The Living Library is a transdisciplinary project developed at the Bio Design Lab of the Karlsruhe University of Arts and Design. Over the course of two years, it fostered practice-based learning focused on locally sourced raw materials within a 50-kilometre radius around the academy, experimental making, and regenerative modes of production.

The project is a hybrid and continually evolving ecosystem. It brings together a physical archive showing material samples, tools, processes, and workshop artefacts, and a digital archive featuring interactive maps, research, and material documentation. Guided by the principles of compostability, locality, and sustainability, the project follows ecological rhythms of seeding, growing, harvesting, and decay. Students, researchers, and local practitioners collaborated to map regional resources, harvest and transform bio-based materials, and investigate their lifecycles from origin to decomposition.

This publication reflects the project's circular approach. It documents the physical and digital Living Library and brings together a series of essays that explore themes such as the archival qualities of soil or the garden-like cultivation of digital platforms. These essays invite readers to reconsider how knowledge can be grown, shared, and ultimately returned to the ground from which it emerged.

Recycling and composting

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We are compost, not posthuman.

Haraway 2016, 55

Towards a circular material culture

Introduction to the Living Library

Julia Ihls

Materiality as a cultural challenge

The ecological crisis raises not only technological questions, but also cultural and design-related ones. How can traditional knowledge and materiality be recombined to develop future-ready forms of living, producing, and learning? And what role can designers play through material choices, redesigning local value chains, or circular project planning? Against this backdrop, the transdisciplinary teaching project Living Library[1] – a circular material library – was launched at the Bio Design Lab[2] at the Karlsruhe University of Arts and Design (HfG Karlsruhe)[3]. Funded by the Stiftung Innovation in der Hochschullehre, the two-year project (2024–2026) explores new practices of knowledge generation at the intersection of experimental design, material research, ecological responsibility, and locally rooted production. Central to the project are bio-based raw materials and fabrication techniques chosen according to the principles of compostability[4], regionality, and ecological sustainability. Activated through excursions, workshops, and colloquia[5], the Living Library was conceived from the start as a hybrid, dynamic system – comprising a physical collection and a digital, open archive[6]. The physical library includes material samples, workshop artefacts, and visual documentation, offering a tactile and sensory experience of materials. Meanwhile, the digital platform (website and social media) documents engagements with materials and the region, enriches them with background information, and makes them accessible via interactive maps.

“We are compost, not posthuman.” (Haraway 2016, 55)

Building on Haraway’s notion of compost, the Living Library translates this idea into its own structural design. A radically circular approach underpins not only the material choices but also the conceptual and programmatic framework. Structured like a constantly evolving system, the programme design of the Living Library, both in teaching and execution, follows a biological annual cycle: seeding, growing, harvesting and decaying. Guided by the principles later articulated in the Living Library manifesto – everything must be compostable, locally sourced,

Bio Design Lab at the HfG Karlsruhe.
Photo: Bio Design Lab / Felix Harr.

and ecologically sustainable – the project resists linear material logic and instead embraces processes of transformation and renewal. Raw materials are gathered, documented, transformed through design – and then returned to the cycle. Therefore, the archive not only records the present but also the past, making the process of becoming and decay itself part of the collection. Soil[7] stands at the beginning and the end – as the most fundamental of all archives. As the substrate for ongoing remediation and transformation, it forms the conceptual foundation of the Living Library. Compost becomes a concept, a metaphor, and a method. All materials included in the physical library must be compostable and are eventually returned to a physical compost embedded in the library. The soil thus becomes not only a medium but an active agent – a site of return, transformation, and renewal. But recyclability, as a guiding principle, extends beyond the physical to the digital. A distinctive aspect of the Living Library is that its digital presence also undergoes constant remediation. Can materials and material knowledge be digitally archived at all? What happens to metadata and digital artefacts – such as photos or videos – when, after the project ends, no one maintains the platforms? Can digital traces also be composted – through version histories or digital decay? These questions about remembering and forgetting are explored through the hybrid interplay between analogue and digital materiality.

What's the MATTER? Material libraries as dynamic knowledge spaces

Within recent discourses on materiality in design and cultural studies – shaped by currents such as New Materialism, ecofeminist theory, and posthumanist approaches (Barad 2007; Bennett 2010; Haraway 2016) – the agency of materials is increasingly coming into focus. In this context, material libraries are gaining importance, no longer seen merely as repositories but as research-based, reflective infrastructures that generate knowledge, test practices, and transmit values (Romani, Rognoli, and Levi 2023, 398–411). The Living Library positions itself clearly within this field as a temporary, circular, and hybrid platform: not an encyclopaedic archive, but an incomplete and constantly evolving ecosystem[8] that operates according to three guiding principles, which set it apart from conventional archives: compostability, regional sourcing within a 50-kilometre radius, and the integration of local production chains. Rather than simply cataloguing various materials, the Living Library operates in cycles of experimentation, prototyping, and transformation. Materials are not only collected but co-developed, tested, questioned, and ultimately returned to the cycle in close collaboration with partners from crafts, agriculture, science, and art. This iterative practice of making and unmaking reveals tacit, often implicit knowledge and fosters collective experimentation. In this sense, the library functions as an epistemic tool (Wilkes and Miodownik 2018, 3–23), opening new spaces for thought and action through material collection, categorisation, and hands-on engagement. The emphasis therefore lies on embodied, experiential learning: materials are not inert matter, but carriers of stories, meanings, and ecological relationships (Bennett 2010). They are harvested rather than ordered, experienced through touch, smell, and decomposition – not solely through technical datasheets – and selected not only for their performance but for their ability to engage the senses and provoke cultural reflection. These encounters influence not only design processes but also redefine design itself – not as a means of consumption but as a practice of care, restoration, and connection. Design, art, and creative practice are central to ecological transformation – not merely as mediators but as epistemic practices

that explore and anchor alternative futures. In a context of increasing standardisation and digitisation of material knowledge, the Living Library project provides a counterbalance – promoting tactile, subjective, contingent material experiences (Romani et al. 2023) grounded in local, ecological, and cultural contexts. The Living Library therefore contributes to a new culture of knowledge and materiality in times of ecological transformation. It links design practice with ecological cycles, artistic research with local material culture, and digital infrastructure with hands-on experimentation. The vision: to establish a model that not only archives materials but understands materiality itself as a space for learning, insight, and transformation.

The 'Common Grounds' installation, a collaboration between the Living Library and the ZKM Orchard. Part of the 'Fellow Travellers: Art as a tool to change the world' exhibition at the Centre for Art and Media Karlsruhe (ZKM). Photo: Bio Design Lab / Felix Harr.

Material metabolisms – Or how to digest this publication

This positioning of the Living Library as an evolving ecosystem also shapes this publication. The print is therefore not merely a static record but mirrors the library's logic of cycles, and transformation. Accordingly, the present publication is intended to serve partly – but not exclusively – as project documentation. In addition to providing an overview of the existing components of the Living Library (physical/digital), its manifesto, as well as the developed methodology and teaching programme, the publication also opens up a broader discourse through essayistic contributions: What, for instance, does radical circularity mean if we understand soil quite literally as the ultimate archive? What might we learn from the wisdom of worms – and how does our perspective shift if we think of websites not merely as digital interfaces but as gardens to be cultivated? These philosophical reflections inevitably fold back into material practice. Just as the Living Library insists on the compostability of its samples, the publication itself asks how a print can embody principles of circularity, regionality, and sustainability. Decisions regarding paper and ink types, as well as binding techniques, are made here too, in line with the Living Library's guiding principles. A digital open-access version complements the physical volume, ensuring that new outcomes may emerge not only on the material but also on the epistemic level.

1 See Lexicon: 'Living Library'
2 See Lexicon: 'Bio Design Lab'
3 See Lexicon: 'Karlsruhe University of Arts and Design (HfG Karlsruhe)'
4 See Lexicon: 'Compostable'
5 See Lexicon: 'Colloquium'
6 See Lexicon: 'Archive'
7 See Lexicon: 'Soil'
8 See Lexicon: 'Ecosystem'

Essay by Franziska Müller-Reissmann

Living soil archive

"Earth to earth, ashes to ashes,
dust to dust; in sure and certain hope
of the Resurrection to eternal life..."
(Book of Common Prayer,
Church of England, 1549)

When a person stops breathing and metabolising oxygen to carbon dioxide and becomes interred in a Christian context, we perceive the nutrient cycle of life despite our belief in the soul in the afterlife. And when our bodies are placed in the earth and not burnt to CO_2, then our material remains mix into a composition of digested matter, and become a component of soil for the growth of plants. In other words, what we currently still perceive as ego will eventually be broken down and associated as individual building blocks in the atomically constructed world – just as happens to every organism whose ability to divide cells ceases.
If it is natural, then the remains of organisms, their residual organic compounds, are fully integrated into an ecology. For posthuman admonishers such as Bruno Latour, in view of the degradation of nature by Homo sapiens and his belief in a superior culture, it is therefore time to "no longer speak of humans, human beings, but of 'terrestrials', of earthbound beings, in order to emphasise the humus, ultimately the compost, which is contained in the etymology of 'human'." (Latour 2018, 86)
Using the phenomena of organic material, which is often misleadingly equated with natural material, and man-made material, which is often described as its opposite, I would like to shed light on the cultural and material storage function of soil. The concept of the Living Library offers a direct link here, and indeed our soil preserves both: material compounds and things from the past, which can be read differently depending on the visual aid and invite research.

As archaeological excavations have shown us for centuries, earth is a cultural repository of human history. The soils of the Anthropocene, whether living or not, have an archival character, i.e. an epistemological value for deciphering past human access to the world. I appreciate the much-discussed concept of the Anthropocene in this context because of its ability to focus on the interaction between culture and nature.
The majority of all man-made objects and buildings in prehistoric times were probably made of wood, plant fibres or animal materials. The culture that we find in the soil, on the other hand, was made from inorganic raw materials that were not metabolised, i.e. not biodegraded. Ceramic shards, fragments of fired clay vessels, which provide information about the lifestyles, dietary habits and cult rituals of distant ancestors, can be found in the soil at formerly populated sites. They were therefore described in the 19th century as "leading fossils of chronological archaeology" (Dragendorff 1915).
In addition, fossilised imprints of pile dwellings, grave goods such as stone or glass jewellery and metallic weapons can be discovered in the ground. All these things are made of atoms, which are not eaten and are very durable. We can therefore perceive them for a long time in object shape, in contrast to wooden and plant objects, which are volatile. Our current three-age system, which was established in 1836 on the basis of museum tools and weapons, divides human history into the Stone, Bronze and Iron Ages. It shows how these inert materials determine our idea of cultural progress.
So whose past are we actually looking for in the earth, and for whom are we preparing the finds? For a long time, the inevitably ideological view of European excavators was not concerned with anything that deviated from their own progressive tradition of thought, so that much was overlooked in the ground. From today's perspective, it can be said that you cannot discover what you do not know.
Only in recent decades has the scientific focus of archaeology turned not only to objects, but also to the soils themselves. This is because, from a material point of view, they are also millennia-old archives of cultural development, both in the human and microbial sense. Anthrosols, as man-made soils, represent humanoid lifestyles on the one hand and store carbon that is not released into the atmosphere on the other.

Significant areas of charcoal-enriched terra preta de índio were once created in the humus-poor Amazon region in order to increase the fertility of the soil for agriculture; it is now assumed that this enabled large human communities to feed themselves and live together long before the European conquest of the continent. Thousands of years ago, people apparently already knew how to compost organic material, in such a way that a superfood for the growth of edible and fruit-bearing plants could be created, in an area whose soil was unusable for agriculture. Black soils similar to those found in South America can now also be found in South East Asia (e.g. in Indonesia), Africa (e.g. in Ghana) and Europe (e.g. in Wendland, Germany). As all these past civilisations built with wood, they quickly became invisible above ground. But the living soils they left behind archive their testimonies.
Since the discovery of these anthropogenic soils in the 1960s, science is still amazed by the phenomenon, as it bears witness to the principle of sustainability in a very direct way: Apparently, these man-made soils were able to feed millions of people, and they are still very fertile to this day, thousands of years later. Farming in such a way that there is fertile soil for food cultivation for future generations, is considered the foundation of sustainability and therefore a life worth living (Brundtland 1987). Today, black earth seems more attractive and sustainable than temples made of marble and weapons made of steel. So does progress start with radical composting?
Compost (lat. compositum) is an artificial category in contrast to humus. Microorganisms do what we call composting on our behalf. The compositum is the knowledgeable structure; in a good compost, only the best organic matter is supplied to the soil organisms for metabolisation. Similar conversion processes take place in the compost heap as in the humus layer of the soil: organic structures are broken down here in such a way that they become smaller and smaller. A swarming teamwork, the so-called rotting, transforms the moulds and generates heat in a kind of mild combustion process. Compost is thus transformed into humus in a network of diverse players in a joint production process. Realising this process dislocates the anthropogenic perspective and at the same time conjures it up.
The organic movement of the 1970s and 80s described the earthy substrate as the "breeding ground of new

life", the "belly of the garden" and the "transformation of the passing into new forms of life" (Kreuter 1986, 51), and indeed this compost is aligned with the holistic ideals of biodynamic agriculture and horticulture. Humus-producing compost is useful for sensually beneficial, stimulating and productive gardens. These strengthen individual, human self-efficacy and enable independence from commercial structures and corporations that use toxins to increase plant growth and that cultivate just as monoculturally as they are organised. Humus is the most fertile soil and an immense CO_2 store worldwide; even more than in forests, carbon is bound here in such a way that it cannot escape as a gas and influence our climate. Compost can therefore be a tool, and a jointly cultivated Living Library can be a tool kit for different variants of this complex substrate, which can be adapted to the desired humus depending on the requirements.
Amid all the euphoria, and in keeping with a critically reflective design mindset, we must remain mindful of the limitations inherent in the model of natural metabolism. In the environment, bio- and geochemical processes take place slowly and are too complex for our perception. Natural systems without waste, such as the carbon cycle or the cycle of rocks, take place over unmanageably long periods of time that cannot be grasped by human brains. Nevertheless, decomposition processes and ecological food chains now serve as a model for a circular economy, for which products are broken down and fed back into industrial processes as nutrients. The systems are used for biogenic materials, which are to be transformed into organic building blocks for the growth of new materials, as well as for inorganic materials and synthetic polymers. These are to be utilised as "technical nutrients" in technical cycles (Braungart 2002). In my opinion, however, the metaphor of the cycle for our man-made waste management and profit-orientated production contexts makes limited sense. Finally, I would like to explain this argument using the example of so-called bioplastics.

Conventional plastic comes from crude oil and coal, i.e. from fossilised biomass buried deep in the ground, which is extracted, broken down and assembled into synthetic polymers. Plastic consists of atomic building blocks that once lived, multiplied and died. These former fish and the plankton of the primeval

oceans became crude oil, and the trees of the primeval forests turned into coal over millions of years. Both raw materials are the most important sources of energy in our digitalised and industrialised society. They are not only the basis of our plastic objects, but also of our medicines, paints and clothing. The carbon atoms stored in the earth for millions of years, which were once removed from the atmosphere, are returned to it via the diversions of production and use. In waste incineration plants, they are combined with oxygen and released into the air as CO_2.

The designation 'Bio-' distinguishes plastics marketed as sustainable from those based on fossil raw materials. The prefix is either used to indicate a renewable raw material source or is a sign of biodegradation. Degradable polymers are often labelled as compostable, such as the supposedly more sustainable 3D printing filaments or take-away cutlery made from the starch-based polyester polylactide (PLA). But will this material ever become humus from which new plants can grow as raw materials for new PLA? Of course not.

In biological decomposition, soil can only be created from biomass, whereas PLA is chemically homogeneous, contains hardly any nutrients, does not form stable humus-forming molecules and is therefore not converted into permanent soil components, but is completely mineralised.

Despite this, the process step of composting, of making soil, is usually visualised in the circular graphics in the form of a stylised seedling. Compost plays a key role in the biological cycle of the circular economy of recyclable materials, as it is through compost that fertile soil is created, which is hoped will lead to the steady growth of plant raw materials. However, using compost to combat disasters such as mountains of rubbish, ocean plastic and global warming requires multi-perspective literacy, the promotion of which is urgently needed. It could be made accessible in a living library.

The soils
of the Anthropocene,
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Physical Living Library

Fara Peluso and Jaap Knevel

Situated along the public walkway between the Center for Art and Media (ZKM) and the State Art Gallery Karlsruhe – two of the three museums the HfG Karlsruhe shares the building with – the physical Living Library functions as both a biomaterial[1] archive and a workspace accessible to students and museum visitors. Conceived as a living, evolving ecosystem rather than a static collection, it explores what it means to design for sustainability and transformation through materials that grow, change, and decay over time. This hybrid setting, where materials, students, and visitors meet, emerged naturally from the building's role as a public space.

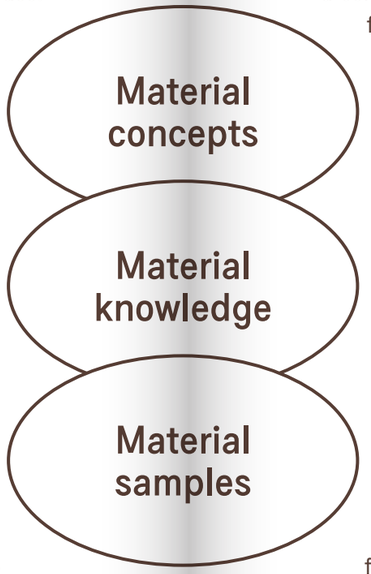
The physical Living Library collects and shares biomaterials and bioregional knowledge located around the university. It begins with the materials: samples that allow students to study physical qualities, tools and recipes stored in dedicated workshop boxes for immediate experimentation, and processed materials created during workshops held as part of the educational programme. The second layer focuses on material knowledge: including large maps that trace the locations of local material resources, books and guides from other researchers and makers, and video documentation from field trips to regional artisans and small-scale manufacturers. The third layer addresses the conceptual questions that underlie the project: What happens to materials after use, how do they decay, and how might they be remade or returned to ecological cycles? Together, these three layers (material samples, material knowledge, and material concepts) provide students with a comprehensive understanding of biomaterials in the region.

A workspace as a living system

The physical Living Library began as an almost empty archive, displaying only a few materials from the Bio Design Lab in a shelving system, which had previously occupied the space before relocating. The Bio Design Lab also left behind four large tables that later formed the basis of the workspace.

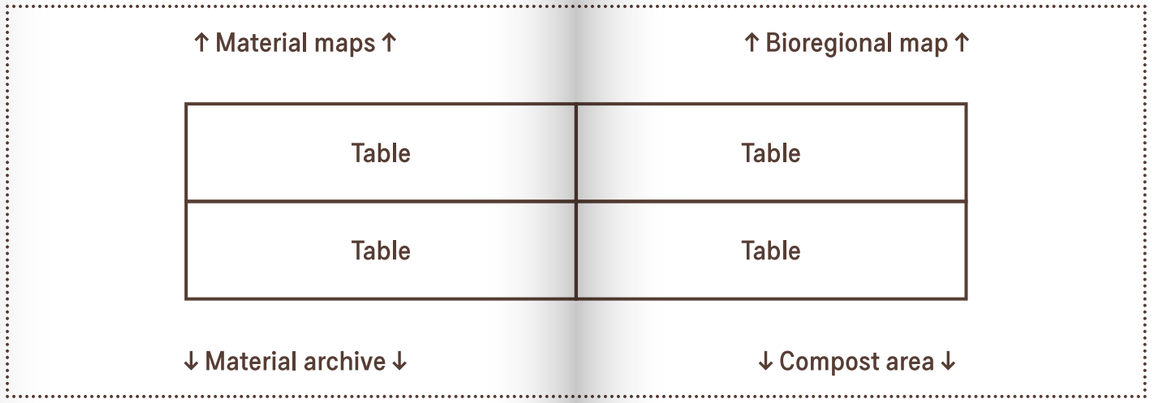
Over the course of the two-year project, the archive and workspace slowly expanded with new materials and tools. The space itself evolved too: two large walls were added for bioregional maps, television screens were installed to show the website and field trip documentation.

