabitation. By drawing inspiration directly from nature or from sustainable practices responding to the needs of ecosystems, those projects build liveable futures in which both humans and more-than-humans could survive after the Anthropocene.

However, the projects in question differ radically from environmental initiatives embraced by the umbrella term “nature-based solutions to climate change” (NBS) such as urban reforestation, vividly supported in recent years by national and international governing bodies as a response to the current eco-predicament. In its report “Nature-Based Solutions & Re-Naturing Cities” the European Commission defines NBS as “solutions that are inspired and supported by nature, which are cost-effective, simultaneously provide environmental, social and economic benefits and help build resilience” (“Nature-Based Solutions”; see European Commission 3). Although NBS convincingly stress the importance of nature in mitigating the effects of climate change and foreground the nexus between ecological, social and economic enhancement, most recently

the concept has come under critical scrutiny, especially in critical human geography and conservation studies. Its critics aptly point out that NBS are still inherently human-centred. For those projects understand nature either as a passive source of inspiration for human projects which aim to mimic natural processes or as “ecosystem services” (Costanza et al. 2) that by definition concern the biophysical and/or economic benefits of natural systems solely for people. Thus, NBS not only embroil nature in a neoliberalist logic of resource-efficiency and cost-effectiveness but, more importantly, they often neglect the well-being of nonhuman species. Although NBS account for nature as an important agent in surviving climate change, the design and build (infra)structures are still oriented towards all-too-human dwelling and wellbeing.

In contrast to NBS, the transdisciplinary projects analyzed in this paper perform what Belgian philosophers Isabelle Stengers and Didier Debaise call “speculative gestures” (4). Inspired by Alfred North Whitehead’s process philosophy, the term denotes situated modes of engagement which make possible worlds perceptibly felt in the lived experience. Importantly, in the context of building liveable futures, Stengers and Debaise clearly differentiate between what is possible and what is probable. Whereas the latter is still grounded in and measured against the hitherto accepted reality, the former aims to undermine the current order and make possible the eruption of radically different modes of being, thinking and doing in the world. Thus, speculative gestures are neither about calculating risks and probabilities nor about chasing futuristic dreams in some utopian “elsewhere.” They rather unravel possible alternative realities already present close-at-hand in our surroundings. The transdisciplinary projects in question specifically gesture towards dwelling understood as a strategy of what anthropologist Anna Tsing calls “collaborative survival” (*Mushroom* 4). The concept points to the encounters of humans and more-than-humans which help them survive in disrupted ecosystems. In this context survival, however, is not about the survival of the fittest known from the Darwinian theory of evolution but rather about the preservation of entire ecosystems of co-existing humans and nonhumans. Tsing proves that such co-existence is possible, for instance, when matsutake mushrooms (*Tricholoma matsutake*) growing in deforested areas break down rocks and sand to produce nutrients for themselves and their symbionts and thus contribute to the resurgence of the ecosystem. Transdisciplinary projects scrutinized in the following parts stage encounters between other humans and more-than-humans and, thus, prove that building liveable futures is inherently relational.

I will look closely at three transdisciplinary projects that put forward speculative dwelling structures that enable collaborative survival. The examples have been chosen to illustrate different tactics for building

liveable futures. First of all, I scrutinize the installation *Refuge for Resurgence* (2021) by the London-based collective Superflux, which imagines a dwelling structure built for a multispecies collective in order to instigate a sense of togetherness and interdependence between humans and more-than-humans. Secondly, by analyzing the Augmented Reality project *Pending Xenophora* (2020–22) I will show modes of building liveable futures with a particular species that enact modes of more-than-human care. Finally, I turn to the project *The Anthropocene Museum* by the Kenyan collective Cave_bureau, which clearly demonstrates that in order to collaboratively survive after the Anthropocene one must de-link from existing environmental arrangements rooted in the legacy of Western colonialisms in order to build liveable futures within them.

172

BUILDING FOR A MULTISPECIES PLURIVERSE

The installation *Refuge for Resurgence* (2021) by Superflux, first exhibited at the Biennale Architettura, La Biennale di Venezia in 2021, directly engages with the question of what collaborative survival after climate change might actually look like. It emerged as a creative response to the biennale's main theme: "How Will We Live Together?" The question, posed by the curator Hashim Sarkis, aimed to inspire architectural imaginings of a "new spatial contract" based on the idea of togetherness, urgent especially at the time of deepening political divides and growing socio-economic injustices that result from the ongoing multiple ecological, economic and social crises. In this context, the "we" indexes both humans, for instance legal and illegal migrants as well as communities suffering literal and symbolic forms of violence, and more-than-humans, such as animal and plant species endangered by climate change. The title of the installation clearly indicates that Superflux aims to build a space that would respond to both human and more-than-human experiences at the same time. On the one hand, the term "refuge" denotes a safe space where people may find temporary shelter. On the other, it alludes to the term *refugia* introduced by Tsing to describe places in which assemblages of species may thrive after destructive ecological events, such as deforestations or flooding. Commenting on Tsing's findings, the Polish philosopher Monika Bakke convincingly argues that refugia are not only important today as zones of liveability but they also "create the conditions for adaptive changes and new alliances which must be formed if the multispecies future of our planet is to be real" (17). *Refuge for Resurgence* speculatively creates such conditions by building a new kind of refugia where humans and more-than humans may survive the climate emergency.

As the co-founder and director of Superflux, Anab Jain, explains, the installation is organized around the idea of a “deconstructed home” (qtd. in Shah) in which only the dining area and the window remain after an unspecified eco-catastrophe. When visitors enter the gallery space, they can instantly notice a vast four-metre-long handcrafted wooden table with fourteen wooden carved stools. The structure is placed beneath three suspended LCD screens arranged in the form of a three-panel window. The window opens to a devastated cityscape, most likely in a coastal area. The hyper-realistic animated film, created in collaboration with graphic designer Sebastien Tiew, played in loop on the screens, shows flooded streets, ruined buildings and urban infrastructure in tatters. However, the view is far from dystopian. Huge flocks of birds gracefully fly over the city overgrown with lush vegetation. In the background visitors can hear animated voices of children playing and noises of intensive (re)construction works. From time to time domesticated and feral animals can be seen finding their way through the vegetation. Thus, the video clearly situates the installation at the time of resurging human and more-than-human life.

As visitors navigate the installation, however, it soon becomes clear that *Refuge for Resurgence* is not about restoring pre-catastrophic anthropocentric *status quo*, since the dining space has not been built solely for humans. According to the artists’ statement, this is an imagined banquet with a fox, rat, wasp, pigeon, cow, human adults and child, wild boar, snake, beaver, wolf, raven and mushroom. Each species is offered its own equal place at the table. Even with rudimentary knowledge of biology, visitors may notice that the species, although inhabiting the same European habitats, form radically different biological interactions that would prevent their meeting at the same table. For example, the fox would rather eat the pigeon than dine with them. However, Superflux is less about biological accuracy than about inciting “multispecies forms of curiosity” (Tsing, “A Threat” 11) which according to Tsing are crucial to survive at the time of the ecocrisis. Apart from the wasp’s nest and a taxidermized raven placed above the table, visitors are invited to infer the identity of the species by closely inspecting the stools and table settings, which have been customized to the animals which are to use them. The pigeon’s stool, for instance, is smeared with bird droppings to attract new animals, whereas the beaver’s stool carries the characteristic teeth marks to invite potential guests. Moreover, each species is offered food adjusted to their diet, for instance an acorn for the wild boar and an egg for the snake.

By engaging the visitors in numerous forms of multispecies curiosity *Refuge for Resurgence* speculatively gestures towards building what, following the Colombian anthropologist Arturo Escobar, might be referred to as a “multispecies pluriverse.” Escobar borrows the term *pluriverse* from

the manifesto of the Zapatista, the militant movement of the descendants of the indigenous people of Mexico, which describes a “world where many worlds fit” (xvi). Whereas in Zapatismo the concept predominantly points to a new global social order beyond capitalism where struggles of various anti-colonial and anti-capitalist movements of the Global South may unite without losing their local specificities, in Escobar’s work the pluriverse becomes one of the most pressing challenges for design. Design, however, is not understood here as creating marketable objects and (infra)structures, but first and foremost as a means of giving form to sustainable human and more-than-human ways of being and relational subjectivities. Thus, according to Escobar, designing for a pluriverse has a clear political agenda: to resist the logic of incessant development germane to Western modernity, in favour of strategies of de-growth, often inspired by the Amerindian communities such as the Zapatista. Although Superflux do not overtly reference Escobar’s work, they clearly rewire his design theory—still focused on human modes of being and subjectivities—towards a multispecies co-existence. It is enough to look carefully into the very process of making *Refuge for Resurgence*.