Like the materials it holds, the physical Living Library functions as a living system that needs ongoing care. Unlike materials such as plastic, which may take hundreds of years to decay, biomaterials sometimes break down within weeks. The continuous addition of new material knowledge and concepts also required a flexible structure that could be adapted easily, reflecting an ongoing process of design research that investigates how materiality, transformation, and end-of-life are understood. Books were added regularly and regional maps were reprinted to include new findings. Drawing on the DIY materials movement[2], the physical Living Library supports local communities by bringing their practices into visibility and enabling local knowledge transfer. These perspectives helped to shape the participatory aspects of the Living Library's space, where visitors, students and scholars are not only spectators but also potential contributors.



Inspired by Franziska Müller-Reissmann, the first guest invited to participate in the Living Library and a contributor to this publication, the archive features a living and participatory element: a worm composter that transforms waste into soil. It embodies materials as living agents within a cyclical system. This aquarium composter (the first experiment was shaped like a tower built using terracotta flower pots) is home to hundreds of worms that decompose organic matter and turn it into nutrient-rich soil, making visible the otherwise hidden processes of decay and renewal.

Although the worms occupy only a small part of the space, their impact on the physical Living Library was profound. They transformed the archive from a collection of static samples into a circular ecosystem. They redefined the curatorial approach, presenting materials across their life cycles, from harvest to decay. Every material in the archive will ultimately become food for the worms. Sustainability in the physical library is framed as an act of care for materials, from their origin to their end-of-life, transforming waste into a resource and fostering resilient systems capable of adapting and enduring.



Top view of the workspace

Material samples	Raw materials	Raw materials	Website	Raw materials	Raw materials	
	Workshop samples	Workshop samples		Workshop samples		
Books	Workshop samples	Workshop samples		Worm composter	Worm composter (Version 1)	Plants/Soil
Books	Workshop samples	Workshop samples		Workshop boxes		Books

Material journey – Front view of the material archive and compost area.

The archive and workspace

The physical Living Library took the form of an open shelving system and adjoining workspace that together acted as both archive and laboratory. Organised into clear, accessible sections, the shelves invited direct exploration: materials that could be handled were placed within reach, while more fragile or archival items were stored above. Students and visitors could observe, touch, and compare samples, follow their stories through maps, books, and documentation, and connect practical knowledge to the wider bioregional context.

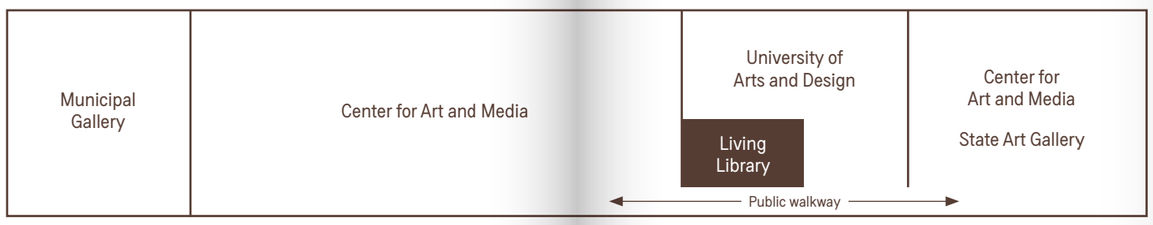
The space was designed to remain in motion. Materials were moved, replaced, and reinterpreted as new findings emerged, and the flexible structure allowed it to evolve continuously throughout the project. The same environment hosted field-trip reflections, workshops, and public colloquia, turning the archive into an active site of learning where theory, research, and making converged.

Even outside the university's schedule, the steady flow of museum visitors kept the space alive. Many paused to study the large bioregional maps, browse the collection, or engage with students at work, transforming the Living Library into a shared zone of encounter between academic and public life.

Cross contamination

The physical Living Library fostered what might be called cross-contamination: an open exchange between materials, people, and ideas. Here, materials were understood not as passive matter, but as active participants carrying ecological and cultural meaning. Within this framework, the physical Living Library operated as a form of design research that questioned how materiality, design, manufacturing, and end-of-life solutions are explored in an academic and public setting. Both the archive and the workspace were constant works in progress, which, like the materials, shifted through environmental changes and human interaction.

1 See Lexicon: 'Biomaterial'
2 See Lexicon: 'DIY materials movement'



Floorplan

Material archive and compost area of the Physical Living Library.
Photo: Bio Design Lab / Felix Harr.

Essay by Fara Peluso

A sympoiesis of relations

A sympoietic[1] library

For the material curation of the Living Library project, we have pursued a line of inquiry aimed at giving the physical archive a distinctly sympoietic character.
This notion, as elaborated by Donna Haraway, gestures toward an alternative to autopoietic systems, emphasising instead the shared, co-constituted, and entangled nature of existence. In 'Staying with Trouble: Making Kin in the Chthulucene', Haraway writes:

> **"Sympoiesis is a word proper to complex, dynamic, responsive, situated, historical systems…nothing makes itself; nothing is really autopoietic or self-organising."**
> (Haraway 2016, 58)

In this sense, a sympoietic library is not merely a collection of material samples indexed for study and display, but a living infrastructure through which materials, humans, and more-than-human entities intra-act[2], shaping one another through dynamic relations. The curatorial gesture has thus been grounded in the acknowledgement that both humans and materials belong to and become through such relations, each affecting and being affected in turn.

The Living Library has been conceived not simply as an organic material archive in the conventional sense, but as an attempt to radically reconsider how to curate matter. This involves challenging dominant anthropocentric assumptions that position materials as passive objects waiting for human manipulation. Instead, my curatorial practice insists on decentralising human-centred narratives and emphasising materials as identities and entities, each with its own affordances, limits, and capacities. Limits, which often carry negative, passive connotations, are here instead evaluated as vital indicators of relationality, vulnerability, and interdependence. To attend to a material's limits is not to deny its potential but to honour its embeddedness, situatedness, and value.
From this vantage, the archive does more than classify or exhibit: it becomes a space to question what constitutes a new material culture. The approach has been to highlight an interdisciplinary practice in which designers, students, and practitioners engage with the entangled trajectories of materials. As 'material' frames the project and the curatorial line, it "turns towards material-driven design processes with the aim of relocating technoscientific trajectories" and is "concerned with new forms of caretaking" (Perraudin et al. 2023, 1), challenging the meanings of sustainability and cooperation. Through such orientation, the archive invites a mode of designing with modesty, complicity, resilience, and care.
It has been fundamental for the curatorial strategy to promote, through analogue infrastructures and a physical material archive, practices of design with care. Here, the Living Library takes seriously Perraudin and Winkler's reflection that "designing with care requires a critical (self-)examination of predominant systems of reference, style, working methods, forms of knowledge and object cultures in their circulation" (Perraudin and Winkler 2023, 15). In other words, material inquiry cannot remain confined to materials science or aesthetic logic, but must also attend to geopolitical and biopolitical entanglements, the histories of resource extraction, legacies of violence, and material supply chains. By staging materials in this expanded frame, the Living Library rejects extractivist logics while insisting on an accountable, relational material culture.
In this light, all digital and technological formats are welcomed – not as reinforcing the objectification of passive matter, but as co-constitutive mediators that amplify multiplicities of relations. Instead of reducing materials to datasets or analytic abstractions, digital tools in this archive serve to pluralise perspectives, mapping relations across biodiversity, society, and culture. Digitally, this does not oppose nature; rather, it becomes another medium of sympoiesis, supporting the unfolding of relations that define the Living Library.

A sympoiesis of relations

Beyond its role as a repository, the Living Library is a sympoiesis of relations – a weaving of practices, infrastructures, and forms of knowledge. The curatorial work extends into designing programmes, spatial articulations, and educational formats that situate the library within a living ecology of becoming. Knowledge here is never stabilised by a single medium, actor or disciplinary mode; instead, it emerges at the intersections of scientific literature, artistic protocols, open DIY biology codes, and vernacular practices beyond institutional recognition. This multiplicity resonates with the ethos of material trajectories, where designing with care is explicitly positioned as an act of examining the systems through which design, object cultures, and knowledge circulate (Perraudin & Winkler 2023, 15–29).
At the core of this curatorial strategy lies the persistent question: What is the ultimate goal in designing materials and the spaces that house them? The Living Library posits that this is not merely the generation of new materials or the optimisation of form, but the cultivation of an ethical attentiveness. In this regard, I challenge the familiar bifurcation between material and moral realms, suggesting instead that 'good materials' are always entangled with the making of 'good souls.' To study material is thus also to study ourselves, our modes of inhabiting spaces, and our obligations towards others.
Over two years of co-curation, the Living Library has cultivated a temporal sensibility: materials are not static specimens but dynamic persons of time, moving along trajectories of extraction, use, transformation, decay, and afterlife. This framing situates materials within relational ecologies that exceed human timescales and involve more-than-human agencies. The physical archive thus becomes a site for thinking with pasts, presents, and speculative futures, reminding us that material culture is inseparable from its temporal entanglements.
Central to my practice has been to embrace circularity and bioremediation not as an instrumental strategy, but also as ethical, material gestures. While 'circularity' is often co-opted by neoliberal discourse as a matter of efficiency or productivity, within the Living Library, I rethink it as an ethos of transformation, repair, and resilience. Circularity articulates a way of listening to the many voices marginalised by anthropocentric paradigms.
To curate a sympoietic archive of materials is also to recognise that new materialism is never confined to the workshop or laboratory, but it is deeply entangled with social, political, and economic forces. The Living Library thus endeavours to pair matter and more-than-human poetics, inviting reflection on possible futures of human-nonhuman relations and wisdoms. By zooming out from specific materials to broader assemblages of values, ethics, and transformation, the archive posits itself as a site of critical imagination.
Ultimately, the material curatorial act of the Living Library culminates in an ethical caesura: what are the ultimate ends of material design culture? Can they be disentangled from care? Or are they already inseparable – making good materials for good souls? These questions resist closure and call for ongoing attunement, where design becomes a sympoietic method, a practice of care and resilience aligned with nature's biological interactions. Therefore, for me, this sympoietic archive is not an endpoint but an invitation to inhabit material culture otherwise. In resonance with Haraway's injunction to learn to "live and die well on a damaged planet" (Haraway 2016, 50), the Living Library contends with material vulnerability, decay, regeneration, and becoming where living matter emerges as mentor, prompting us to rethink agency, decomposition, and renewal in material-relational terms. Their presence exemplifies sympoiesis in the interstices of matter and relation.

1 From the Greek 'sym' (together) and 'poiesis' (making), sympoietic systems are co-created and co-evolving. They reject hierarchical control in favour of distributed, networked collaboration between species and systems. This term is claimed by Donna Haraway as 'making-with' (Haraway 2016) and never limited to humans but to all organisms that make ecological places and produce living arrangements.
2 Intra-action is a term and a notion developed by Karen Barad (Barad 2007) which, unlike 'interaction', recognise agency as a force of dynamism in all things, exchanging, influencing and entangle working. Agency is not only intrinsic of individual and for Barad, we are constantly intra-acting with other agents, human and more-than-human in non preexisting relations.

Digital Living Library

Pleun van Dijk and Jaap Knevel

The Living Library website is a digital counterpart to the physical archive. Built as an open-source knowledge base, it supports students and local artists in exploring the region around Karlsruhe, identifying locally available materials, and integrating sustainable practices into their design work. Closely linked to the teaching programme, the website complements the physical sample collection by adding its own dimension of accessibility and continuous transformation. Drawing inspiration from the website as a garden[1] metaphor, its design follows the idea that online[2] archives can grow, change, and decay like a living ecosystem.

A website as a living system

From the outset, the website was designed as a work in progress. It went live in its early stages, with only a handful of entries and grew slowly over time, reflecting the growth in collective knowledge as the team continued to learn. Because of this constant change, visitors might have encountered new information or noticed that previous information had been removed or replaced. Instead of a static archive, it acted as a living one, constantly cultivated and reshaped through new knowledge and shifting perspectives.

The website's primary goal is to help students and visitors engage with the local bioregion. The idea is to help users learn 'online' and then apply that knowledge 'offline'. This focus on physical exploration, whether in the field or in the workshop, is not just to minimise time spent online: it encourages social sustainability by stimulating students to be outside, meet local experts, to develop relationships with surrounding businesses, and to embed themselves within collectives.

Sustainability guided every design decision. Following permacomputing[3] principles, the website is built to minimise energy use and environmental impact. The interface remains intentionally lightweight, with limited use of images and no videos. Even colour choices were adapted along the way to save energy. This approach treats digital design as part of the same ecological commitment that shapes the physical library. Transparency also plays a key role. On a dedicated page, the team calculated the entire energy footprint of the website and explained how it reached that number. Instead of repeating information already available elsewhere, the 'Archive of archives' links to existing databases

and platforms. This approach reduces the site's size and maintenance needs in the long term while situating it within a larger ecosystem of regenerative knowledge. The website also communicates smaller things like the file sizes of used images, reminding visitors that the digital infrastructure consumes resources just like the physical library does.

Homepage

The homepage, like the rest of the website, is intentionally minimal to reduce energy use. It has no images or anything else that requires loading large files and despite originally launching with a bright green background or a black background depending on people's personal preference, the green background option was later removed to save a few more watts per year.

Maps

At the heart of the website lies a collection of interactive regional maps. Rather than applying a single rigid system, each map is custom-made for the material it documents. A map of community gardens in the city provides precise coordinates and names but a map of mycelium in the region instead highlights less clearly defined areas where underground conditions are such that you might encounter fungi there. The maps remain unfinished and sometimes even deliberately 'empty', to encourage exploration and allow for continuous revision rather than completion.

Lexicon

Accompanying the maps is the Lexicon, a collection of key terms and concepts that contextualise the project. Initially written on day one, it was revised continuously to reflect a change in understanding. Definitions of 'local', 'sustainable', or 'biodegradable' shifted as the team experimented with new materials and new definitions were added throughout the process. The lexicon was also closely connected to the education programme. Through the field trips, workshops, and colloquia, information was collected, documented, and then published. With new perspectives from invited makers and experts, existing information on the website was sometimes removed or rewritten.

Archive of archives

As mentioned before, the Archive of archives links visitors to other material databases, regional initiatives, and research platforms. Not only does this avoid having to duplicate information, it also positions the website as part of a larger not-so-local[4] ecosystem of regenerative knowledge that keeps on growing independently after our website ends.

Personal note:

If you're reading this in the future, the Living Library website may no longer exist in its original form. Whether you found it on another server or rediscovered it on an old hard drive, we hope that it can be regenerated. Treat it like fertile soil, something that can always give rise to new growth, new definitions, and new knowledge.

1 See Lexicon: 'Garden'
2 See Lexicon: 'Online'
3 See Lexicon: 'Permacomputing'
4 See Lexicon: 'Not-so-local'

Homepage

Living Library (115 days left)

Events Lexicon Archive of archives DE

Atlas of biomaterials around the HfG Karlsruhe

Read our manifesto

- Livestock — Edited: 19 Nov 2025
- Karlsruhe bioregion — Edited: 19 Nov 2025
- Industrial hemp — Edited: 18 Nov 2025
- Compost sites and allotment gardens — Edited: 11 Nov 2025
- Food waste — Edited: 10 Nov 2025
- Invasive plants — Edited: 10 Nov 2025
- Mushrooms — Edited: 10 Nov 2025
- Trees — Edited: 10 Nov 2025

Maps

Living Library (115 days left)

Events Lexicon Archive of archives DE

Invasive plants

Select layer: Invasive plants

Maps

Bio Design Lab

Biomaterial

Compost

Composter

Decay

~~Decay is the process of gradual decomposition and deterioration of organic matter, primarily through the action of bacteria, fungi, and other organisms. This process breaks down dead material, playing a crucial role in the nutrient cycle and ecosystem sustainability.~~

~~Decay has also a positive connotation when it refers to something that, while decomposing, goes back to nature and to life following a sustainable and eco-friendly process.~~

A natural process in which organic matter is broken down over time by decomposers such as bacteria, fungi, and insects. While often associated with deterioration or loss, decay is essential for sustaining life: it recycles nutrients, enriches soil, and supports the health of ecosystems. By returning once-living matter to the earth, decay enables the ongoing regeneration of life.

Ecosystem

Environmental

HfG Karlsruhe

Lexicon

Living Library

The Lexicon

Phytophilia

Sitterwerk Werkstoffarchiv

Image size: 164.85 KB
Sitterwerk

Physical location
Sankt Gallen, Switzerland (190 km)

Online location
https://www.sitterwerk-katalog.ch/

Syntropia Materiale

The Archive of Archives

Essay by Jaap Knevel
and Pleun van Dijk

The archive as a garden

‘Archive’

In ancient Greek, the concept of an archive (from ‘arkheion’ meaning ‘home of the ruler’) was connected to storing records of rulers and government officials. This implies an element of ‘protection’: storing something as it is and preserving it.

‘Garden’

A garden (from the Middle English ‘gardin’ meaning ‘enclosed space’) is a place where people cultivate and care for living organisms. Rather than a place that is fixed in time, it is a constantly changing ecosystem that cannot be ‘stored’. To cultivate is to actively be involved in the growth of plants, alone or with a group of people.

‘Online’

Available on the World Wide Web (since the 1950s ‘online’ meant ‘connected to a system’), the word now implies instant access from anywhere, at any time, through a browser.

In ‘Why We Need a Speed Limit for the Internet’, Belgian activist Kris De Decker outlines the fundamental problem with sustainability that underpins the internet:

> “On the internet, size and speed are not impractical or dangerous. Batteries limit the energy use of mobile computing devices, but not the energy use of all the other components of the network. Consequently, the energy use of the internet can only stop growing when energy sources run out, unless we impose self-chosen limits, similar to those for cars or mobile computing devices.”
> (Decker 2015)

Without a connection to the internet, our computers have a ‘hard’ limit to how much data we can store before it is full and how much energy we can use before the battery runs out. As soon as we switch on the Wi-Fi button and browse the web however, the amount of storage and energy we can use becomes practically limitless. So far, the web has always grown, with more servers (computers on which websites are stored) and datacentres (buildings that store servers) added each day. The only limit to that growth, as De Decker puts it, is “the energy supply itself”. At some point there is simply no energy left to power the network. What is worse is that it is nearly impossible to accurately calculate how much energy a website uses, where that energy comes from, and how efficiently it uses that energy.