Superflux enacts the multispecies pluriverse in the very process of making their installation. It was constructed using found, recycled or salvaged materials sourced within a hundred miles’ radius from the artists’ London studio. The table and stools are made of wood from an old overgrown oak acquired from farmers in Surrey. The plates are second hand, and the cutlery is made using jewellery-making techniques from plastic waste foraged from London’s urban green areas and detritus combed at the river Thames. The artistic process not only aims to limit the installation’s carbon footprint and foreground its close relation to local environments, but it also re-purposes pre-modern scavenging and gathering practices as viable practices of survival in the aftermath of climate change, alternative to highly sophisticated technologies proposed by environmental designers. Moreover, the project overtly references various indigenous ideas inspired by folklore and mythologies from different cultures. The plates have been adorned with illustrations by the visual artist Nicola Ferrao, depicting mytho-poetic stories specific to each creature that foreground the interdependence of species as the basis of their co-existence.

Whereas Superflux convincingly evokes a poetic sense of more-than-human togetherness as conditional for collaborative survival, *Refuge for Resurgence* also demonstrates the limitations of their tactics of building for a multispecies pluriverse. Although deconstructed, the architecture of a human home—chosen as the basis for their project—still grounds the speculative gesture in the anthropocentric idea of a dwelling. The table and stools are adjusted to human scale only and cutlery is offered even when

a dedicated species would not be able to use it. Moreover, humans still outnumber the other species, having been allocated three seats at the head of the table. Most problematically, however, *Refuge for Resurgence* treats the overgrown tree as mere material, disregarding “the future agency of the ‘dead’ oak wood material,” as design critic Steve Santer aptly points out. For the fallen tree always already becomes a shelter for and offers nutrients to diverse life forms both over and underground. Thus, rather than offering a post-anthropocentric perspective on building and dwelling, Superflux’s project provokes the question: how can a more-than-human dwelling be built according to different, more-than-human scales and values?

BUILDING WITH SNAILS AT THE TIME OF MASS EXTINCTION

175

This issue is tackled by the multimedia project *Pending Xenophora* (2020–22) by Mari Bastashevski, which aims to build a home not only *for* but, first and foremost, *with* a specific more-than-human species, namely snails. For the period of two years Bastashevski researched a rout of garden snails based in New York City, Berlin, Lausanne, and Rotterdam, some of which she kept in her home terrarium. Drawing on her observations and experiments, she built a multisensory Augmented Reality (AR) environment inspired by the lifeways of snails and their perception of the world and scaled according to the size of a snail. The visitors are invited into an inflatable dome-shaped tent made of semi-translucent plastic where they can interact with digital snails in a virtual multiverse and enjoy a snail-inspired smell-scape. As the experience unfolds, it becomes clear that building such an environment was clearly a response to the ongoing mass extinction to which snails also fall victim.

The title of the project refers to one of the cabinets in the Natural History Museum in London, where the AR experience begins. As Bastashevski found out during her extensive archival research, the cabinet stores marine snails of the genus *Xenophora*, some of them most likely extinct, collected in the Victorian era, that have yet to be identified and classified according to the Linnaean system. The specimens often defied the very notion of a single species, for instance incorporating foreign elements such as stones and live coral colonies into their bodies. Moreover, similarly to other invertebrates, gastropods have been historically considered inferior, uninteresting species. Writing about Hawai’ian snails in his recent work *A World in a Shell: Snail Stories for a Time of Extinctions*, the multispecies ethnographer Thom van Dooren convincingly argues that the inferior status of gastropods in biological research and collection

practices negatively impact their conservation (11–12). Although their population diminishes dramatically every year due to climate change, snail conservation is significantly underfunded as governments prioritize preserving endangered large mammals such as elephants and polar bears. In contrast, as numerous species of snails are unidentified, their extinction often goes unnoticed. In this context, Bastashevski's AR environment not only becomes a metaphorical dwelling for the endangered snails but, more importantly, it aims to instigate a sense of care for the species among the visitors that could potentially lead to a change in conservation policies in the future.

Pending Xenophora, however, differs significantly from similar speculative projects inspired by the lifeways and experiential worlds of more-than-human species. A case in point are the architectural works of Tomás Saraceno, inspired by spiders. For instance, in *Webs of At-tent(s)ion*, he brings together three-dimensional sculptures interwoven by different species of spiders that become prototypes of human living structures adapted to harsh environmental conditions. As Bastashevski succinctly argues in one of her lectures, such projects are predicated on a particular computational paradigm which perceives animals as “evolutionary fine-tuned computers” (“Unwhorl”) whose ways of navigating the world might be recreated by humans in different contexts. This paradigm in turn rests on the anthropocentric mindset which always compares animal sensation to the human senses. To avoid those anthropocentric assumptions Bastashevski takes a different architectural approach by developing modes of attunement to the alterity of snail sensation which inform her AR environment.

Bastashevski's approach is a perfect example of what the Canadian designer and design theorist Ron Wakkary terms “designing-with”: that is, a practice of co-creating “with humans and nonhumans in ways that are fundamentally expansive and relational” (5). Such an approach aims to move beyond the modernist and humanist paradigm of design as a clearly demarcated world-making practice aimed predominantly to improve *human* lives. For it is exactly this paradigm, embroiled in the demands of trading and consumer market, that has contributed to the current eco-predicament. In contrast, designing-with entails a radical revision of the practice of designing so that it can better respond to climate change and biodiversity loss. In this context, design is no longer a way for humans to act upon the world but is characterized by a “double movement” (Wakkary 4) whereby in humans designing the world, the world designs humans back. Thus, as Wakkary contends, designing should no longer be performed by a designer as the sole agent but rather emerge from a “constituency” (24) understood as a gathering of human and more-than-human actors that

co-create artifacts, objects, products and solutions. However, according to Wakkary, the gathering is inherently political in the sense that while working together its members constantly negotiate overlapping and often conflicted interests which in turn (re)shape the final design (95). The frictions emerging in the work of such constituency were palpable from the very beginning of Bastashevski's designing with snails.

At the outset of *Pending Xenophora* the artist aimed to create a single snail-inspired architecture scaled according to a measure of movement, the equivalent of the human step specific to snails. To this effect, in cooperation with the multimedia artist Sam Lavigne, she devised an app under the name Unwhorl. Contrary to what its name suggests, the app was not aimed to understand the spiral pattern of the snail shells but to register their movement patterns. Unwhorl converted any touch screen into a platform that would trace the snails' interactions with its surface. Bastashevski devised a series of experiments by inviting the snails to interact with lines and circles she drew on her tablet. However, she soon realized that members of her more-than-human constituency did not act according to her expectations: they either avoided the shapes and moved around aimlessly or preferred to explore the frame of the tablet. Thus, Bastashevski had to adjust her initial idea of a snail measure unit and embrace the idiosyncrasies of each snail. Thus, instead of a single snail-inspired virtual world she designed a multiverse in which visitors could explore different worlds, with slightly different parameters. In the process of designing-with-snails, however, her more-than-human partners not only became world-builders, but also transformed from objects of study into matters of care.

The concept of matters of care was introduced by the American science and technology scholar Maria Puig de la Bellacasa to denote embodied and situated ways of producing knowledge through technology that contribute to caring for and repairing human and more-than-human worlds. Puig de la Bellacasa's argument is especially pertinent to my analysis as it does not define care as an unspecified human feeling of concern, triggered by someone's difficult situation. Referring to the findings of American feminist political philosophers Joan C. Tronto and Bernice Fisher, Puig de la Bellacasa adopts a generic definition of care, which "includes everything that we do to maintain, continue and repair 'our world' so that we can live in it as well as possible" (2). In other words, matters of care go far beyond human emotional reactions. The affective and ethical dimension of caring for the wellbeing of others must always be grounded in the concrete work we do while caring for the world. The verb "to maintain" usually denotes activities that are related to the maintenance or upkeep of basic infrastructure. This indicates that caring always involves down-to-earth

practices aimed to improve the living conditions of specific humans and more-than-humans, which, however, do not always guarantee success. *Pending Xenophora* enacts such matters of care not only in the process of designing-with-snails but also by generating intensive multisensory cognitive-affective experiences of visitors.