This absence of limits poses both conceptual and practical risks to online archives. In this context, we often remind ourselves of what American writer and painter Kurt Vonnegut said: “Everybody wants to build and nobody wants to do maintenance”. The joy of archiving is precisely about maintenance: adding new information and removing information that no longer fits. Online archives completely remove that last element. Everything fits! Physical space once set a clear limit on acquiring new information. The speed at which an archive operates also used to have physical limits based on the capacity of staff or infrastructure to process requests. At Jaap’s local library in Stockholm, someone would only go down into the vault to retrieve rare books once a week. Online, where size and energy use are virtually limitless, those traditional restrictions have disappeared.

Because online archives function as public spaces where information is freely accessible, their challenge is twofold: to find a more sustainable relationship with the web and to rethink the role of an archive in collecting information.

In efforts to rethink online archives and make them more sustainable, many have turned to gardening as a metaphor. In her essay ‘My website is a shifting house next to a river of knowledge’, American web artist Laurel Schwulst writes about using metaphors when making websites:

> “My favorite aspect of websites is their duality: they’re both subject and object at once. In other words, a website creator becomes both author and architect simultaneously. There are endless possibilities as to what a website could be. What kind of room is a website? Or is a website more like a house? A boat? A cloud? A garden? A puddle? Whatever it is, there’s potential for a self-reflexive feedback loop: when you put energy into a website, in turn the website helps form your own identity.”
> (Schwulst 2018)

Schwulst writes about the idea of the website as a garden and uses it as a visual metaphor. She wonders what seasons could look like online: perhaps in winter not much happens in the garden and those natural rhythms could be reflected on the website. This resonates strongly with archives like the Living Library, since both involve living materials that change and decay over time. They have a natural rhythm of growth, they form connections with larger ecosystems, and require constant care.

Using a physical metaphor to describe a system often vaguely referred to as ‘the cloud’ – a term that reveals how little we actually know about its shape and workings – helps ground websites into something which is more tangible. A garden is tangible: we can imagine its size in relation to ourselves and how its size is bordered by other things like buildings or water, we can relate to the community dynamics that sustain it, and we can conceptualise its relationship to larger systems and even to nature as a whole.

The ‘website as a garden’ metaphor can also be extended from a conceptual idea to a more practical methodology. In his 2020 manifesto Permacomputing, Finnish programmer Ville-Matias Heikkilä compared today’s web to how industrial agriculture works and argues that what we need is something closer to permaculture.

> “Permacomputing asks the question whether we can rethink computing in the same way as permaculture rethinks agriculture. (…) In both computing and agriculture, a major issue is that problems are too often ‘solved’ by increasing controllability and resource use. Permaculture takes another way, advocating methods that ‘let nature do the work’ and thus minimise the dependence on artificial energy input. Localness and decentralisation are also major themes in the thought.”
> (Heikkilä 2020)

Heikkilä proposes to use ‘gardening wisdom’ to create websites which run in self-sufficient systems that are easy to maintain and are continuously optimised to reduce their energy needs. Maintaining your own server means you have to once again take care of the size of your website and the cost of your own energy supply. One example he mentions goes back to Kris De Decker and his Low Tech Magazine project.

Founded in 2007, Low Tech Magazine is an online archive of articles and resources about radically low-tech solutions. Since 2018, the website has been running on a server in Barcelona powered by a battery connected to a solar panel, meaning that if the weather is bad, the website may go offline. Because it runs locally, its size is also limited by the server’s local memory, creating an incentive to ‘prune’ and optimise existing material rather than endlessly adding more. Images are heavily compressed as a result and the website is fully transparent about the size of different elements it contains.

Looking at online archives as gardens points toward radically different websites: ones that embody a shape and meaning that we as people can relate to, ones that have a physical presence which limits how big it can be and how much energy they use, and ones that are influenced by their local environments. Best of all, they are a step towards re-establishing a balance: archiving is as much about adding new things as it is about deciding what goes out to make room.

Open access publication

Pleun van Dijk and Jaap Knevel

The open access publication is the final ‘output’ of the project. It is available in two editions: a printed and a digital version. Both were created with sustainability and circularity in mind and gather two years of experiments, workshops, and discoveries, passing them into the hands of future readers and practitioners.

The print edition reflects a commitment to minimising waste and to following the manifesto, while acknowledging that the publication is situated within an industrial material cycle rather than a raw-material cycle. This commitment is reflected both visually and conceptually. Instead of replicating the rich colour palette used for the digital maps, the print version uses only a single brown plant-oil-based ink to lower environmental impact. Furthermore, the printed version uses 100% recycled paper without added bleaching and is bound with compostable yarn made from European hemp fibres spun in France.

The digital edition, though intangible, also carries an afterlife of its own. As long as the website remains online, the original PDF file will be available. Copies may also circulate via other websites, personal hard drives, institutional archives, or independent platforms until, one day, they are no longer relevant or lose their value. In this way, the digital form mirrors a resistance to permanent presence, while enabling continuation of the project’s ideas in a decomposed and regenerated form.

Despite these careful decisions, the act of publishing (whether on paper or online) inevitably leaves traces. Paper, pigment, energy, and even digital storage all carry environmental costs. Industrial cycles are also incredibly complex. Materials such as compostable paper made from hemp or grass may appear to be the more sustainable option. However, in contexts where organic waste management is limited and paper recycling infrastructures are well established, recyclability can outweigh the potential benefits of composting.

Rather than offering a perfect solution, the publication embodies an ethic of awareness: each decision on format, pigment, or binding was weighed against alternatives to align as closely as possible with the project’s values. This reflects a broader understanding of sustainability as a dynamic concept. Its meaning shifts with context, technology, science, and cultural perspective.

Sustainability is a collective process: knowledge, like fertile soil, grows stronger when it circulates freely.

Because the project was made possible through public funding, all documentation is published under a Creative Commons CC BY-NC 4.0 licence. Knowledge is material to be broken down, redistributed and reactivated rather than locked away. Five hundred printed copies were distributed free of charge, and the digital version was made available for download.

Despite being the conclusion of the project, the publication is not intended as an endpoint but as part of a cycle. Everything may be reused without permission, adapted into new contexts with appropriate attribution, or developed into something completely different.

Note by Severin Geißler,
designer of the publication:

Material and processing choices play a crucial role in defining the ecological impact of a product. For this publication, we decided to go for the least harmful combination of materials, rather than strictly following the Living Library manifesto. Even though it would technically be possible to produce a fully compostable publication, it would not necessarily represent the most sustainable solution. Considering a typical use case, publications rarely follow a cyclical return process like other goods, but rather end their lives on bookshelves. Should they eventually enter the paper waste stream, the material is reintegrated into the ‘natural’ industrial cycle from which it originates.

According to the German Environment Agency, choosing recycled paper instead of paper made from virgin fibres can reduce energy consumption by approximately 50%, water usage by up to 80%, and CO_2 emissions by up to 15%. This publication is printed on 100% recycled paper without bleaching additives. Resource consumption is further reduced through the use of lightweight paper with a grammage of 60 g/m².

Considering the printing ink, the publication was produced using a single spot colour in order to avoid unnecessary material processing needed for four-colour offset printing. Even though this limits the amount of visual information, we tried to keep the essential content clearly accessible. The plant-oil-based ink used for the printing, SUN CHEMICAL® PANTONE® NPS, reduces the environmental impact both during production and in the paper recycling process. At least 80% of the ink’s resources are from renewable sources.

For binding, we adopted a modular approach and chose a low-tech, traditional method: perforated sheets are bound with hemp yarn. This binding technique enables easy separation of the two components – paper and yarn – facilitating material separation.

Essay by Severin Geißler

In search of harm

Is a publication sustainable when its ecological footprint is minimised? When its content travels effectively enough to justify the material it consumes? Or when it endures for decades, circulating among many readers? Each of these possibilities is persuasive, yet none is sufficient on its own. Locality complicates the picture: a 'local' project can serve readers scattered across a continent, and it is not obvious whether the designer's, the printer's, or the reader's location should anchor the term.

Production tools complicate it further: computers, software, and networked communication leave energy and emission traces that are real, if hard to measure. So do supply chains, from fibre extraction to transport, warehousing, retail, and marketing. Even the 'intended lifespan' is ethically charged: should a publication be designed to rest for centuries on shelves or to live briefly and then vanish? And what counts as a good ending, a publication that can be composted and returned to soil with minimal residues, or one that can easily enter recycling loops that keep fibres in circulation?

It quickly becomes clear that broad and incredibly complex research is necessary to evaluate its impact or harm to the environment. The most widely recognised framework for evaluating the environmental footprint of a product (even though not answering all of the questions above) is the Life Cycle Assessment (LCA), which measures environmental impact across all phases of a product's life cycle: raw material extraction, production, distribution, use, and disposal. For print media, this includes not only materials and energy but also the expected lifespan and disposal practices, which are often overlooked.

Dissolving into whispers

Most of the printed matter either stays on bookshelves or ends up as waste paper, without the user considering further steps. What if we take composting into consideration when developing a publication? Can it serve as a guiding parameter? Can compostable materials help us create a more sustainable publication?

It is important to mention the difference between 'biodegradability' and 'compostability'. A material is biodegradable if it can be broken down by microorganisms (bacteria, fungi, etc.) into natural elements such as water, carbon dioxide, and biomass, even though it can take years. A material is compostable if it not only biodegrades but does so within a relatively short and predictable timeframe under specific conditions (such as those in industrial composting facilities or home compost bins). Compostable materials must also break down into non-toxic components that improve soil quality (compost).

In the European Union, the compostability of packaging (which a publication can be categorised as) is defined through the EN 13432 norm: printing ink should not exceed 1% of packaging weight per colour and not more than 5% for all colours together (e.g. when printed in CMYK offset). To pass the toxicity tests, it is necessary to use paper from virgin fibres without bleaching additives. In the end, to officially call the printed matter 'compostable', an official composting test in accordance with EN 13432 is required:

1. Material analysis:
   The exact ingredients of the packaging are determined, and compliance with heavy metal limits is checked.
2. Biodegradability test:
   At least 90% of the organic material must convert into CO_2 within 6 months in a humid environment.
3. Compostability test:
   After 3 months of composting and fine sieving, less than 10% of the original mass may remain.
4. Practical composting test:
   Ensures the packaging does not negatively affect the overall composting process.
5. Agronomic and ecotoxicity tests:
   Evaluates the compost's effect on plant growth and checks for harmful substances.

Applying these criteria to publishing means analysing all materials – paper, ink, coatings and binding – as a single entity. For each of the compound parts, I researched a material that allows composting. It quickly became clear that using recycled paper – which, due to ink and bleaching residues, is not easily compostable – would still be less resource-intensive and therefore less environmentally harmful than newly produced, unbleached compostable paper (such as grass paper). This makes clear that compostable material properties are not inherently the more sustainable option, rather, their impact depends on the specific use case.

More details on the specific material choices for this publication can be found in the note on the previous page (p. 45).

Turning in circles

The starting idea of 'designing without harm' opens up an incredibly complex field of research, and we are barely able to accomplish it as independent designers. It encourages material choices that avoid harmful substances, reduce chemical processing, and lower carbon emissions. Petroleum-free printing inks based on vegetable oils reduce the carbon footprint, choosing compostable paper can reduce the use of chemicals during the production process, and a low-tech binding method saves resources and could even inspire readers to think about alternative ways of material use that seem strange at first.

But of course, compostability as a single variable does not guarantee sustainability. It requires balancing multiple, often conflicting variables: durability versus material reduction, accessibility versus minimalism, print versus digital distribution, and so on. For example, one could decide to provide the content online in a data-efficient way or by sharing a single copy in a public library, which can greatly increase accessibility while saving material resources. Also, digital distribution reduces the material consumption of printing but relies on energy-intensive infrastructures and devices.

If composting is seen as a system of endless material circulation, then we need to consider circularity in industrial processes as well, like the 'circular economy' model, which aims to reuse materials for as long as possible. While organic matter is returned to the environment through the compost cycle, industrially produced matter (paper for example) is returned to the production cycle through a highly technical recycling process to produce new paper. Since paper is the primary resource in publishing, choosing recycled paper usually reduces the 'harm' more than using compostable paper.

Towards harmlessness

Taking 'harmless' as a design quality means moving beyond a narrow reading of sustainability towards context-sensitive judgement. Designers and project developers act as mediators: they select which variables to prioritise, make compromises transparent, and adopt frameworks such as LCA and circular economy principles to guide decisions. Regulation and market practice are moving in the same direction: towards supply-chain due diligence, clearer product information, and pressure to reduce waste from overproduction and returns. None of this absolves the designer and all of it enlarges the room for better choices. Sustainability in print publications cannot be expressed by adhering to a quality mark or international regulations alone. It sometimes can even create contradictory outputs when waste management systems are not optimised for recycled or compostable materials. It is a moral attitude: a constant search for more ways in which paper, inks, and bindings can avoid or reduce harm to the environment. This requires a strong physical connection to the industrial printing process and critical examination of everything produced by that industry. Composting, which goes much further than circularity, can offer new ways to counter harm, and to prevent new future harm from ever happening.

Manifesto

Rule 1: Everything must become compost.

All materials used or created within the Living Library must be fully biodegradable[1] and capable of naturally decomposing into organic matter, contributing to soil enrichment without leaving harmful residues.

Rule 2: Everything must be sourced locally.

All materials used in the Living Library must be grown, harvested, or produced within a 50-kilometre radius of the Bio Design Lab at the HfG Karlsruhe. This supports local ecosystems, reduces transport emissions, and strengthens community sustainability.

Rule 3: Everything must be sustainable and prevent harm to the environment.

All materials and processes must prioritise long-term ecological balance. This means minimising environmental impact, using resources efficiently, and ensuring that materials are derived from renewable and natural sources with a focus on regeneration.

The Living Library was established as a transdisciplinary experiment to explore how principles of circularity can be translated into concrete practices of design, learning, and knowledge exchange. From the outset, it was conceived not merely as a collection of materials but as an evolving ecosystem in which cycles of growth and decay are integral to the process. Yet how can such principles be integrated, and where does one even begin? Setting up a material library in the conventional sense – with extensive categorisation systems and classes of materials – quickly proved to be unproductive. This was not only because the establishment of such a platform is immensely resource- and time-intensive, exceeding the relatively short two-year project period, but also because numerous highly detailed and well-founded material libraries already exist, both online and offline. Why, then, reinvent the wheel once more, out of sheer pressure for innovation?
Instead of creating a 'conventional' material library, the project focused on temporary cycles and the situatedness of materials. Yet even here, the sheer scope of the task appeared overwhelming. Which materials should be selected, and according to which criteria? In what condition should they appear: as raw matter, semi-finished products, or final artefacts? To provide orientation within this experimental framework, the project team eventually formulated a manifesto. Rather than prescribing a rigid framework, it defined soft guidelines that shaped the scope, methods, and ongoing outcomes and discourses of the Living Library. The manifesto thus consists of three simple but far-reaching rules, which are discussed in detail in the following chapters.

Together, these rules framed the Living Library as more than just an archive: they defined it as an epistemic tool that generates and tests knowledge through practice. They required constant reflection on the consequences of material choices and introduced constraints that opened up new creative directions. The compost rule, for example, not only limited the selection of materials – by excluding all non-compostable options – but also introduced a temporal dimension into the design process. Instead of striving for permanence, aspects such as temporality and transformation came into focus, with 'decay' itself becoming an active and visible stage of learning.

The locality rule fostered unexpected collaborations as the 50-kilometre radius necessitated direct exchange with foresters, farmers, craftspeople, and small-scale industries in the region. This generated situated knowledge about existing material cultures – such as sheep's wool networks, hemp processing, or forestry practices – and brought the tacit expertise of local actors to the surface. The sustainability rule added yet another layer of critical evaluation. Every material, process, or technique was assessed not only for its functional or aesthetic qualities but also for its ecological implications. Was it meaningful to work with a given material at all? And what value chains and systems already existed that needed to be acknowledged within the design process?

What became clear was that working with such a self-imposed set of rules was by no means simple. Composting processes cannot always be controlled or foreseen. Adhering strictly to an action radius of 50-kilometres appears almost impossible in a world of highly interwoven, global supply chains. Ultimately, such rules are always (in part) artificial and therefore subject to constant negotiation and discussion. They can contribute to finding creative ways of dealing with uncomfortable conditions. They may also foster the ability to endure ambiguities and even contradictions. The Living Library manifesto is therefore not a universal recipe but a situated framework that emerged from specific contexts of practice, pedagogy, and ecology. Its three rules shaped the project both tangibly and conceptually – guiding material choices, structuring collaborations, and provoking reflection on what it means to design responsibly. More than a set of guidelines, the manifesto itself became a tool of inquiry – tested, negotiated, and continuously redefined throughout the unfolding of the project. Its lasting value lies not in strict adherence but in the conversations, experiments, and insights it has enabled.

1 See Lexicon: 'Biodegradable'

Rule 1:
Everything must become compost[1]

Fara Peluso and Pleun van Dijk

The first rule, 'Everything must become compost', defines one of the core principles of the Living Library. It required that all materials collected, harvested, and processed within the project had to be fully compostable through worm composting[2] ensuring that, after use, they could re-enter local cycles and return to the bioregion.

Beyond the physical context, the rule also shaped other parts of the project in a more conceptual way. While not everything can literally return to the composter, the idea of an afterlife informed every decision. Composting was understood as both a practical method and a way of thinking. It invited a shift from design as production, to design as participation in cycles of transformation and return. Worm composting, as explored in the Living Library, reveals that material change can be both biological and educational. By inviting worms to break down organic matter, the process highlights decay as an essential part of design, reflecting on how materials degrade, what happens at their end-of-life, and how future designers might work more responsibly from origin to afterlife.

The following guide translates this principle into practice, offering simple steps for creating and maintaining a worm composter, while observing how waste becomes soil and renewal begins. To study the compost process in detail and observe the worms, the compost guide uses an aquarium (preferably second-hand).

1 See Lexicon: 'Compost'
2 See Lexicon: 'Composter'

How to make your own worm composter

Tools and materials

- A second-hand aquarium. Pick a size of 30–40 litres and make sure it has a lid that can be drilled into.
- Three pieces of cardboard or wooden panels. Pick the same sizes as the glass sides of the aquarium (you will use them to block light).
- 1–2 kg of gravel or coarse sand (for drainage and airflow).
- Shredded paper waste or cardboard.
- A few handfuls of compost (to introduce microorganisms).
- Green food: fresh fruit and vegetable scraps, coffee grounds, tea leaves, grass clippings, green leaves.
- Brown food: dead leaves, shredded paper or cardboard, sawdust.
- Crushed eggshells or a mineral-based soil improver.
- Approximately 500 g of Eisenia fetida (red wigglers).
- Spray bottle.

Fara working on the worm composter.

Build the composter

1. If the lid of the aquarium does not let air through, drill 5–10 small ventilation holes (3–5 mm) and cover them with a fine mesh or breathable fabric to prevent flies from entering. If the lid is solid glass, replace it with a lid made of cardboard or wood (and do not forget to add the ventilation holes).
2. To block light, cover three of the four glass sides of the aquarium with cardboard or wooden panels. Leave one side open so you can observe the worms.
3. Add 1–2 cm of gravel or coarse sand to the bottom of the composter for drainage.
4. Combine shredded paper or cardboard with compost to make the bedding. Spray with water until the mixture feels damp. Fill the aquarium to about one-third of its height.
5. Place the worms gently on the bedding, they will start to dig down after a few minutes.
6. Allow the worms two to three days to settle before adding any food. This helps them adjust to the new environment.