The AR technology used in *Pending Xenophora* allows visitors not only to look around but also to physically move around as the headset is calibrated to motion sensing technology. Once they step outside the cabinet, they may navigate a surrealist colourful landscape from a snail's perspective and pass through portals to other worlds. However, as one moves in the inflatable tent a cognitive dissonance emerges. Contrary to the visual input, the actual floor is covered with a soft material, which slows the visitors' movements down. When I visited the installation at Brotfabrik art gallery in Bonn, the visitors, myself included, began crawling like snails, without any prior instruction to do so. Feeling insecure about their position in the actual world, they also outstretched their arms, uncannily resembling snail antennae sensing their environment. However, *Pending Xenophora* does not want visitors to become snails but rather to experience a particular temporal dimension of matters of care, namely "care time." Puig de la Bellacasa puts forward the term to denote the situated practice of "'making time' to get involved with a diversity of timelines . . . that make the web of human and more than human agencies" (171). In other words, to care one needs to make time for perceiving the multiplicity of complex, often radically different temporalities in which humans and more-than-humans function. Thus, care time differs significantly from the traditional modern linear conception of time. It does not entail progressive movement from the past to the future and evades the logic of productivity, according to which every action must produce ever better results in ever shorter time.

Pending Xenophora intentionally slows visitors down so that they do not rush towards one of the portals, as they would in a typical AR experience. Instead, they are incited to roam aimlessly and notice virtual snails populating the landscape and slime trails left on the ground, which are traces of previous visitors exploring the landscapes. However, in the context of snails' accelerating extinction, the trails become visible pointers to the ongoing species loss. Slowly following them might become the first step towards caring for the less conspicuous endangered species such as gastropods. Whereas Bastashevski builds liveable futures by multiplying connections between humans and more-than-humans, the last example to be analyzed here proves that in order to imagine modes of collaborative survival one may also need the gesture of disconnection.

BUILDING WITHIN BROKEN EARTHS

Unlike the two examples analyzed so far, the speculative gestures of the Nigerian collective Cave_bureau aim less to evoke a sense of togetherness or with-ness between humans and more-than-humans than to de-link from particular environmental arrangements. Their project *The Anthropocene Museum*, divided into two parts (1.0 and 2.0), is part of a recent spate of performative projects that question the traditional Western conception of ecology based on the principle of connection. Instead they foster what the environmental scholar Malcom Ferdinand recently termed “decolonial ecology” (3). In other words, they combine critical reflection on the ongoing ecocrisis with anticolonial, postcolonial, and decolonial struggles for the emancipation of various Indigenous, oppressed, marginalized or underrepresented communities in the former Western colonies. Although initiated in different parts of the world, the projects share a common political goal to de-link local ecologies from the colonial ways of inhabiting the Earth and living together to posit alternative, more sustainable and socially just ways of being in the world, usually rooted in Indigenous traditions.

A case in point is Frédéric Neyrat’s *The Unconstructable Earth. An Ecology of Separation*. The subtitle of his work instantly signals a radical change of perspective in ecological thinking. Neyrat argues that the ecological principle of connection must be challenged by the “counterprinciple of separation” (153). This does not mean, however, that humans should re-establish the binary opposition between active culture and inert nature, which contributed to the present eco-crisis in the first place. On the contrary, he defines separation as an onto-epistemological gesture that enables us to distinguish between different things, different beings, different naturalcultural arrangements and thus becomes a condition for the emergence of any relations between humans and more-than-humans (14). The notion serves a particular strategic purpose, especially in the context of ecomodernist discourses which have used the ecological principle of connection to effectively erase nature as an agentic force. In contradistinction, Neyrat’s separation aims to foreground the Earth as an important bio- and geopower that must be considered while addressing climate change. Moreover, it slows the progress down by creating a space for withdrawing from certain naturalcultural arrangements before they actually bring about irreversible detrimental ecological effects.

As the title of Cave_bureau’s project clearly suggests, the project aims predominantly to separate from the 19th-century idea of the museum which contributed to the entangled processes of environmental destruction and (neo)colonialist expansion in Africa. In particular, *The Anthropocene*

Museum is inspired by the ongoing animated discussions and budding projects, especially in former colonial empires, focused on decolonizing the museum, for instance through the restitution of artifacts stolen during colonial expeditions to their indigenous owners. Unlike those projects, however, this one is not about the ownership of land and artifacts but rather about the radical redefinition of the very concept of the museum as an architectural form and its anthropocentric scale. In their statement, Cave_bureau argue that the museum of the Anthropocene cannot be contained “in a single, self-gratifying building, which would be part of an industry that contributes over 40 percent of CO₂ emissions into the atmosphere.” Such architectural form is calibrated for human, predominantly white male visitors and aims to alleviate the (neo)colonial practice of moving artifacts across the globe. Working against such a conception, Cave_bureau turn to the Kenyan caves in search of an unscalable architecture of the Anthropocene Museum.

According to Cave_bureau, caves are a natural manifestation of the museum as they have literally housed the legacy of human and more-than-human activity. A case in point is the system of volcanic caves along the Great Rift Valley of East Africa, around Mount Suswa, one hundred fifty kilometres West of Nairobi City, which has been the focal point of *The Anthropocene Museum 1.0*. On the one hand, the caves hold the prehistoric rock paintings attributed to Maasai morans, i.e. unmarried warriors who used the caves for initiation rituals. More recently, they were also a place of refuge for the insurgents during the anti-colonial Mau Mau Uprising (1952–60). On the other hand, Mount Suswa Caves have been a home to numerous wild animal species. In one of them, locally known as “Baboon Parliament” due to its amphitheatrical shape, baboons would gather each night looking for a safe place of hiding from predators. Another cave is occupied by the largest population of the giant mastiff bat (*Otomops martiensseni*), an endemic African species. Thus, the caves embrace practices of humans and more-than-humans operating at different spatial scales without subjecting them to an architectural form of the museum building.

Using cutting-edge 3D scanning technologies, Cave_bureau create models of the Mount Suswa Caves and shape them into installations and architectural interventions in actual landscapes. They also organize workshops and debates with various stakeholders during which the installations become frameworks for future environmental proposals. For example, in one of the meetings, participants came up with an idea of “Cow Corridor,” a restoration of the Maasai’s migratory trails through Nairobi and a harvesting of water for wildlife and nature around the caves. Thus, contrary to traditional museums, *The Anthropocene Museum 1.0* does not serve as a mere repository of the Kenyan naturalcultural heritage. It rather

rewires the curatorial practices towards (eco)activist action. Mount Suswa Caves are currently under threat from the government's rapacious energy politics which entails exploiting the site for geothermal energy, as part of the country's commitment to limit the use of coal by 2030.

The speculative gestures of Cave_bureau enact a tactics which, following the inhuman geographer Kathryn Yusoff, might be referred to as building within broken earths. In her recent lecture "Broken Earth & Built Earths: Architectures at an Inhuman Impasse," delivered at the Yale School of Architecture, Yusoff introduces the concept of broken earths, borrowed from the science fiction writer N. K. Jemisin, as a pointer to exploited, ruined and polluted landscapes and devastated lifeworlds of black, brown and Indigenous communities left behind by White (neo) colonialist extractivism. In this context, broken earths are understood as a shadow of the Western architectural praxis, regarded as independent of its geological substrate. Drawing on her extensive archival research in the state of Alabama, Yusoff convincingly argues that the vertical architecture of the modern city is an extension of the mine understood as a paradigm of entangled extraction of geologic resources and exploitation of racialized bodies. For example, the tenement houses and skyscrapers of Birmingham, Alabama, were built using fossil fuel deposits extracted through convict lease labour, mainly African American men detained under vagrancy state laws. In this context, the tactics of building in broken earths, enacted by Cave_bureau, becomes an alternative architectural practice that does not replicate the vertical imperative of the Western city but rather accounts for its colonial implications and generates potential for restorative futures.

A case in point is the project *The Anthropocene Museum 2.0*, which shifts perspective from Mount Suswa Caves to the Shimoni Caves on the Kenyan coast, eighty kilometres south of Mombasa, to address the country's colonial legacy of slavery. The Shimoni Caves played a role in the Indian Ocean slave trade mainly between Africa, the Middle East and the Indian subcontinent, which pre-dated the better known Atlantic slave trade. The enslaved were kept densely packed in narrow caverns, awaiting ships that would transport them first to Zanzibar and then to the Arabian Peninsula. However, the site embodies both suffering and hope. The Shimoni Caves are connected to a wider system of caves in Kwale county that stretch along the coast. Over the years, numerous enslaved managed to escape through the tunnels and find refuge, for instance in the Three Giant Sister Caves, situated about ten kilometres northwest of Shimoni.