Once you have some experience, along with the bedding, you can start adding materials like paper pulp, mycelium, wool, or compostable bioplastics to experiment. You may also insert a perforated piece of cardboard (with ~5 mm holes so the worms can move through it) standing up in the middle of the box, creating two equal parts of bedding with a wall in between. This allows you to place the composting material on one side and the fresh bedding on the other.

Create the right environment

- Keep the composter in a dark environment.
- Maintain a temperature between 15 and 25 °C. Indoors or shaded outdoor areas are suitable during spring and autumn. Protect from frost, overheating, or direct sunlight.
- The bedding should remain moist, never dry or wet. Check this every few days and spray with water if it feels dry. Mix in dry cardboard if the bedding feels wet or starts to smell.
- Gently loosen the upper layers every few weeks to prevent compaction and ensure air flow.
- Keep the composter away from sources of noise or vibration, as worms are sensitive to disturbance.

Feed the worms

1. Add food (vary between greens and browns) in small amounts several times per week. Keep a ratio of two parts food waste to one part shredded paper or cardboard. Chop or tear the food into small pieces to speed decomposition.
2. Use fruit and vegetable peels, coffee grounds (no more than one-third of total food volume), old bread, and wilted flowers.
3. Do not use citrus fruits, onions, garlic, meat, dairy, cooked food, and glossy or coated paper. Also, avoid oily, spicy or salty foods.
4. After the food, add a thin layer of bedding

Monitoring which kinds of food decompose the fastest and how the worms respond helps you to understand what they do and do not like.

Monitor the composting process

- Healthy worms are active and reddish-brown. If they cluster at the surface or along the sides, the conditions may be too wet, acidic or warm. Try to adjust the bedding and the kinds of food you add.
- A healthy composter smells earthy. Sour or rotten odours are a sign of too much moisture or food. If this happens, stir gently with your hands and add new bedding.
- To test the moisture level, take a handful of the composting matter, gently remove the worms and squeeze it lightly. It should feel damp (like a wet sponge) and should not drip. Spray on more water if it feels too dry, or add shredded cardboard if it feels too wet.
- Maintain a neutral pH level (acidity) by adding crushed eggshells or a mineral mix once per month.

Fara working on the worm composter.

Harvest the compost

After 8–12 weeks, the compost will appear dark, crumbly, and earthy.

- Gently push the finished compost to one side and add fresh bedding and food to the other to encourage the worms to move over.
- After giving the worms 1–2 weeks to move to the fresh bedding, collect the finished compost by hand. Add any large undecomposed pieces to the fresh bedding.

Use the compost

When the compost is collected, you can add it to your garden. For potted plants or seedling trays, dilute the compost by mixing 1 part compost with 10 parts soil. Compost is rich in nutrients and improves soil structure while reducing the need for synthetic fertilisers. Each completed cycle reaffirms the Living Library's guiding principle: materials never end, they transform. Through the quiet labour of worms, discarded matter becomes fertile ground for new growth, closing the loop between use, decay, and renewal.

Personal note by Fara Peluso:

As composting progresses, it is also beneficial to embrace some theoretical inquiries, asking, for example, how compost can be engaged as a pedagogical performance? How can the worms become mentors, teaching lessons that go beyond this methodology? In the next essay, composting is explored under philosophical and holistic lenses, opening the practice to new ways of coexisting with worms as companions and life mentors.

Essay by Fara Peluso

Wisdom of worms

If we ever wondered how to live on such a damaged planet, as well as considering holistic approaches, worms can also be our mentors. In such an era of human destruction, "which has trained our eyes only on the immediate promises of power and profits" (Tsing et al. 2017, 2), it is becoming urgent to ask for new ways of living and thinking, and where to look. Besides design and technological solutions that can help to visualise concretely what a possible outcome could be, it is becoming clear that a different way of thinking and being, in communion with the more-than-human world, needs to be rewound. Fundamentally, this means to just pose simple questions, which are not only preceded by 'what' we can do, but by 'how', and instead of designing 'for', we will be able to activate practices of designing 'with' and in 'companionship' of all life forms.

The hidden wisdom and agency of worms

Worms are hidden, dwelling in darkness, yet they are far from being passive. They carry agency and unseen wisdom. Agents of transformation, remediation, and regeneration, in art and design practices, worms can offer a living medium and a guide. It is not merely poetic to say that worms carry agency but a consistent logic of new materialist thinking: things themselves have a kind of lively force.

Jane Bennett proposes a re-evaluation of agency, moving beyond its traditional confinement to human subjects and instead conceptualising it as a distributed, emergent, and vibrant material force. She argues that viewing non-human entities not merely as social constructs but as active participants fundamentally alters the understanding of agency. Bennett further describes life as an inherently restless and dynamic force – a "destructive-creative force-presence" that is not confined to any single body but rather represents "matter in variation that enters assemblages and leaves them." (Bennett 2010, 54). Consequently, worms, through their digestive processes and burrowing activities, exemplify this pervasive vitality. They actively reconfigure substrates, foster microbial growth, and establish microclimates, thereby functioning as crucial decomposers, catalysts, and engineers within the soil ecosystem.

Within a composting apparatus, worms act as co-designers, choosing their routes, rejecting certain substrates, concentrating casts, and moving moisture. They help to remediate degraded organic residues, supporting soil microbial diversity, buffering moisture fluctuations, and accelerate decomposition in conductive conditions. In this sense, worms are companions, not tools, as agents of regeneration and with embodied wisdom. Therefore, worms are 'actants'[1], based also on Latour's definition, which encompasses a small agency, a conjunction of actions with a big effect on remediation that can help human agencies to move far from the capitalistic ideas of 'primitive accumulation'[2] (Federici 2004).

The neglect of worms as cultural, epistemic, and symbolic.

Why have humans come to neglect worms so deeply? Through my work in companionship with worms and being active in observing them, I have been wondering why humans began to neglect them, querying how anthropomorphism shaped contemporary human perception and conception of worms. Therefore, I have also been questioning what has contributed to their despoilment (Abram 1996) and how a different way of perceiving and relating can be built?

I have inquired into the historical decline of human regard for these organisms. Given that anthropocentrism often correlates with egocentric perspectives, while isomorphism aligns with principles of resonance. I wanted to explore how a resonant understanding can transform our relationship with the environment and its myriad of micro agencies. This contribution also seeks to identify some factors contributing to a devaluation of worms, and to propose alternative paradigms for their perception and interaction.
The inattention and marginalisation of worms stems from a complex interplay of factors, including epistemic biases, aesthetic and affective prejudices, their concealed subterranean existence, and the enduring influence of modern dualistic thought. Both modern scientific and philosophical traditions have historically privileged phenomena that are visible, discrete, measurable and readily comprehensible, often reducing 'lesser' organisms, particularly those inhabiting the soil, to mere functions rather than recognising them as active agents.

Worms are often relegated to a symbolic domain characterised by disgust and decomposition, cultural and aesthetic conventions frequently link worms with putrefaction, mortality and contamination. The sight of a worm can provoke revulsion rather than acceptance. Lacking eyes, limbs, faces, or communicative gestures, worms do not meet the anthropocentric standards through which many individuals allocate moral or imaginative considerations.
The profound epistemological gap separating subject and object within Western modernity has historically demoted matter, and consequently subterranean organisms, to a passive existence. As Bennett posits, the "quarantines of matter and life" foster a tendency to "ignore the vitality of matter and the lively powers of material formations" (Bennett 2010, vii). Within such a framework, worms are presumed to be inert, disposable, and interchangeable. Ultimately, the anthropocentric perspective prioritises and values utility, magnitude, and visual spectacle. Worms, characterised by their subtlety, gradual pace, and diminutive size, generate effects over protracted periods without immediate dramatic impact. Consequently, they fail to align with human temporal expectations, leading to their devaluation.

Donna Haraway's insights from The Companion Species Manifesto offer a valuable framework for this discussion. Haraway stresses the concept of "mutual becoming" in companion species relationships, urging a rejection of mastery fantasies. As she articulates, "there cannot be just one companion species; there have to be at least two to make one. It is in the syntax; it is in the flesh" (Haraway 2016, 13). While Haraway's manifesto primarily explores the capacity of dogs to embody feminist inquiry, her framework can be extended to worms, which also possess significant agency despite their diminutive size. She prompts reflection on "how might an ethics and politics committed to the flourishing of significant otherness be learned from taking dog-human relationship seriously?" (Haraway 2016, 91). Worms could be considered companion species, provided we acknowledge their radical alterity rather than reducing them to mere micro-pets.

In this text, I advocate for using these reflections as a means to re-evaluate worms' existence on such a damaged planet and their perceived 'invisibility' to human observation. They should be recognised as powerful agents for the health of soil, plants and the Earth. Furthermore, it is pertinent to explore the lessons these neglected companions might impart, how our perceptions are shaped by distant childhood memories, and how new relationships with them can be forged.
Worms can be perceived consequently as entities possessing wisdom, serving as companion mentors capable of imparting insights into affection, intimacy and an alternative conceptualisation of temporality. They can illuminate the profound implications

of companionship, cohabiting the very land and soil that sustain us. Thus, worms inherently align with feminist inquiries into kinship and contingency.

The qualities of worms

To comprehensively define the qualities of worms and ascertain their significance, it is essential to consider their morphological, ecological, functional, and metaphorical attributes. These organisms are characterised by their segmented, soft bodies and permeable skin, which facilitates gas exchange. Their internal digestive systems harbour diverse microbial communities, and their faecal castings exhibit higher concentrations of available nutrients, increased microbial density, and enhanced structural aggregation. These characteristics collectively contribute to improved soil porosity, water retention, and the creation of microbial habitats. Worms function as critical ecosystem engineers within soil environments. Their burrowing activities enhance aeration, drainage, and root penetration, while their integration of litter and mineral horizons effectively mixes organic and inorganic soil components. This distribution of soil particles aids in the reassembly of soil structures, thereby fostering resilience in degraded landscapes.

Metaphorically, worms represent continuity across scales, from the microscopic to the macroscopic soil environment, and from decomposition to renewal. Consequently, they compel us to consider profound depths, to conceptualise subterranean temporalities, and to perceive emergence from decay. Worms inhabit these interstitial, complex zones, embodying a regenerative capacity that is inherently contingent, responsive, and emergent rather than perfectly linear or absolute. This complex interplay mirrors the interconnected and often fragmented existence within damaged ecosystems.
Consequently, worms call for heightened perceptual awareness, challenging established notions of subjectivity, temporality, care, and the very essence of life. Engaging with worms requires a deliberate deceleration, close observation, and the activation of multiple senses. As David Abram notes: "Humans are tuned for relationship. The eyes, the skin, the tongue, ears, and nostrils – all are gates where our body

receives the nourishment of otherness", underscoring that relationships are sensory, permeable, and reciprocal, and that "we are human only in contact, and conviviality, with what is not human." (Abram 1996, 2). This suggests that worms can reawaken our relational sensibilities.

Worms challenge established notions of identity and selfhood by traversing soil boundaries, compelling a re-evaluation of identity as permeable and relational. Furthermore, the inherent distinction between subject and object becomes less clear when designers and worms engage in collaborative efforts, such as the Living Library's material decay methodology. Worms operate on temporal scales that diverge significantly from human perceptions of urgency, enacting a process of "time composting" that can span weeks or months. The cyclical processes of ingestion, cast deposition, and microbial succession, inherent to worms, represent rhythms that humans must integrate into their own chronologies, aligning with the subterranean tempo. Consequently, worms offer valuable lessons in patience, the significance of waiting, and the concept of latency.
Ultimately, what does care mean for worms? Caring has nothing to do with protection but with responsive tending: adjusting moisture, aeration of soil, and feeding input. By observing and listening to worms' signals, like wandering away, clustering at edges, we catch signals of adaptive and mutual care as, 'ethical co-existence which requires humility and openness in encountering other forms' (Lykke et al. 2024, 112). Thus, we assume the role of ethical interlocutors, acknowledging the alterity of worms and attending to their specific requirements.

Worms can help to awaken our awareness and help us accept that invisible forces are driving the environment and us, that we share with them the same lands, air and waters, even though sometimes we cannot see them. That life exists in many forms on a planetary scale, while we might be very focused at the ground level. That we need to embrace the old Egyptian phrase 'as above, so below' explaining that 'what is above is like to that is below, and that which is below is like to that which is above, to accomplish the miracles of one thing' (Ellcock 2022). This concept of ‚one thing,' traditionally symbolised by an

ouroboros – a snake or dragon eating its tail, representing the cycle of life, death, creation, and decay – can today include the earthworm in its circularity, integrating the worm's material, theoretical, philosophical, and holistic capacities.
Thus, the circle is also open to subterranean depth, into worm tunnels, into microbial networks, into co-creative becoming. The hidden wisdom of worms teaches us that agency is not the domain of the human alone, that life is distributed, entangled, porous. In their silent labours of digestion, casting, burrowing, they whisper alternative ontologies where the boundaries dissolve, the time extends and becomes deeper, the care becomes responsive and committed, and the design becomes a companion practice.
Worms are in support of humility and attentiveness, offering a slow co-creation. To include worms in the symbolic circle and in our daily lives means honouring invisible agencies that lie beneath our feet, acknowledging that regeneration is not exclusively a human territory, but it is shared. If we dare to make this circle of inclusiveness and contemplation wider, to listen to worms' wisdom, to dwell with soil and its subterranean life, we may foresee a more relational and alive mode of being on this damaged planet.

1 Bruno Latour writes: 'Actor, Actant: Actant is a term from semiotics covering both humans and non-humans; an actor is any entity that modifies another entity in a trial; of actors it can only be said that they act; their competence is deduced from their performances: the action, in turn, is always, recorded in the course of a trial and by an experimental protocol, elementary or not. (Latour 2009).
2 Primitive accumulation in Marxist thought is the term describing the historical process where workers were separated from their means of subsistence, leading to the concentration of wealth in the hands of landowners and capitalists. It outlines the shift from feudalism to capitalism and the transformation of peasants into the proletariat.

Rule 2:
Everything must be sourced locally[1]

Pleun van Dijk and Jaap Knevel

This second rule, 'Everything must be sourced locally', applies first to the materials that are the centre of the project. All materials researched, harvested, and collected were found within the local region surrounding the HfG Karlsruhe. The region was defined as a circular area stretching roughly 50 kilometres, with the university at its centre. This bioregion[2] was defined by a combination of geological, ecological, and cultural lines. Limiting the project in this way encourages exploration of what is nearby, and shifts attention away from global supply chains towards the possibilities of the region. It grounds the project in the immediate environment of the HfG Karlsruhe and its wider region.

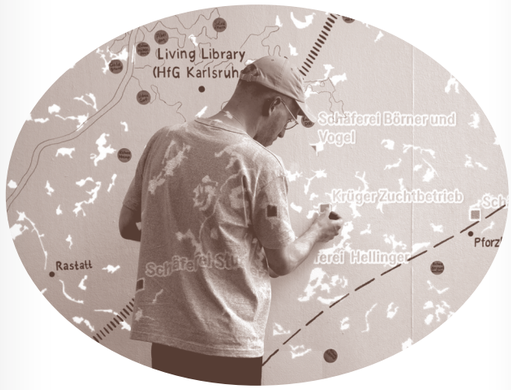
The commitment to local sourcing extended beyond materials. It guided every aspect of the project. The website is not hosted in a datacentre far away, but on a server on-site; the only typeface used (the one you are reading at this moment) was designed by a studio in Karlsruhe, and all posters were printed by local businesses. These decisions may seem small, but they signal a broader shift: knowledge, craft, and technology are also resources embedded in the bioregion.

Alongside the idea of the local, the project introduced the concept of the super-local[3]. This perspective invites students to look not only at the ecosystems of the region but also at those closest to them: their own bodies, their homes, and the infrastructures in and around the HfG Karlsruhe. What potential lies in the materials produced by the body? What forms of waste are generated in daily life? What overlooked resources circulate within the university?

By connecting these two scales, the Living Library investigates the many dimensions of 'locality' that can sustain and transform creative practices.

Not everything could be found within a 50-kilometre circle. Instead, the rule demonstrated a change in mindset on how design education can cultivate a deeper awareness of place. To work locally is to acknowledge limits, to remain conscious of the environmental costs of transport and shipping, and at the same time to rediscover the abundance of resources, skills, and knowledge that lie nearby.

Mapping the region played a central role in exploring these questions. To map the region is not simply a way to set boundaries, but to reveal the many layers that weave in between those boundaries: materials, traditional crafts, infrastructures, and histories. For students, mapping became both a tool for orientation and a source for inspiration: a way to 'ground' themselves within a larger web, while also discovering how much can be found within arm's reach. Each map is an invitation to explore.



The Bioregional Map at the Living Library workspace, a large wall with a top-down view of the local region around the HfG Karlsruhe.

Map of the region around Karlsruhe from the end of the 16th century. Starting from the river Rhine, the map looks east following the river Alb towards the Black Forest.
© Stadtarchiv Karlsruhe 8/PBS XVI 1.

How to map your local region

Many of the choices made in the project are cartographic choices. In defining our local bioregion as a circle, the Living Library drew inspiration from early maps of the city of Karlsruhe. The original plan for the city, from 1718, envisioned a perfect circle around the Karlsruhe Castle (Schloss Karlsruhe) with radial streets from the centre outwards (hence its nickname 'Fächerstadt' or ‚fan city').

There are many approaches to mapping, each containing deep cultural and economic traditions. To show that mapping cannot be defined by a single approach, the education programme of the Living Library explored two distinct ways of mapping: mapping from above and mapping from below. This small guide shares some of those experiences and offers practical steps for applying them yourself.

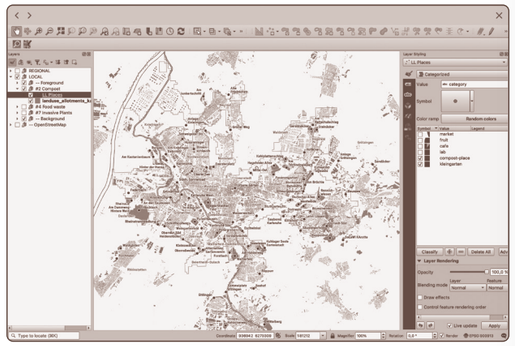
1. Mapping from above

This first approach is the most accessible, as it can be done from anywhere with only a computer and an internet connection. Mapping from above means using publicly available data sources such as satellite images, open-source maps (like OpenStreetMap), or public biodiversity databases (such as GBIF)

to learn about the geography, land use, or living systems of a region. This data can then be used to create a wide range of maps showing forests across a region, mushrooms recorded online, or allotment gardens in Karlsruhe. There are countless online places where geographical data about natural materials is available. Many of these tools and related software are free, often requiring only proper attribution of the data sources.

For a practical example of mapping from above, let's look at map №6 on page 112–113, showing trees in the local region around Karlsruhe. In the background, there are several lines running through the landscape. Two of them – the mountain ranges on both sides of the Upper Rhine plain and the river Rhine itself – were drawn on top of satellite images made by the Copernicus Earth observation satellite (operated by the European Space Agency and freely available). Another line, around the built-up area of Karlsruhe, was taken from the 'Urban Morphological Zones (2006)' dataset, published for free by the European Environment Agency (EEA). The most important layer of the map shows the forests themselves, drawn from a European dataset called 'CORINE Land Cover 2018'. This resource classifies land across Europe into 44 types, including three kinds of forests: 311 (broad-leaved), 312 (coniferous), and 313 (mixed).

Note: The map was assembled in QGIS, a free, open-source mapping program that lets users layer and visualise geographic data. It runs on Windows, macOS, and Linux, and there are many helpful online tutorials for beginners.



Screenshot of the open-source QGIS app showing several datasets used to create the map of trees in the local region.

2. Mapping from below

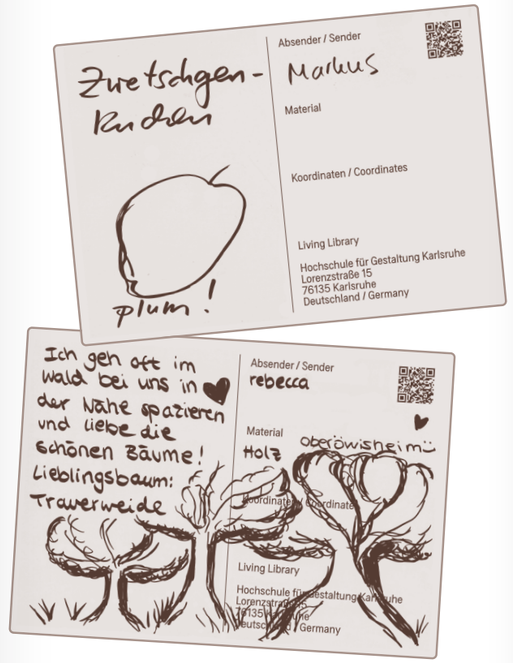
This second approach focuses on physically exploring an area: seeing it with one's own eyes, talking to residents, learning from their experiences, and creating maps that represent a place more freely. Mapping from below requires physical access to the environment. Knowing someone from the area who speaks the local language is highly recommended, as it allows mapping of cultural layers and places that remain invisible to the naked eye. Working with local communities also allows for many different interpretations, views, and experiences of the same place.

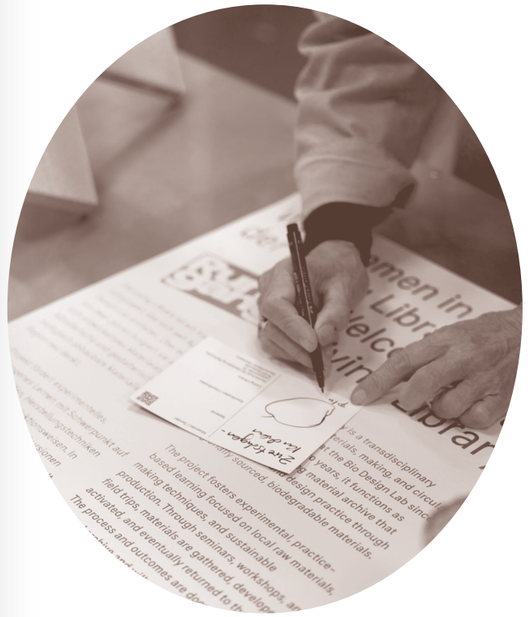
For a second practical example, this time of mapping from below, take a look at the postcards and photos on page 76–77. It was created during a one-night-only mapping event at the Living Library, part of the Karlsruher Museumsnacht. In return for a free glass of local wine served from a makeshift wine bar called 'La Carte Locale' (the area around Karlsruhe is rich in vineyards) visitors were asked to answer a few questions: 'What natural materials or living things are typical for this region in your imagination?', and 'Are your personal memories or experiences connected to a specific season or time of day?'. They then attached their answers, written on postcards, to a large wall map in the physical Living Library.

The result was a huge collection of deeply personal stories and observations. Someone wrote about the apple orchards his father used to take him to when he was a small boy. Another visitor drew pictures of weeping willows, her favourite tree in the nearby forest, and shared moments when rabbits started living in their allotment garden. Everyone had something to share and many stayed to read the notes by others, discovering material memories they had never considered before. Together, these stories formed a living map, showing how mapping from below can reveal the emotional and cultural connections between an ecosystem and its inhabitants.

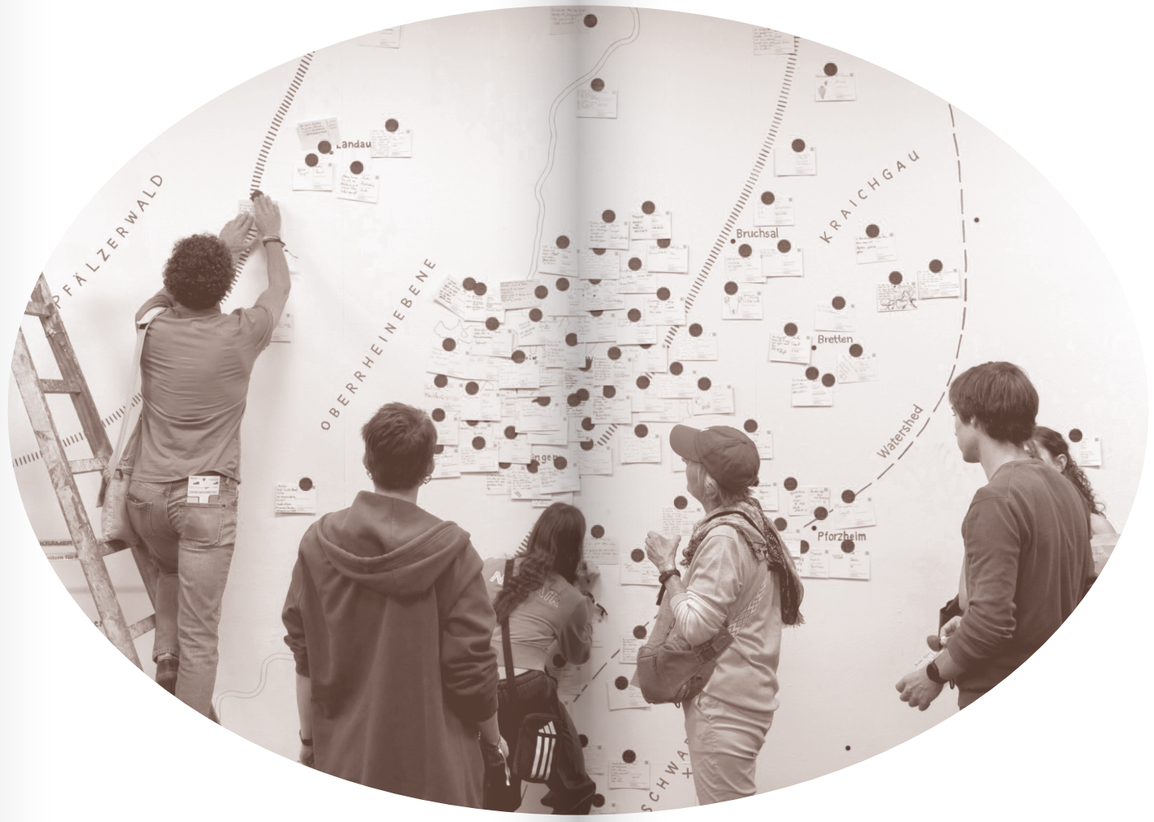
1 See Lexicon: 'Local'
2 See Lexicon: 'Bioregion'
3 See Lexicon: 'Super-local'

Postcards written by participants of 'La Carte Locale' with personal stories about local biomaterials.





Moments from 'La Carte Locale', a one-time only pop-up winebar hosted during the annual Karlsruhe Museum Night to collect local knowledge.



Essay by Jaap Knevel

A many-worlds inter-position

I open my eyes under a terracotta roof tile on the tower of a large beige building, wiggle out through a small opening and quickly spread my wings. Within seconds, I'm high in the air and overseeing the neighbourhood. A sudden gush of wind and I'm up much further now, hundreds of metres. Now I recognise where I am. I recognise the small stream flowing westwards and reach the river Rhine. It stretches as far as I can see, cutting straight through the landscape. I fly over forests of broadleaf trees eating into the city from the south. As I continue beyond Ettlingen, the terrain becomes hilly now, and I fly towards the Turmberg, a small mountain covered in grapevines on its steep hills. In the distance, beyond the mountain, I see rolling hills and fields where sheep and cows graze. Almost full circle now, I continue towards another forest spreading from the centre of the city far out north. This forest is different from the ones in the south, I notice. It is covered not just with leaf trees but with pine trees too and every now and then a small patch of the forest has been cleared out for more concrete and steel buildings arranged in neatly organised rectangles.

I fly as high as I can. A thousand metres, then fifteen hundred, then two thousand. I fly until I almost can not see the city anymore. It is now just a small dot in a broad valley through which the Rhine flows. The only thing I can make of it is that the forests I flew over form part of a much larger forest stretching in both directions along the valley floor. I'm surrounded on both sides by large mountain ranges, two curving lines that clearly cut through the landscape, creating boundaries on each side. To the west, across the mountains, lies the Pfälzerwald (Palatine Forest), and beyond, the Vosges. On the other side, to the east, lie the mountains of the Schwarzwald (Black Forest) and the Kraichgau hills. It is a magnificent sight.

How would a bird draw a map of its surroundings? In the 1970s, an ecological movement originating from San Francisco came close to answering that question. Rather than adhering to the international borders that divide the land into nations, young eco-activists like Raymond Dasmann and Peter Berg looked to nature – its watersheds, mountain ranges, forests – and the lines it forms from within, as the borders for a new kind of nation-building. Ultimately, they imagined living in these 'bioregions' (or 'biotic provinces' as Dasmann called them) by establishing small-scale communities, inspired by ways in which humans traditionally sustained themselves. They called this process 'reinhabiting'.

"Reinhabitation involves developing a bioregional identity, something most North Americans have lost, or have never possessed. We define bioregion in a sense different from the biotic province of Raymond Dasmann (1973) or the biogeographical province of Miklos Udvardy (1975). The term refers both to geographical terrain and a terrain of consciousness—to a place and the ideas that have developed about how to live in that place. Within a bioregion the conditions that influence life are similar and these in turn have influenced human occupancy."

(Dasmann and Berg 1978)

Cartography played an important role in promoting this new bioregional movement. Peter Berg's Planet Drum Foundation produced beautiful maps and atlases that gave shape to the lands they imagined. Take a look, for instance, at the incredible Watershed Guide, published by Planet Drum in 1977. It paints a picture of nature in its most pristine state, undone of its political divisions, with humans living among animals in harmony.

However anti-political in their intentions, the first bioregional maps were deeply political statements. They resemble pre-colonial maps of the Americas, which simplified complex ecosystems into supposedly empty lands ready for human settlement. They also sometimes obscured the fact that these lands were already home to indigenous nations, with long-standing ecological knowledge and borders marking their sovereignty.

To learn more about the interplay between culture, geography, and political maps, in the summer of 2025, I took a bus to Haguenau. In 1871, Haguenau became Hagenau (without the second 'u') and became part of the Reichsland Elsaß-Lothringen (Imperial Territory of Alsace-Lorraine), following France's defeat in the Franco-Prussian War. During the Battle of Wörth, just a few kilometres away, around 21,000 people were killed or wounded. In nearby Wissembourg, which became Weißenburg under German control, there were another 2,500 casualties. To record the movement of the border and the renaming of cities, official maps of the region had to be redrawn.

Hagenau regained its Francophone name Haguenau in 1918, at the end of the First World War. The Treaty

Watershed Guide by Michael Moore. 1977.
© Planet Drum Foundation.

of Versailles, signed in 1919, officially returned the territory of Alsace-Lorraine from the German Empire to the Third French Republic. Over the four preceding years, approximately 30,000 people had been killed or wounded on the nearby Vosges front. Again, borders were redrawn and so were the maps.

In the late 1920s, the French government began building a network of fortified bunkers near Haguenau. These were part of the larger Maginot Line, a radical reshaping of the landscape built as a defence against a speculative German invasion. That invasion came on 10 May 1940, when Nazi Germany launched Fall Gelb (Case Yellow). Surprising France, they bypassed the Maginot Line entirely by moving through the Ardennes instead. After occupying Alsace-Lorraine, although this time not officially renamed, Haguenau was again referred to as Hagenau under German control. Tens of thousands died. Borders were moved. Maps were redrawn.

Finally, on 16 March 1945, Haguenau was liberated by Allied forces. By the end of the Second World War, more than 50,000 people had been killed and over 30,000 had been wounded in the region. And once again, borders moved and maps were redrawn to the borders we know today.

New approaches to bioregional cartography emerged in the 90s and recognised that mapping nature

requires a much more complex understanding of how geology, ecology, and culture intersect. Conflicts defined new borders along geographical lines, those new borders then influenced the movement of culture, and local culture then decided how nature is protected and even formed, forming an endless loop. Canadian bioregionalist Brandon Letsinger, in a series of essays on his website, reflects this ever-changing movement by incorporating the element of 'temporality'. To counter the fixing of bioregions and presenting them as static, he writes, maps should be 'living documents', layered representations that change over time with ecological shifts, seasonal rhythms, and human movement.

My favourite example of temporality in maps is the incredible 'Coming home to indigenous place names in Canada' map created by Dr. Margaret Wickens Pearce at the Canadian-American Center, University of Maine. Her map overlays a geographical layer of Canada with a textual layer featuring the many names different groups of Indigenous peoples gave to places, creating a link between the past and present.

By presenting 'Coming home' not as a finished product, but an ongoing process, it becomes the kind of living document conceptualised by Letsinger. A living map. This concept was further explored by Frédérique Aït-Touati, Alexandra Arènes and Axelle Grégoire in their amazing book Terra Forma (2022). Writing in the foreword:

> **"We had to begin by trying to repopulate maps. To do so, we have shifted the object of notation, trying to delineate not the soil without living things, but the living things in the ground, the living of the soil, as they constitute it. This cartography of the living attempts to document the living and their traces, generating maps based on bodies, rather than topography, borders, and territorial lines."**
>
> (Aït-Touati et al. 2022)

For me, bioregional maps highlight a fundamental paradox in cartography: to present the natural world, infinitely complex and ever-changing, as something comprehensible and legible. It requires something seemingly impossible: resisting the urge to simplify, a methodology so ingrained in graphic design, that it has almost become synonymous with it.

I found a possible approach in the work of Dutch graphic designer Joost Grootens. In his article 'The Inevitable Rhetorics of Maps', he writes about Atlas of the Copenhagens, a collection of 400 different maps of the same city. The book counters simplicity with ambiguity by splitting what could have been a single map into hundreds of individual maps, each containing a different interpretation. He expands on ideas by Johanna Drucker, who explained ambiguity in mapping as deconstructing their representations as a way to make them more suitable to humanistic ways of knowledge production.

> **"Ambiguity is a persuasive tactic to make the user aware of the inevitable rhetorical effects in play. This can be done by a dichotomous approach of challenging and reinforcing the fundamental manipulations that take place in the construction and production of maps. Processes of projection, orientation, fixation, resizing, cropping, filtering, generalization, materialization, composition, lettering, organization and reproduction are essential transformations in the cartographic representation of a spatial phenomenon. (…) An ambiguous approach to cartography feels like an appropriate language to describe phenomena that are indefinite, unstable entities like ecology, nations, genders and humankind itself."**
>
> (Grootens 2018, 20-35)

In their most honest form, bioregional maps allow us to challenge singular interpretations of the world by revealing the endless ways in which nature and culture intertwine. Moreover, by treating them as the mere projections they are, they allow us to 'step out' of our individual or group gazes and discover new ways to look at our natural environment. By introducing the element of time, bioregional maps as living documents allow us to transcend the map as a tool which fixes nature into a permanent record. Like maps of the Dreaming created by Aboriginal Australians and the astronomical codices of the ancient Maya, they remind us that although we all share the same planet – we live in many worlds at the same time.

Coming Home to Indigenous Place Names in Canada by Margaret Wickens Pearce.
© 2017 Canadian-American Center, University of Maine.

Rule 3: Everything must be sustainable[1] and prevent harm to the environment[2]

Julia Ihls

The third rule of the Living Library manifesto, 'Everything must be sustainable and prevent harm to the environment', opens up a broader context and fosters a holistic (self-)understanding within the eco-social fabric. This rule is dedicated to the 'how' of designing throughout the entire material and artefact cycle: How are the processes organised into which materials are embedded? What value chains exist? And how can design practices establish an eco-social balance that ideally promotes not only human but also more-than-human well-being? In this sense, sustainability is a duty of care across the whole process – from local sourcing through use and maintenance to reintegration into biological or technical cycles.

Accordingly, sustainable design is first and foremost a systemic practice that considers ecological and social impacts over the entire life cycle. For the Living Library, this means: decisions are made with regard to their consequences and rendered traceable. This entails minimising environmental impact, using resources efficiently, and ensuring that materials come from renewable, natural sources, with an emphasis on regeneration. Such a stance may take concrete form in measuring and reducing energy and water consumption, as well as in consciously integrating end-of-life concepts into the design process. It can also mean posing the fundamental question of whether a design intervention is necessary in the first place. But the scope of this sustainability maxim, in the context of the Living Library project, does not end at the workshop or with analogue production. It also encompasses publication and digital infrastructure. What matters is coherence – the care applied to material decisions carries through to communication and operations.

In this context, it is important to clarify terminology and understand how terms interact: circularity for instance – understood as reuse, modularity, composting – can be a means to sustainability but does not guarantee it. A compostable artefact can be ecologically unfavourable if its production requires high energy or chemical inputs or involves long transport routes; conversely, a non-compostable object may be preferable if it is durable, repairable, and maintainable within the region. The same holds for bio-based materials, whose terminology describes origin rather than behaviour. 'Bio-based' is neither automatically biodegradable nor practically compostable.

Thus, this rule of sustainability establishes a constant process of negotiation – a mode of visible trade-offs. Functional and aesthetic goals are considered alongside ecological and social implications; where tensions arise – strength vs. degradability, local availability vs. performance, minimal chemistry vs. stability – decisions are documented with their justifications. In this way, a culture of balanced problem-solving emerges: instead of optimising for a single metric, robust overall solutions are sought. Care becomes a central element here: an artefact that invites maintenance and tolerates traces of repair often causes less environmental burden than one that is replaced at the first minor defect. Care, cleaning, repair, and safe storage are treated as design decisions just as much as classical form-giving.

Rule 3 therefore does not conceal ambivalences; it makes them workable. Composting does not always proceed as planned; local resources are not automatically the least burdensome; some commonly avoided additives are indispensable for safety or service life. In such cases, the reasons for a decision are disclosed and the conditions named under which a different choice would be appropriate. This openness has pedagogical value: sustainability is not a fixed definition nor checklist but an ongoing, verifiable conversation bound to place, use, and time.

In this sense, the third rule of the Living Library manifesto prepares a shift in perspective: When design is understood as a web of relations – between soils and waters, material flows and infrastructures, human routines and non-human needs – criteria of quality expand. Beauty is then not only surface, but also patience in care, legibility of repair, and the quiet consistency of reduced harm. Sustainability becomes an inner measure of design: it shapes how decisions are made and how they are made visible.