Similarly to the first part of *The Anthropocene Museum*, Cave_bureau tackle the complicated histories through a programme of curated events. Using laser-scanning techniques, they gain architectural information about the caves. It is then visualized in the form of maps, etched on

leather according to local traditions and bronze models that show the volume of the caves, and narrated through short stories and practices of story-telling. The visualizations and narratives become prompts for curated meetings, held in temporary structures built by the architects within the caves around Kwale county, with local communities and other stakeholders. As Karanja and Mutegi explain, the meetings aim to create a space for “contemplation and critique about the torturous crimes that were committed against enslaved people both here and across the planet.” As a result of one of the meetings with the Shimoni community, an archaeological excavation project was initiated with a view to exposing the tunnels through which the enslaved escaped, blocked by cumulative siltation over the years. Thus, building liveable futures within broken earths not only addresses the legacies of colonialism but also entails actual interventions in existing landscapes with a view to creating not only liveable but also more equitable futures.

CODA: BUILDING AS STAYING WITH THE TROUBLE

The transdisciplinary projects analyzed in this article clearly demonstrate that building and dwelling are key to imagining liveable human and more-than-human futures after climate change. The different speculative gestures employed in the projects not only challenge the received notions of human exceptionality and independence in the face of surviving the ongoing climate emergency, but also bring into sharp relief the question of scale as crucial for imagining post-anthropocentric modes of thinking and being. Whereas *Refuge for Resurgence* used the tactics of building for a multispecies pluriverse, keeping the human scale virtually intact, *Pending Xenophora* and *The Anthropocene Museum* tried to route around the problem by attuning to specific more-than-human lifeways and challenging the colonial underpinnings of the modern museum as an architectural form scaled for (white male) humans. All of the projects, however, question the logic of (re)solution which underlies the dominant architectural projects emerging as a response to climate change. They predominantly offer definite scalable measures to be implemented globally that would help humans adapt to rising sea levels and rising temperatures. Those measures are usually based on predetermined sets of values and ideas of how such adaption should look like. In contrast, speculative gestures analyzed here prove that building liveable future is not about finding one-size-fits-all solutions to human and more-than-human problems but rather, as Donna J. Haraway would have it, about conceiving better ways of “staying with the trouble” (2). The American biologist and feminist philosopher claims

that we should not aim to move out of the current eco-predicament but rather develop ways to better react to a changing environment. In this context, building should no longer be about creating fixed dwelling spaces but rather about situated practices of responding to the dynamically changing needs of humans and more-than-humans. Only then can we hope for a liveable future after climate change.

WORKS CITED

- Bakke, Monika. "Introduction: The Sheltering Sky of the City." *Refugia. The Survival of Urban Transspecies Communities*, edited by Monika Bakke, Wydawnictwo Naukowe UAM, 2021, pp. 17–23.
- Bastashevski, Mari. *Pending Xenophora*. Mari Bastashevski, 2020–22, <https://www.maribastashevski.com/pending-xenophora>, accessed 10 Sept. 2023.
- Bastashevski, Mari. "Unwhorl." *Vimeo*, <https://vimeo.com/546195072>, accessed 10 Sept. 2023.
- Cave_bureau. *Anthropocene Museum 1.0–10.0. Cave_bureau*, <https://www.cave.co.ke/cave-canon>, accessed 20 Jan. 2024.
- Costanza, Robert, et al. "Twenty Years of Ecosystem Services: How Far Have We Come and How Far Do We Still Need to Go?" *Ecosystem Services*, vol. 28, 2017, pp. 1–16. <https://doi.org/10.1016/j.ecoser.2017.09.008>
- Crutzen, Paul, and Eugene Stoermer. "The Anthropocene." *Global Change Newsletter*, vol. 41, 2000, pp. 17–18.
- Escobar, Arturo. *Designs for the Pluriverse. Radical Interdependence, Autonomy, and the Making of Worlds*. Duke UP, 2016.
- European Commission. "Nature-Based Solutions & Re-Naturing Cities" (full version). *Publications Office*, 2015, <https://data.europa.eu/doi/10.2777/479582>, accessed 20 Sept. 2023.
- Ferdinand, Malcom. *Decolonial Ecology. Thinking from the Caribbean World*. Polity, 2021.
- Haraway, Donna J. *Staying with the Trouble. Making Kin in the Chthulucene*. Duke UP, 2016. <https://doi.org/10.2307/j.ctv11cw25q>
- Ingold, Tim. *The Perception of the Environment. Essays on Livelihood, Dwelling and Skill*. Taylor and Francis, 2000.
- Jacque, Andrés, Marina Otero Verzier, and Lucia Pietroiusti. Editorial. *More-Than-Human*, edited by Andrés Jacque, Marina Otero Verzier and Lucia Pietroiusti, Het Nieuwe Instituut, 2017, pp. 6–9.
- Karanja, Kabage, and Stella Mutegi. "In Practice: Cave Bureau on a Museum for the Anthropocene." *The Architectural Review*, 15 Apr. 2021, <https://>