1 See Lexicon: 'Sustainable'
2 See Lexicon: 'Environmental'

Essay by Katharina Mischer
and Thomas Traxler
(mischer'traxler studio)

Wandel in werden: On the transition towards more mindful design practices

Aesthetics and the gaze

In our neighbourhood, some meadows grow wild. Meadows the way they should be seen more often: tall grasses, unruly bushes – local species, a tangle of growth. In spring and summer it blossoms, insects buzz, everything vibrates. You can feel the vitality. But by late summer the magic fades. The tall stalks dry out, turn brittle and collapse; beige-grey, tangled heaps remain. A real 'Gstättn', as we call it in Vienna. Right in the middle of the city, surrounded by multi-storey apartment blocks, this meadow looks un-designed, almost forgotten. In this urban context, the contrast becomes especially clear: here the expectation of order and care, there the seemingly unplanned, claiming its space. We know – and feel it deeply – how right and important this meadow is. And yet, as designers, we feel a resistance. Questions arise: Is this still beautiful? Should we rein in the uncontrolled? Find a design solution to turn this non-place into a place? No. It is not the place that needs to be tamed – it is our gaze on the 'beautiful' that needs sharpening. For it is precisely these seemingly random piles that become refuges for animals, that protect roots from frost and slowly form new humus. Such places are beautiful because they work – as habitats.

Our sense of aesthetics must therefore be questioned regularly: with regard to context and conditions, to spans of time and systems of value, to relationships and acceptance. For we live in the midst of a shift in perspective.

Pluriversal perspectives

We are moving – slowly, but hopefully steadily – away from the linear, often Eurocentric gaze of modernity toward pluriversal practices. Many cultures, many systems of knowledge, many approaches to reality: not as arbitrariness, but as situated perspectives of equal worth. For design this means: translating precisely rather than formally overpowering. It is not enough to develop a solution 'for all.' More important is the ability to mediate between worlds – between scientific findings and local know-how, between urban routines and rural rhythms, between human comfort zones, and the needs of other beings. It is already palpable that the illusion of unlimited availability is crumbling. Climatic, ecological, social, and economic tensions manifest concretely: in workshops and apartments, in schools and kindergartens, in kitchens, open spaces, and buildings. That is where it is decided whether responsible practice remains mere rhetoric – or becomes a habit.

Exercise, practice, and reality

Design is the mediating transition: not as moral authority, but as an invitation to practice together. Practice on a small scale – serious enough to have effect; open enough to allow contradictions. Architecture, art, and design act as mediators between disciplines. They can turn data into experience, research into everyday sense, complexity into graspable forms – without trivialising. Sciences provide robust knowledge, but often struggle with everyday application. This is precisely where design shows its competence: translating theories into action drafts, creating prototypes that prove themselves in real environments, establishing routines that function without constant supervision.

And even then, persistence and flexibility are needed to transfer projects into real contexts. An idea, a material prototype, or a system rarely works right away. It often takes years of further development, persistent refinement, and persuasion at many interfaces before a larger impact can be felt.

Our favourite examples: mycelium and bioplastics from renewable raw materials. For years, countless impressive projects at universities, studios, and exhibitions have shown their potential. But only a few companies meet the norms and regulations that allow use on a larger scale – and thus provide a viable alternative. Ideas and approaches matter. But it also takes people who do everything to bring them into reality and keep at it. Only through practice and routines, through persistence and care, does a vision become a lived future.

Teaching means practice – repeated approaching, questioning, and re-thinking. A balancing act between subject-specific foundations, individual encouragement, and the striving for relevance. More and more often it is not about concrete assignments, but about opening spaces in which students can develop their own questions.

Thus, the task is rarely 'design a lamp.' Instead, we open fields of inquiry, such as it takes more than one. Such open framings direct the gaze toward connections and encourage questions oriented to context – questions that allow not just one answer, but make visible a multitude of paths.

The result is an expanded understanding of design: yes, objects often emerge – but they always stand within a web of relations. Processes often lead almost inevitably to systemic issues: Which processes can be changed, and what are the consequences of doing so? Which existing structures can be used to trigger social change? How is my morning coffee cup related to a farmer in South America? Where does the material for my table come from – and is it really the better choice? Such questions sharpen the gaze to see that every act of designing ties relations: between material, people, nature, and resources. Design thus becomes an exercise in connecting worlds – and with it, an attitude that reaches far beyond any single object.

The worlds and the context

Following Latour and Charbonnier, one might say: the world we live in cannot be separated from the world we live from. This leads to two consequences: radical connectedness and real limitation. Acknowledging both at once changes design at its core.

Our blue planet is vast – yet every place on it is concrete. What we decide affects neighbourhoods, micro-habitats, people. From this follows a simple yet demanding practice: think locally, decide relationally. Which plants grow here? Which hands work here? Which needs collide here?

Context is not an add-on, but the very thing itself. Context awareness is not a brake, but a guiding system. It focuses attention, prevents pseudo-solutions, and invites us to be consistent in small matters: questioning transport routes, plan for repair, think about dismantling, align production rhythms with biological cycles, keep design open to adaptation. Not every project changes the world – but in each one, effects can be steered mindfully. Many designers are idealists. That is not a flaw, but a resource – especially in times that feel overwhelming.

Between responsibility and powerlessness

The challenges quickly become overwhelming, yet they also remind us that we are embedded in a larger mesh – part of a pluriversal world that carries us and surpasses us. In that lies something conciliatory, even a form of beauty: being connected with something greater than ourselves.

At the same time, the tension remains, always accompanying us: the powerlessness in the face of vast systems – and the responsibility for what we directly influence. Both are complicated. Both are true. Both are bearable.

For example, if we have a worm composter in the kitchen – we are responsible for it. The worms have a right to a good life in their limited biotope, and we are obliged to care for them. At the same time, we have no immediate power over deforestation in far-off rainforests, over wildfires or raw material extraction under destructive conditions. Disaster reports reach us daily and make us feel small. And yet each of us has scope for action: what and how we shop, what and how we transport, eat, teach, display, publish, design, produce – or inspire others. The balancing act is to be consistent in the near, without losing sight of the bigger picture. Not to slide into cynicism – and not into self-overload. Attitude means bearing the contradictory without compromising on commitment.

Beyond the merely human

The hardest part – for us, for students, for institutions – is letting go of the human as the centre. Posthumanism sounds simple in theory, but in practice, it is a laborious undertaking. It is like a muscle that has atrophied over generations: hardly perceptible, untrained, almost forgotten. Now it must be activated again. That means: repositioning ourselves in a 'world-with-' (Mitwelt) instead of an environment (Umwelt). To feel how every decision reverberates into ecosystems. At first, it feels strange. You stumble over contradictions. But over time, a new sensitivity grows: for the rights and needs of beings that do not speak like we do; for timescales that reach far beyond a university semester or project cycle. The muscle grows slowly. And sometimes it hurts. Embrace chaos, embrace complexity, embrace contradiction.

This three-step process sounds dramatic, but it is meant to be dispassionate. Those who accept the omnipresent chaos, who take on the complexity of our societies, and who endure the contradictions of a pluriverse, take longer to make decisions – but are also prepared to refuse simplifying logic.

Designers possess the ability to order chaos and complexity by making relations visible: What belongs together? What contradicts? What remains open – and may remain open? Thus, answers and alternatives emerge. The contradictions do not disappear – but we learn to live with them.

A different understanding of beauty

A project can be beautiful not only in the object, but equally in what it embodies. Beauty should not refer only to the visible – it should also be noticeable in concepts, ideas, and visions too. Of course, that does not mean we can neglect form. Surface beauty remains relative and lies in the eye of the beholder. But if the idea behind it carries connectedness and responsibility, then a deeper form of beauty arises.

Back to the meadow. The seemingly unkempt unsettles aesthetic habits. And it is precisely there that lies the task for transformation: to sharpen our gaze for a beauty that ripens with time and relations. To shift perspectives and view the meadow through the eyes of a bee or a grasshopper. To accept that form is not always 'finished,' but in becoming.

We must be interested in an aesthetics that endures realities: seasons, wear and tear, traces of repair, blurriness – an aesthetics that does not imitate life, but enables it.

The meadow teaches this unpretentiously. It is not there to be looked at; it is a process.

And perhaps it sounds as if we, the ones writing this, had already found the answers. But that is not the case. We continue grappling with contradictions, practicing not-only-human perspectives, feeling our way toward pluriversal viewpoints. Again and again we reach limits – and that is precisely where our fingers start to itch, where new inspiration grabs us and drives us to continue.

In this sense, every act of design is a view of the world: not finished, not perfect, but alive – like the meadow.

The keys to
two consequences:
radical connectedness
and real limitation.
Acknowledging
both at once
changes design
at its core.

Methodology: Lessons from local knowledge

Pleun van Dijk and Julia Ihls

The Living Library methodology was developed as an educational framework to connect design students with the ecological, cultural, and material realities of their surroundings. Rooted in the landscape around the HfG Karlsruhe, it focused on investigating the bioregion, an area small enough to allow direct engagement yet large enough to reveal the diversity of local resources and practices.

The education programme unfolded through field trips, workshops, and colloquia that brought students into contact with local experts as well as international designers. These encounters generated cycles of mapping, documenting, and reinterpreting knowledge, linking materials to the places, practices, and communities from which they emerge.

By documenting and archiving its outcomes, the Living Library established a foundation for others to build on. The methodology is deliberately transferable, offering a model that can be adapted to other places and bioregions while continuing to evolve through new contributions and practices.

1. Researching the local bioregion

The Living Library began with a commitment to the local area in and around the HfG Karlsruhe. Grounding the research in place was essential not only for reducing transport-related impacts but also for teaching students to recognise the existing resources directly around them, to explore how these might feed into their own artistic practice, and to build on existing knowledge, crafts, and traditions.

A bioregion is understood here not simply as a geographical zone but as a living network of soils, waters, forests, infrastructures, practices, and communities. Defining it in this way highlights that design does not happen in isolation, but is always entangled with wider ecological and social processes.

Students were encouraged to work with both local and super-local resources, learning to engage with landscapes they already inhabit while sharpening their sense of accountability and care. In this way, the manifesto principles were put into practice, showing that learning can emerge from close observation, collaboration, and respect for local knowledge.

These activations emphasised that the bioregion is not only a set of resources but also a space of lived experience. Mapping became a method of weaving together material realities with personal stories, showing how landscapes are shaped as much by memory and practice as by ecological systems.

By anchoring research in the bioregion, the Living Library cultivated a mode of design education that is situated, experimental, and responsive. Students learned to work locally while connecting with global discourses, building a methodology that can continue to evolve through new contributions and adaptations elsewhere.

Map 1:

Karlsruhe bioregion

This base map shows the 50-kilometre radius that defines the Karlsruhe bioregion, with the Living Library at its centre. The region can be broadly divided into three areas: the Oberrheingraben/Upper Rhine Graben (framed by two fault lines indicated by dashed lines), a large rift valley formed about 50 million years ago with the river Rhine flowing northwards through its centre (double line); the Pfälzerwald/ Palatinate Forest to the west; and the Schwarzwald/ Black Forest to the east. The line pattern indicates elevation, revealing an almost flat Graben between two large mountain ranges. To reflect the region's linguistic diversity, all cities on the map are written in both their local and national names.

Legend:

- Fault line
- Rhine
- Karlsruhe urban area
- Hills and Mountains

Map 2:

Compost sites & allotment gardens

During the education programme 'On transformations and metamorphoses', where students visited allotment gardens in the city boroughs of Neureut and Daxlanden, it became evident that allotment garden clubs / Kleingartenvereine (solid dots on the map) and their members are invaluable sources of practical knowledge about composting. In parallel, municipal composting facilities / Kompostierungsanlagen (outlined dots) provide the large-scale infrastructure required to process the city's biodegradable waste into usable compost.

Legend:

- Rhine and Alb
- Allotment garden
- Karlsruhe urban area

Materials:

- Garden club
- Compost site

Map 3:

Sheep

The production of wool in the region around Karlsruhe is closely connected to the South German tradition of nomadic sheep farming. This practice is recognised by UNESCO as part of the nation's Intangible Cultural Heritage. According to statistics from 2019, there were around 215,500 sheep and about 1,300 sheep farmers with 20 or more sheep in Baden-Württemberg (the state in which Karlsruhe is located). Several sheep farms (dots) connected to the workshop 'On Entanglements and Felting' are shown here in relation to all areas where livestock is raised (solid dots) within the Karlsruhe bioregion.

Legend:

- Fault line
- Rhine
- Karlsruhe urban area

Materials:

- Livestock
- Sheep farm

Map 4:

Food waste

Street markets selling fruit, vegetables, bread, fish, and meat (solid dots) are mapped here, as well as larger food wholesalers (outlined dots) where food waste can be collected in and around the city. The smaller dots in the background indicate trees bearing edible fruit, a topic during the 'On metabolisms and circulation' education programme. Provided a few basic rules are kept in mind, such as respecting property rights and treating trees and nature with care, the fruit can also be collected.

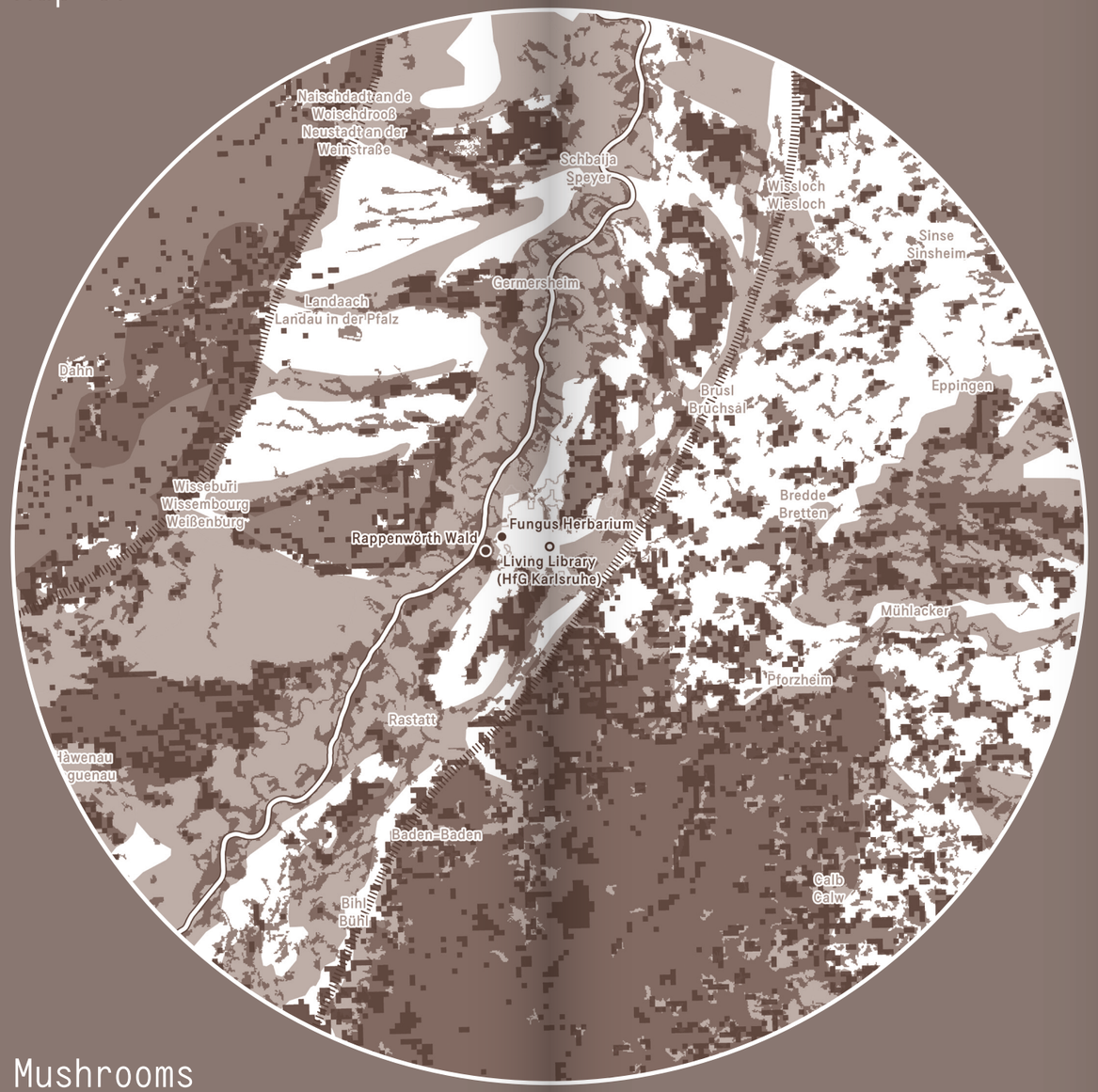
Legend:

- Rhine and Alb
- Buildings
- Karlsruhe urban area

Materials:

- Fruit, vegetables, bread, fish & meat waste (Street market)
- Fruit & vegetable waste (wholesaler)
- Fruit tree

Map 5:



Mushrooms

During the 'On remediation and interfacing' education programme, students visited the Fungus Herbarium of the State Museum of Natural History Karlsruhe and searched for mushrooms in the Rappenwörth forest. Although it is impossible to map the exact locations of mushroom growth, it is possible to identify areas with a high likelihood of occurrence. This map combines three such indicators: observed soil organic carbon levels between 9 and 12, soil acidity (measured in H_2O) between pH 5.5 and 6.5, and high available water capacity in the topsoil. Darker shading indicates more favourable conditions.

Legend:

- Fault line
- Rhine and Alb
- Karlsruhe urban area

Materials:

- Observed Soil Organic Carbon (SOC) index 9 - 12
- Solid Acidity 5,5 - 6,5 (measured in H_2O)
- High Available Water Capacity

Map 6:

Trees

The pixelated pattern distinguishes two types of forest: areas in which broad-leaved trees are the dominant species (dark shading) and areas dominated by coniferous trees (light shading). Although this division is not absolute, it provides useful information about the wood available in each area: broad-leaved species generally produce hardwoods, whereas coniferous species yield softwoods. Places visited during the education programme 'On extraction and resilience' around the city of Bühl are shown on the map as solid dots.

Legend:

- Fault line
- Rhine
- Karlsruhe urban area

Materials:

- Broad leaved trees
- Coniferous trees

Map 7:

Invasive plants

Observations of invasive plant species (solid dots) in and around Karlsruhe, crowdsourced from iNaturalist, a global citizen-science database. Invasive plants, also known as neophytes, are species that have been introduced to a new area and spread aggressively, often outcompeting native vegetation and disrupting local ecosystems. The specific species were identified during the workshop 'On displacement and adaptation'. A noticeable pattern emerges from the data: many of these invasive plants are concentrated along Karlsruhe's rivers, the Alb and Pfinz. This is because waterways often act as natural corridors that facilitate the spread of seeds and plant fragments.

Legend:

- Rhine and Alb
- Body of water
- Karlsruhe urban area

Materials:

- Observations of invasive plant species

Map 8:

Industrial hemp

Places specialising in the knowledge or production of industrial hemp (solid dots) and potential, randomly located areas of industrial hemp cultivation within the Karlsruhe bioregion (dotted circles with question marks). During the 'On tradition and transition' education programme, students visited two locations: producer BAFA Neu and ropemaker Joachim Dittus. Because hemp cultivation is subject to strict confidentiality regulations, exact field locations are not publicly disclosed and could therefore not be visited. Although the approximate number of cultivation sites within the bioregion can be estimated from agricultural statistics, their precise positions remain unknown and are represented here as randomised locations.

Legend:

- Fault line
- Rhine and Alb
- Karlsruhe urban area

Materials:

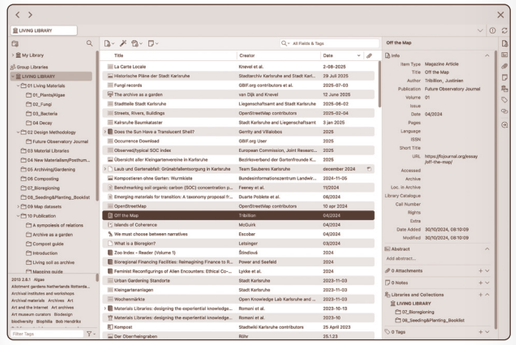
- Knowledge or production of industrial hemp
- Potential cultivation sites (random location)

2. Identifying relevant materials and resources

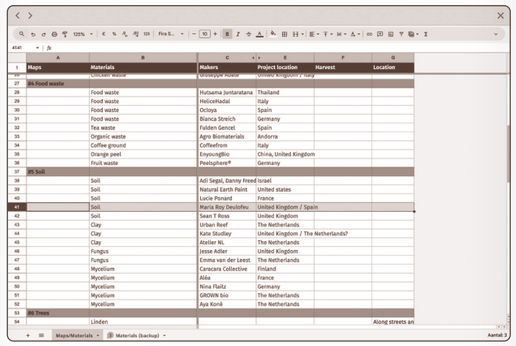
Once the bioregion had been defined, the next challenge was to identify which materials and resources could be meaningful to explore within it. This process combined systematic research with the knowledge already present in local communities. Farms, gardens, forests, factories and workshops within the 50-kilometre radius were traced and investigated, gradually building a map of available materials and the actors connected to them.

The selection of materials was guided by a set of criteria rooted in sustainability. Renewability, potential for circular use, and ecological footprint were central considerations, alongside cultural relevance and accessibility for students. Equally important were questions of responsibility: who owns the resources, what rights exist around gathering or foraging, and how can they be used in respectful, non-extractive ways?

The Living Library team approached this work collaboratively. Initial lists of materials were collected through desk research and field observation, which mapped what could be found in the region. This was complemented by in-depth data collection, tracing where specific resources could be sourced and how they circulate through local systems of production and waste. Together, these efforts established a comprehensive overview of raw materials.



Screenshot of the Living Library Zotero group.



Screenshot of the material research document.

For this mapping process, a set of core materials emerged as most promising for further exploration: compost, wood, wool, invasive plants, food waste, hemp, and mycelium. Each resource was not only identified for its practical potential for design students considering its distinctive qualities, but also for the stories, practices, and ecologies it represents. These findings became the foundation for the Living Library's field trips and workshops, where each material was investigated in depth through direct contact with local actors. In this way, material research moved beyond abstraction and became embedded in the realities of place, practice, and ecology.

3. Inviting local and international makers

After mapping the bioregion and identifying relevant resources, the next step was to connect this research with practical expertise. To achieve this, the Living Library invited a diverse group of designers, experts, and researchers whose practices are closely linked to sustainable materials and the broader ecological design field.

The selection of makers followed both practical and ethical considerations. Local experts were invited for their direct knowledge of regional resources, crafts, and community practices, while international designers were chosen for their complementary perspectives, methodologies, and hands-on approaches. Together, they were invited to co-create a project input through dialogue. This balance enabled students to learn from place-based expertise while situating their practice within wider ecological and cultural contexts. The resulting exchange enriched the programme, opening new dialogues between art, science, and ecology.

4. Education programme

The education programme unfolded through a series of two-day events, each combining a field trip, a colloquium, and a hands-on workshop. These gatherings became spaces where knowledge from different domains intersected, linking materials to the locations and communities from which they emerged, while connecting students with practitioners who could guide both conceptual reflection and practical experimentation. By bringing together local and international voices, the programme cultivated a culture of equal exchange.

The first day centred on exploration. Participants visited local sources of sustainable materials, observed natural cycles, and engaged in early experiments such as fibre extraction, composite formation, or cultivating biomaterials. The colloquia then provided space to share insights from the excursions, situating them within broader discussions on biodesign and bioregioning, new materialism, or more-than-human narratives. Hosted at the HfG Karlsruhe and publicly streamed online, these sessions opened the exchange to a wider audience while weaving together perspectives from students, makers, and researchers.

The second day shifted the focus to making. Guided by invited practitioners, students processed and worked directly with the materials collected during the field trips. This phase emphasised knowledge and skill-building, showing how theoretical research and ecological reflection could be translated into practice. By engaging with materials through touch, experimentation, and iteration, students discovered both the potential and the limitations of local resources, insights they can carry on into their own independent practice.

On transformations & metamorphoses

COMPOST
(autumn 2024)

With Markus Bier and Vik Bayer/Michael Reindel (Compost Collective, Vienna), students learned about composting as both ecological practice and speculative method. Activities ranged from making biochar to building compost heaps, while also reflecting on cycles of transformation. Field visits included a local school garden and Karlsruhe's community gardens.

On entanglements & felting

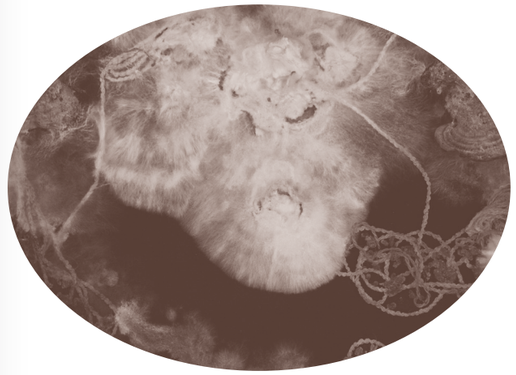
WOOL
(winter 2024)

Designers Carolin Schelkle and Nina Havermans guided visits to sheep farms and processing sites. The workshop explored felting and composite recipes, reframing wool as a bioregional resource with social as well as material entanglements.

On metabolisms & circulation

FOOD WASTE
(winter 2025)

With the material designers Verena Brom and Loana Flores, students traced local food waste streams, visiting producers and distributors. In the workshop, students transformed discarded matter into dyes and printing pastes, linking sustainability with colour, craft, and storytelling.



On remediation & interfacing

MYCELIUM
(winter 2025)

Designers Nina Flaitz and Liene Kazaka introduced mycelium as both a biological network and a design material. After a visit to the local fungi herbarium and a mushroom hike in the Rhine floodplains, students experimented with mycelium growth and its textural properties in the lab.

On extraction & resilience

WOOD
(spring 2025)

A field trip led by product designer Simon Gehring and wood mediator Stefan Kudermann connected forest ecosystems, carpentry shops, and timber factories. The workshop on joinery emphasised wood as a responsive material, asking how construction can shift from extraction to dialogue.

On displacement & adaption

INVASIVE PLANTS
(spring 2025)

Media-artist Filipa César and the design studio Atelier Schaft introduced invasive species as controversial yet fertile material sources. During the field trip to the woods with a local forester, invasive plants were removed under expert supervision, while in the workshop – using composite binders and pigments – conventional notions of belonging, ownership, and value in ecology were challenged.

On tradition & transition

HEMP
(spring 2025)

With designers Freia Achenbach and Hannah Segerkrantz, students explored hempcrete and rope-making. After field visits to a hemp processing site and a traditional ropemaker, the workshop highlighted hemp as a material of ecological resilience, combining building techniques with craft processes.

5. Archiving the output

The Living Library's methodology extends beyond temporary encounters by storing its outcomes in a dual archive, both physical and digital, that preserves, activates, and circulates the knowledge generated throughout the programme. Following a metaphorical composting practice, this approach treats archiving not only as documentation but as an ongoing process of renewal, ensuring that the insights, materials, and experiments during the workshops remain accessible for future students, researchers, and practitioners.

The physical library at the HfG Karlsruhe functions as an archive of the programme's experiments. Central to this collection are the workshop boxes, each dedicated to a specific field trip and workshop. These boxes contain a curated set of tools, raw materials, process notes, and instructional flyers that detail the fieldtrip, colloquia, and hands-on techniques explored during each session. By providing the means to repeat or expand upon past experiments, the boxes transform the archive into an active learning resource, allowing students to continue working with regional materials and methods long after the programme concludes. While the physical library will be taken apart at the end of the two-year long scope of the project, the boxes will become part of the Bio Design Lab and allow continuous use and further exploration.

This publication itself is also part of the archival strategy, capturing the methodology, case studies, and reflections as a transferable model for other contexts. Yet archiving also unfolds in less tangible ways: within the students who participated. Through direct engagement with local materials and practices, participants carry forward new insights, skills, and sensitivities toward sustainable design, a form of archiving that cannot be measured but will shape future practices. Together, these layers of preservation, physical, digital, and experiential, ensure that the Living Library continues to grow, even as the project concludes and transforms into new forms of knowledge and practice.

6. Reflection and looking ahead

Reflection is an essential step in the Living Library methodology, allowing the team, participants – and a wider audience through this publication – to assess what has been learned and to imagine how these insights can grow in the future. Over the course of the programme, it became clear again that sustainable materials are not only practical resources but also entry points into broader questions of ecology, culture, craft, and responsibility. By tracing wool, wood, hemp, invasive plants, food waste, or mycelium through their local contexts, students were encouraged to rethink materials as part of interconnected systems of production, reuse, and transformation.

By weaving together mapping, fieldwork, material exploration, workshops, archiving, and reflection, the Living Library has developed and tested a framework for bioregional design education, one that is experimental and situated, yet adaptable to other contexts. The programme's outcomes, from student experiments to collective maps and workshop boxes, form a growing archive that can be shared, continued, reinterpreted, and improved by others.

Looking ahead, the hope is that this methodology will not remain bound to Karlsruhe but will inspire similar approaches in other bioregions. Its strength lies in its adaptability: defining a local scale, identifying resources, engaging with communities, and cultivating respectful collaborations are steps that can be translated into different contexts. For the students, the experience provided not only new skills and material knowledge but also a deeper sense of responsibility to the ecologies they inhabit, an awareness they can carry into future design practices.

Workshop boxes from the education programme.

Flyer with information about the workshop box.

Afterlife[1]: Composting the Living Library

Pleun van Dijk and Jaap Knevel

From the beginning, it was clear that the Living Library would be a two-year project with a defined endpoint. The project would not go on forever, become a permanent part of the university, or be continued somewhere else. This may seem counterintuitive in a culture that values growth, permanence, and expansion. But working with living materials and shaping living archives reminds us of something essential: nothing ever truly stops. Everything instead 'transforms' into something different. Materials (over time) decay[2] into other forms, and knowledge (through people) is continuously reinterpreted and passed on.

Composting was not only a conceptual metaphor, it also became a practical methodology. It encouraged us to think differently about the materials that were harvested and stored, about the project's infrastructure, about the collected knowledge itself. Composting is an inherently regenerative[3] practice: of letting go, of dismantling and rewriting, of removing what no longer has a function in order to prepare the ground for what might come. Within the Living Library, this meant allowing parts of the project to dissolve, be forgotten, or transform, not out of neglect, but out of care. The project's end date reinforced this attitude. The looming deadline became not a sign of death, but of fertile beginnings for something else.

Regenerative knowledge

Regeneration in this context also describes how knowledge was gathered, reshaped, and shared. Throughout the project, insights from local traditions and distant archives were brought together into a hybrid archive of materials, recipes, tools, and methods. The value of this work does not lie in its preservation alone, but in how it can be broken down, reabsorbed, and reactivated by others. It feeds back into the communities and ecosystems it came from, fostering a network of continuation rather than closure. Knowledge, in this sense, behaves like a living material. It moves, changes, and adapts as it passes through different hands and contexts. Each use, reinterpretation, or translation contributes to its ongoing transformation. What remains is not a static archive but an active cycle of exchange, where meaning and matter continue to evolve.

Composting the physical library

A material is only as sustainable as the system that carries it. Even projects built with the most ecologically responsible intentions risk becoming unsustainable if they demand constant maintenance or protection. In the Living Library, this understanding shaped the design of the physical archive itself. The shelving system was built to be easily disassembled and reused by other departments at the HfG Karlsruhe. The cardboard stools are recycleable, and the space once occupied by the library will become available again for future projects.

Samples created during workshops, and materials harvested during field trips, are returned to the composter. The soil it creates can then be returned to the bioregion's ecosystem, a literal act of giving back what was once borrowed.

Composting the digital library

Composting a physical library is one thing: composting a digital one presents an entirely different challenge. What does digital decay look like? What does it mean to compost a website, a dataset, or a PDF? Online, decay takes the form of broken links, outdated formats, and unsupported code. Most approaches to digital preservation aim to resist this through constant updates, migration, and maintenance. But what if, instead of fighting digital decay, the project accepted its impermanence?

At the time of writing, not all answers are there, and perhaps never will be. Maybe the website will disappear one day, with this publication as its trace. Maybe fragments will find their way to other platforms or archives, unrecognisable from their origins. What is known is that composting the digital archive demands the same kind of regenerative thinking as composting physical matter.

Decentralisation

Rather than trying to hold everything together in one place, the Living Library has begun to distribute the archive. Maps, recipes, and references have been shared in multiple formats: some through the local Karlsruhe Stadtwiki, others through institutional archives such as Madek, and some directly hosted on the HfG server. This decentralisation is deliberate: it allows information to circulate freely and to be maintained by different communities. Over time, these fragments may be rewritten, reused, or replaced, forming new constellations of knowledge.

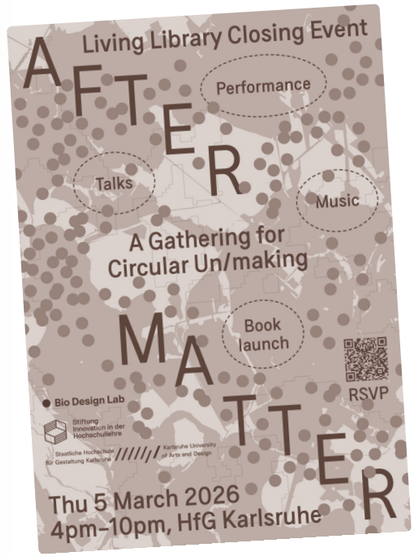
Composting the digital library therefore means letting the project spread and transform. It acknowledges that digital systems are alive in their own way: constantly changing, fragmenting, and reforming. By allowing parts to decay, it allows the project to take root elsewhere. The aim is not to preserve everything, but to make disappearance part of the design. Like any compost, the digital library will continue to work quietly beneath the surface. Its traces may one day decompose completely, yet their nutrients remain, absorbed into new projects, new servers, new contexts.

The ‘404: Archive Not Found’ installation, part of the ‘Assembling Grounds: Practices of Coexistence’ exhibition at the Centre for Art and Media Karlsruhe (ZKM). Photo: Bio Design Lab / Felix Harr and Felix Grünschloß.

After Matter: A Gathering for Circular Un/making

The end of the Living Library will be marked with a celebration called ‘After Matter’. Together with students, collaborators, and visitors, it will put what remains of the project in the composter, making visible what usually happens invisibly. Participants will be asked to reconsider how the project’s ideas might decompose and regrow within their own future practices. The analogue shelving system is symbolically emptied, the materials and artefacts from the education programme are returned to the earth in a collective compost ritual, and the walls covered with research findings are repainted together. The act of forgetting and decay, thus becomes a conscious part of the project’s conclusion.

Composting is slow, layered, and messy: materials soften, break down, release nutrients. This is how the afterlife of the Living Library will unfold: some parts fade away, others take root elsewhere. What matters is not that everything survives, but that it continues in other forms.



Poster for the After Matter event

1 See Lexicon: ‘Afterlife’
2 See Lexicon: ‘Decay’
3 See Lexicon: ‘Regenerative’

Compost list

- Compost: given to the bioregion
- Compost tower: given to the students
- Email addresses: deleted
- Google Drive documents: important documents moved to the HfG Karlsruhe Nextcloud server, the rest deleted
- Instagram account: taken over by the Bio Design Lab
- Interactive maps: the code published on GitHub to be reused
- Large wall maps: repainted and reused by the HfG Karlsruhe
- Laptops of the team: returned to the HfG Karlsruhe
- Maps: decentralised to the Karlsruhe Stadtwiki and Geoportal Karlsruhe
- Mudkit: given away to students
- Online publication: online for as long as the link works
- Photo documentation: selected photos were moved to Madek, the rest deleted
- Posters and other prints: recycled or repurposed by the HfG Karlsruhe printing workshop
- Printed publication: shared in the bioregion and beyond
- Projector: donated to the HfG Karlsruhe
- Samples: put into the composter
- Shelving system: reused by the HfG Karlsruhe
- Stools: will be recycled
- TikTok account: taken over by the Bio Design Lab
- Trello infrastructure: deleted
- TV screens: donated to the HfG Karlsruhe
- Website: online until it breaks
- Workshop boxes: stored in the Bio Design Lab for future students
- Worms: set free

An invitation:

Use it! Reuse it! Continue it! Let it be an inspiration to create something new! The success of the Living Library will not be measured by what remains intact, but by what it regenerates. Its success lies not in preservation, but in the future it helps to grow.

Essay by Yasmine Ostendorf-Rodríguez

Fertilising the future

Allow me to start with what might seem like a radical proposition. What if we consider anything that is not designed in a regenerative way as bad design. Imagine a plastic chair considered useless because it only has one life and inevitably ends up as trash. That nobody wants to buy a book that is not printed with biosoluble inks, or that still has glue-binding. What a useless object if the pages do not contain seeds and you cannot plant it in your garden afterwards! What are you supposed to do with it? Let books pile up in your house? Imagine that any house made out of cement is considered embarrassing to live in because it is not renewable. A huge heap of worthless waste, who still wants that? What will the neighbours say!? It might sound extreme now, but speculation is the first step into bringing something into our imagination. Thinking about the afterlife of an object needs to happen at the beginning of the creative process. How do we integrate decay and composting from the moment we start designing? Can we begin an artistic process with rot in our mind?

I will not waste too many words explaining why we need to change our material ethics. From mountains of garbage in every corner of the world to microplastics in our organs (and even breastmilk!) and ‚forever chemicals' (PFAS) in practically everything we use, -from toilet paper to condoms to pans-. We are poisoning ourselves with the things we make. Possibly worse than just willingly poisoning ourselves, we are designing a world so toxic that it is well on its way to being uninhabitable for future generations. Both human and more-than-human. We are already at the point of no return. We are starting from the capitalist ruins as Anna Tsing described in her book Mushroom at the End of the World. Or from a point of toxicity, as Alexis Shotwell described in Against Purity. Or, as Vanessa Machado de Oliveira suggests in her book Hospicing Modernity, from accepting we need to let modernity die, for good. Then what should remain for the future?

The after-after life

To start thinking about possible answers to these questions we have to take a few steps back. First of all, if we are thinking about the afterlife of a material we first have to decide what we consider the moment of its death. This is different for natural materials than for artificial materials. With living materials we might logically think the afterlife starts when life ends. Ironically for many natural materials, -think for instance materials based on plants, trees, fungi or even animals- their life as a material starts when the living entity has died. Being a material rather than a plant/tree/fungus is already their afterlife! Only when we have stopped feeding and baked the mycelium do we start using it as a building block. Only after we have chopped the tree and felled it we start using the wood. And only when we have slaughtered the cow might she end up as leather. If we recognise our natural materials were alive, already had a real life, then what we are pondering about here, is not their afterlife but rather their after-after life. The after-after life kicks in when the material starts decomposing.