- www.architectural-review.com/essays/in-practice/in-practice-cave-bureau-on-a-museum-for-the-anthropocene, accessed 20 Sept. 2023.
- “Nature-Based Solutions.” *European Commission*, https://research-and-innovation.ec.europa.eu/research-area/environment/nature-based-solutions_en, accessed 20 Sept. 2023.
- Neyrat, Frédéric. *The Unconstructible Earth. An Ecology of Separation*. Fordham UP, 2019. <https://doi.org/10.1515/9780823282609>
- Puig de la Bellacasa, Maria. *Matters of Care. Speculative Ethics in More than Human Worlds*. U of Minnesota P, 2017. <https://doi.org/10.1017/S2753906700002096>
- Santer, Steve. “The Difficulty of Leaving Human Dominance in More-than-Human Contexts.” *Medium*, 18 Sept. 2021, <https://medium.com/future-human-by-design-philosophy-of-design/the-difficulty-of-leaving-human-dominance-in-more-than-human-contexts-ffefe40bfde>, accessed 19 Jan. 2024.
- Sarkis, Hashim. “Statement.” *La Biennale Di Venezia*, 2021, <https://www.labiennale.org/en/architecture/2021/statement-hashim-sarkis>, accessed 20 Sept. 2023.
- Shah, Devanshi. “STIRring Together: ‘Refuge for Resurgence’ Offers Glimpse into a New Way of Living.” *STIRworld*, 9 May 2021, <https://www.stirworld.com/see-features-stirring-together-refuge-for-resurgence-offers-glimpse-into-a-new-way-of-living>, accessed 20 Sept. 2023.
- Stengers, Isabelle, and Didier Debaise. *Gestes spéculatifs*. Les presses du réel, 2015.
- Superflux. *Refuge for Resurgence*. 2021. Biennale Architettura, La Biennale Di Venezia.
- Tsing, Anna. “A Threat to Holocene Resurgence is a Threat to Liveability.” *The Anthropology of Sustainability: Beyond Development and Progress*, edited by Marc Brightman and Jerome Lewis, Palgrave Macmillan, 2017, pp. 51–65. https://doi.org/10.1057/978-1-137-56636-2_3
- Tsing, Anna. *The Mushroom at the End of the World. On the Possibility of Life in Capitalist Ruins*. Princeton UP, 2015. <https://doi.org/10.1515/9781400873548>
- Van Dooren, Thom. *A World in a Shell: Snail Stories for a Time of Extinctions*, MIT P, 2022. <https://doi.org/10.7551/mitpress/14579.001.0001>
- Wakkary, Ron. *Things We Could Design. For More Than Human-Centered Worlds*. MIT P, 2021. <https://doi.org/10.7551/mitpress/13649.001.0001>
- Yusoff, Kathryn. “Broken Earth & Built Earths: Architectures at an Inhuman Impasse.” *YouTube*, uploaded by Yale School of Architecture, 7 June 2023, <https://www.youtube.com/watch?v=pE7N8Xf1eXk>, accessed 10 Sept. 2023.

Mateusz Chaberski is Assistant Professor in the Department for Performativity Studies of the Jagiellonian University in Kraków, Poland. His academic interests range from performance studies, affect, and assemblage theories to Anthropocene studies. In 2015, he published *Doświadczenie (syn)estetyczne. Performatywne aspekty przedstawień site-specific* [(Syn)aesthetic Experience: Performative Aspects of Site-Specific Performance] and in 2019 *Asamblaże, Asamblaże. Doświadczenie w zamglonym antropocenie* [Assemblages, Assemblages: Experience in the Foggy Anthropocene]. Together with Mateusz Borowski and Małgorzata Sugiera, he edited *Emerging Affinities: Possible Futures of Performative Arts* (Transcript Verlag, 2019), and with Ewa Bal *Situated Knowing: Epistemic Perspectives on Performance* (Routledge, 2020).
<https://orcid.org/0000-0002-6490-2340>
mateusz.chaberski@uj.edu.pl