With artificial materials it is a bit different because they generally do not decompose. What is the moment of death of a plastic chair? When we stop sitting on it? When one of the legs break? Or rather when it is out of fashion and we hide it in the shed and forget about it? Could that be considered a prolonged and painful death for the chair? A zombie-chair perhaps? Then surely single-use plastics are the opposite: an accelerated death. The afterlife of a material can only start when we have recognised and accepted its death. Otherwise the object will be a zombie taking up space on your shelf, in your shed or attic - without purpose. Not dead, not alive, but forever stuck in the middle. Only when we recognise and accept death can we take the necessary steps to prepare for the afterlife.

Remaining in denial about the fact that we are stuck with things that don't work is part of why we are changing so terribly slowly. Rather than letting go of things (and ideas!), we tend to think we can still make them better by updating or tweaking them. This applies to both systems (capitalism, modernity, patriarchy) as well as for instance plastics, nuclear radiation and fossil fuels. Our imagination is trapped into thinking what's possible within the existing options. We have all heard that it is easier to imagine the end of the world than to imagine the end of capitalism. Our fear of letting go might be exactly what's blocking us from real change, from moving on.

I once read an interview with architect and designer of zoos David Hancocks. The article was suitably called 'If something is basically wrong, trying to make it better only delays the inevitable extinction.'[1] Though having worked in zoo contexts for practically all of his life the message in the interview was clear: do not try to fix things that are wrong with good design, because it will only take longer for the problem to disappear, to die. We have to start completely anew, from the start. Putting a modern face on, in this case, a zoo, giving it some new make-up, is new packaging for the same problem without addressing the root of the problem. Without a radical change a zoo will be an ongoing endorsement of colonial power and how the capturing of the animals was a symbolic representation of the conquest of all distant and exotic lands, whether the animals are behind bars or enclosed with an invisible electric fence. The point Hancocks makes is that with sóme things, we wánt to accelerate their extinction. The same applies to some materials, mindsets and systems.

A pink anthropocene

So what should remain for the future? The first question we have to ask ourselves here is 'what future?' Living and thinking in multiple temporalities is one way of bringing the change needed into motion. Not just the time-span of decomposing that biodegradable book in your compost heap, but thinking in future generations, geological stratifications, deep time. I loved what artist Ayesha Hameed proposed in her book Vertical Time/Transversal Time about seeing ourselves in terms of geological stratifications. It gives us so much more perspective:

> "Geologic time recognizes that our origins are interconnected with geologic sedimentations, and that as a species we humans will end up as a set of sedimented fossils as well."[2]

An example that explores the notion of geologic time in (speculative) design is the Pink Chicken Project by the design collective Nonhuman Nonsense. The premise of the project is that the bones of the sixty billion chickens that we kill each year (yes year!), are a geological marker of the Anthropocene. The proposition is that the incredible amount of chicken bones, from all those billions of chickens that are consumed daily, leave a trace in the Earth's crust as fossils. The Pink Chicken Project proposes a playful and imaginative way to start tracing that trace of bones by making them visible. How? By genetically modifying the entire species of Gallus gallus Domesticus (the common chicken) bright pink. From feathers to beaks to bones.

The design collective behind the idea suggests using a Gene Drive to change the colour of the chicken, an

existing technique to add, delete, disrupt, or modify genes. This is no science fiction. Gene Drives already exist and are able to modify DNA of a complete species. They are for instance used for experiments on mosquitos in an attempt to eradicate mosquito-borne diseases. (Borel and Magazine 2016) The project suggests that the pink chicken bone strata in the earth is a way for humans to take control over our geological legacy, that is currently still dominated by the fossil fuel industries: “With the power of the Gene Drive technique, the trace of humanity is no longer in the hands of Monsanto and DuPont, the radiation of nuclear bombs or the oil spills of Exxon Mobil, but also in yours.” (Borel and Magazine 2016) In other words, make it your own Anthropocene, and make it pink!

Though we are slowly making some progress (in some places), art and design still tend to be very connected to their respective markets. They remain to be goods for sale, to decorate houses and gardens. Certain paintings and sculptures, but also classic design objects, are considered investments that will rise in value. When this is our relationship to art and design, it is obviously very hard to start embracing the death of our precious objects. It will be rather hard to honour their decay. There is nothing natural about natural materials that do not decay and decompose. Not allowing them to die and regenerate is failing to take responsibility for both long and short term futures for human and more-than-human life. If we start a relationship with a material with its natural impending death on our minds, our works and ideas can have an afterlife fertilising the future. It is a lesson that stretches beyond art, design and materials. If we become better at letting death into our lives, we might be able to see that nothing really ever goes away anyway. It just changes form.

1 „If something is basically wrong, trying to make it better only delays the inevitable extinction.“ Interview with David Hancocks by Terezie Štindlová. (Štindlová 2024, 167–189)

2 Vertical Time/Transversal Time. Ayesha Hameed. (Gerrity and Villalobos 2025, 133)

Love letter
from the afterlife

My love
I was so wrong
Dying
is the opposite
of leaving.
When I left
my body,
I did not go away.
That portal of light
was not a portal
to elsewhere,
but a portal
to here.
I am more here
than I ever
was before.

Andrea Gibson
8/13/75 - 7/14/25

Thinking about
the afterlife
of an object
needs to happen
at the beginning
of the creative
process

Archive of archives

The Archive of archives is a growing collection of other material libraries from around the world that are freely available. Together, they represent a broad collection of knowledge about sustainable materials, offering access to ingredients, recipes, making tutorials, and documentation from diverse practices.

Regeneration, in this context, is not only about returning materials to the earth but also about allowing knowledge to circulate, be passed on, reinterpreted, and reactivated. The Archive of archives is rooted in this regenerative method: building on existing knowledge and encouraging others to pick up where someone else left off instead of reproducing what is already available.

A Better Source
Citron Studio

#Packaging #Print #Sustainable

Physical location
–

Online location
Ecosia.org → ‘A Better Source directory’

ETH Materials Hub (MATHUB), part of Material-Archiv
ETH Zurich

#Architecture #PhysicalSamples #Research #Teaching #Usage

Physical location
Zürich, Switzerland
(177 km from the Bio Design Lab)

Online location
Ecosia.org → ‘ETHZ Materials Hub

Institute of Making Materials Library
University College London

#Multidisciplinary #PhysicalSamples #Teaching

Physical locations
UCL Bloomsbury Campus London, United Kingdom (666 km from the Bio Design Lab) & UCL East London, United Kingdom (659 km from the Bio Design Lab)

Online location
Ecosia.org → ‘Institute of Making Materials Library’

MaterialDistrict Materials
MaterialDistrict

#Architecture #Match-making #Multidisciplinary #Usage

Physical location
–

Online location
Ecosia.org → ‘MaterialDistrict’

Sitterwerk Werkstoffarchiv, part of Material-Archiv
Stiftung Sitterwerk

#Architecture #Art #Design #PhysicalSamples #Restoration

Physical location
St. Gallen, Switzerland
(190 km from the Bio Design Lab)

Online location
Ecosia.org → ‘Sitterwerk Werkstoffarchiv’

Color Amazonia
Susana Mejía

#Colour #Pigments #Plants

Physical location
–

Online location
Ecosia.org → ‘Color Amazonia’

Future Materials Bank
Jan van Eyck Academie

#Art #Design #Lab #PhysicalSamples #Research #Submissions #Sustainable #Usage

Physical location
Maastricht, The Netherlands
(281 km from the Bio Design Lab)

Online location
Ecosia.org → ‘Future Materials Bank’

KIT Material Library, part of Material Library of German Universities MDH
Karlsruhe Institute of Technology

#Architecture #Design #PhysicalSamples #Teaching

Physical location
Karlsruhe, Germany
(2.5 km from the Bio Design Lab)

Online location
Ecosia.org → ‘KIT Material Library database’

Materiom Materials Database
Materiom

#Recipes #Biomaterials #Sustainable

Physical location
–

Online location
Ecosia.org → ‘Materiom Materials Database’

Syntropic Materials
Eugenia Morpurgo

#Design #Plants #Regenerative

Physical location
–

Online location
Ecosia.org → ‘Syntropic Materials Eugenia Morpurgo’

EMMy Ecological Material Mini Library
Research Group Circular Built Environment, RWTH Aachen University

#Architecture #Sustainable #Teaching

Physical location
–

Online location
Ecosia.org → ‘Ecological material mini library RWTH’

Goods Index
Goods Oslo

#Health #Packaging #Recycling #Sustainable

Physical location
–

Online location
Ecosia.org → ‘Index Goods Oslo’

Laboratorium
KASK & Conservatorium

#Art #Bio Lab #Colour #Design #Research #Sustainable #Teaching

Physical location
Ghent, Belgium
(403 km from the Bio Design Lab)

Online location
Ecosia.org → ‘Laboratorium bio database’

Phytophilia
Sara Martinsen

#Architecture #Art #Design #PlantFibres #Sustainable

Physical location
–

Online location
Ecosia.org → ‘Phytophilia Library Index’

Waste Not
Michelle Mattar

#Packaging #Sustainable

Physical location
–

Online location
Ecosia.org → ‘Waste Not Michelle Mattar’

Lexicon[1]

The Lexicon offers readers a shared foundation for understanding the terms most commonly used within the Living Library. It was created to foster a common language that reflects the ongoing transitions in the field of sustainability and bioregional material practices.
As art and design practices become more sustainable, a common language is essential to align all participants. Language shapes how people perceive the world, how they relate to one another, and how they imagine and construct the future. Without a shared vocabulary, collaboration becomes fragmented and the exchange of knowledge loses clarity and depth.

This lexicon has been developed to create a shared vocabulary and to support communication across disciplines and collaborators. It offers definitions as well as reflections on the values, assumptions, and evolving meanings that words carry in the context of sustainable and living materials. Words are never neutral, they come with histories, ideologies and embedded perspectives. Consciously defining and redefining terms create space for conversation and build new frameworks for understanding.
Like the materials it describes, this Lexicon is alive. It has undergone many iterations throughout the Living Library project and will continue to evolve with outside opinions, discussions, and new ideas. You are invited to reflect, question, and contribute to keep this new language dynamic, adaptive, and regenerative.

Afterlife

~~The afterlife of a material refers to the stages and processes it undergoes after its initial use. With the focus on composting, the aim is to enrich the soil and avoid the negative impact disposal has on the natural environment.~~

The afterlife of a material refers to the stages and processes it undergoes after its participation in a designed form. In the context of compostable materials, the focus is on returning materials to the ecosystem, transforming waste into nourishment. Designing for the afterlife avoids harmful disposal and supports ecological regeneration.

Archive

In ancient Greek, the concept of an archive (from ‘arkheion’ meaning ‘home of the ruler’) was connected to storing records of rulers and government officials. This implies an element of ‘protection’: storing something as it is and preserving it.

Biodegradable

Describes a material’s ability to break down naturally through the action of microorganisms and other decomposers. Biodegradable materials return to the earth as part of natural cycles, leaving no toxic residues and helping to reduce long-term environmental impact.

Biodesign

Biodesign is an interdisciplinary design field which combines biological processes with technology, design and art. It is a practice inspired and informed by nature, which also uses natural organisms to design products and build parts.

Bio Design Lab

~~The lab at the HfG Karlsruhe where students can go to develop and experiment with biomaterials. A creative and experimental space at the HfG Karlsruhe where students engage with living systems and biomaterials. The lab encourages interdisciplinary exploration and hands-on material research focused on sustainability and innovation.~~

Founded in 2020 during Bruno Latour’s ZKM exhibition, ‘Critical Zones’ – the Bio Design Lab is a hybrid and evolutive environment that exists in both the digital and physical space. Conceived as a platform for connection and collaboration with local partners and using local resources, the Lab hosts the presentation, education and transmission of knowledge. As students and experts are invited to work on biodesign related projects, visitors can explore and interact with the Lab’s production and lines of inquiry. Projects within the Lab focus on the local region, its materials and possibilities, and actively aim to reshuffle and rethink modes of production in Karlsruhe and the south of Germany. To interact with these themes and related materials, both within the digital and physical space, the Lab invites local experts and visitors alike.
→ biodesignlab.hfg-karlsruhe.de/en

Biomaterial

A material derived from raw materials produced by living organisms. Biomaterials are typically renewable, biodegradable, and designed to have minimal environmental impact throughout their life cycle.

Bioregion

A region defined by geological (e.g. mountain ranges) and ecological borders (e.g. rivers) rather than political borders. American eco-activists in the 70s proposed to use these borders to create new self-sustaining communities. Currently, the term refers to a critical form of cartography which questions traditional mapping practices in favour of a more holistic approach to maps of natural environments.

Colloquium

A type of academic seminar or lecture which emphasises discussion between students and external guests.

Compost

~~Compost is decayed organic matter used as a natural fertiliser and soil enhancer. Unlike synthetic fertilisers, it nourishes plants indirectly by sustaining soil microbes like bacteria, fungi, and worms. This natural recycling process enriches the soil’s physical, chemical, and biological properties.~~

Compost is organically transformed matter that enriches the soil by nourishing its living communities. This biological process improves soil structure, fertility, and biodiversity, offering a regenerative alternative to the depletion caused by synthetic fertilisers.

Compostable

Describes a material's ability to break down under controlled composting conditions – adequate heat, moisture, oxygen, and microorganisms – within a specified timeframe into CO_2, water, and nutrient-rich biomass without leaving harmful residues. Unlike "biodegradable," compostability is tied to specific standards (e.g., disintegration rate, residual particle size, and toxicity limits) and often certification, ensuring the resulting compost is safe for soils and plants.

Composter

~~A bin or container used to decompose organic waste materials into nutrient-rich compost through the natural process of decomposition facilitated by fungi, worms and microorganisms.~~

A bin or container that facilitates the decomposition of organic waste into compost. Fungi, worms, and microorganisms break down the material, transforming it into nutrient-rich soil.

Decay

~~Decay is the process of gradual decomposition and deterioration of organic matter, primarily through the action of bacteria, fungi, and other organisms. This process breaks down dead material, playing a crucial role in the nutrient cycle and ecosystem sustainability.~~

~~Decay also carries a positive connotation when it refers to something that, while decomposing, goes back to nature and to life following a sustainable and eco-friendly process.~~

A natural process in which organic matter is broken down over time by decomposers such as bacteria, fungi, and insects. While often associated with deterioration or loss, decay is essential for sustaining life: it recycles nutrients, enriches soil, and supports the health of ecosystems. By returning once-living matter to the earth, decay enables the ongoing regeneration of life.

DIY materials movement

The DIY materials movement is a design, art, and innovation approach in which people develop, produce, and experimentally use their own materials – often outside of traditional industrial processes. Here, materials are understood not as neutral resources, but as active agents that carry local ecological meanings.

Ecosystem

A dynamic system of living organisms such as plants, animals, fungi, and microbes, interacting with each other in their physical environment. Healthy ecosystems support biodiversity, regulate climate, and sustain life.

Environmental

~~Concerned with the protection of ecosystems in which different life forms coexist.~~

Relating to the natural world and the interconnected ecosystems in which all forms of life coexist. An environmental perspective considers the impact of human activity, emphasising interdependence, biodiversity, climate health, and the responsible care for living systems for long-term ecological balance.

Garden

A garden (from the Middle English 'gardin' meaning 'enclosed space') is a place where people cultivate and care for living organisms. Rather than a place that is fixed in time, it is a constantly changing ecosystem that cannot be 'stored'. To cultivate is to actively be involved in the growth of plants, alone or with a group of people.

Karlsruhe University of Arts and Design (HfG Karlsruhe)

A university for art and design in Karlsruhe, Germany, known for its interdisciplinary approach that connects design, art, media, and theory. It is the home and context of the Living Library project.

Lexicon

~~A list of our own definitions of the most commonly used words in the Living Library.~~

The Lexicon is a living collection of terms used in the Living Library, created to foster a shared language around sustainable and bioregional material practices. It supports clear communication across disciplines and reflects the evolving values, assumptions, and meanings embedded in words. Like the words it names, the Lexicon will continue to grow and adapt over time.

Living Library

~~The Living Library is an archive of sustainable materials that can be used for art and design practices. All materials are created using ingredients sourced within a 50-kilometre radius of the HfG Karlsruhe. These materials are designed to be fully compostable after use, ensuring an eco-friendly lifecycle.~~

An evolving archive of sustainable, locally sourced materials developed for art and design practices. All materials featured in the Library are sourced and created within a 50-kilometre radius of the HfG Karlsruhe and are designed to be compostable after use.

Local

~~All resources that can be found within a 50-kilometre radius around the HfG Karlsruhe.~~

For the Living Library project, 'local' has been defined as everything within a 50-kilometre radius around the HfG Karlsruhe. This imaginary boundary takes into account local geology, ecology, and culture.

Not-so-local

~~The most important resources that can be found outside the 50-kilometre radius around the HfG Karlsruhe.~~

Materials and resources sourced beyond the 50-kilometre radius around the HfG Karlsruhe. While they are less aligned with bioregional principles, they are included when no suitable local alternative exists or when they play an essential role in the making process. Their inclusion is always intentional and carefully considered.

Online

Available on the World Wide Web (from the 1950s 'online' meant 'connected to a system'), the word now implies instant access from anywhere, at any time, via a browser.

Permacomputing

A combination of 'permaculture' and 'computing', this term draws a comparison between the current lack of sustainability in digital technologies and issues found in industrial agriculture, proposing a more sustainable, regenerative approach to the internet inspired by the principles of permaculture.

Regenerative

~~Materials that restore, renew, or revitalise ecosystems, enhancing the capacity to support life by increasing biodiversity and improving soil health.~~

Describes materials or practices that actively restore and enhance ecosystems, rather than merely sustaining or extracting from them. Regenerative approaches support the Earth's capacity to sustain life by improving soil health, increasing biodiversity, and contributing to long-term ecological resilience and renewal.

Soil

~~Soil is the top layer of the Earth's surface composed of mineral particles, organic matter, water and air. It serves as a medium for plant growth, a habitat for organisms, and plays a crucial role in nutrient cycling and water filtration.~~

The upper layer of the Earth's surface is composed of minerals, organic matter, water, and air. It supports plant life, hosts countless organisms, and plays a key role in nutrient cycling and water purification.

Super-local

~~All resources that can be found within and closely around the HfG Karlsruhe.~~

~~Refers to sourced materials from the immediate surroundings of the HfG Karlsruhe. These materials often require no transportation, are sometimes gathered by hand, and offer the lowest environmental footprint. Super-local sourcing supports transparency, traceability, and a deep connection to place.~~

Everything that can be found in the immediate surroundings of the HfG Karlsruhe. This includes materials that can be harvested from one's own body, all resources within the university building, and businesses located on the same street.

Sustainable

~~A material or process that promotes the long-term conservation of ecological balance by minimising the environmental impact. Sustainable materials derive from natural resources and renewable raw materials.~~

Describes materials and processes that maintain ecological balance by minimising environmental harm. Sustainable practices favour renewable, biodegradable, or recyclable resources and aim for longevity and reduced waste.

1 See Lexicon: 'Lexicon'

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