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ENVIRONMENT

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- ISSUE 11, September / October 2024 – LEISURE/HOTELS
- ISSUE 12, November / December 2024 – RETAIL
- ISSUE 13, January / February 2025 – CHILDHOOD
- ISSUE 14, March / April 2025 – THIRD AGE
- ISSUE 15, May / June 2025 – LIGHT
- ISSUE 16, July / August 2025 – SOUND
- ISSUE 17, September / October 2025 – ARCHITECTURE
- ISSUE 18, November / December 2025 – INTERIOR DESIGN

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WELCOME

Welcome to the tenth edition of The Journal of Biophilic Design.

Why have we dedicated a whole issue to the Environment? Isn't this a series about Biophilic Design? While there is a school of thought that focuses on Biophilic Design solely inside buildings, there is also a whole movement which is pushing for the Biophilic Design mindset to be applied to every aspect of our Built Environment.

In fact, I believe, that if we implemented the principles of Biophilic Design into the very fabric of our Urban Planning, if we retrofit and design new buildings following the patterns of Biophilic Design, we would not only mitigate Climate Change, but also go some way to reaching Net Zero.

Surrounding ourselves with nature and patterns of nature, research has proven prompts us to act more sustainably.

Also patterns like natural light, specifying natural materials, wood, plants, natural airflow, and all the others, all lead to less energy use (less electric lighting, less HVAC system reliance), less plastic pollutants in the air, less emissions in cities because there is more green trees and planting, reduced heating and air con use if we put more deciduous trees outside or green walls on buildings. The list goes on.

This issue touches on just a few, and explores some aspects, like natural light, natural materials, innovation in monitoring impact, becoming a B-corp, urban forestry.

There are so many things we could have

included, but the good news is that we include a section on the Environment in every issue and look at lots of case studies relevant to each topic, so timber buildings for schools, plants and views of nature in healthcare, park areas for social connectivity and outdoor space for improved mental health for citizens, water soundscapes for offices, for better quality air, innovations in bio materials. So many aspects of Biophilic Design are beneficial for people and for our planet too.

I believe that no one can be a designer, architect, planner and not feel for the planet we are dependent on. No one can design knowing that what they are building/designing will pollute the planet or the people living in it.

We each have a code of ethics, and these should include how we impact on the earth.

There are ALWAYS options, we just need to source them, show them to the client, and argue the case.

I've created the Journal of Biophilic Design to help you persuade clients the reason we need to source better, we need to design better.

Take the relevant issue along, show them the case studies, the science, the ideas and the weight of the voices within each issue will be with you every step of the way.

Vanessa Champion PhD, AMRSPH
Editor and Founder

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HIGHLIGHTS

Each edition of The Journal of Biophilic Design has regular sections. We highlight them here so you can navigate your way around the Journal. If you would like to contribute to a future edition, please do contact our editor we would love to feature your research and case studies.

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Details of our contributors can be found on our website. Each edition of The Journal of Biophilic Design is published every other month. Next issue's focus is **Leisure/Hotels**.

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If you would like to sponsor the Journal please contact us. Future editions will focus on Leisure, Retail, Childhood, Third Age, Light, Sound, Architecture, Interior Design.

ENVIRONMENT



THE CLIMATE CRISIS: HOW BIOPHILIC DESIGN CAN HELP

Jacquelyn Demshick

The built environment, evolving from basic shelters to modern structures where humans spend 90% of their time, significantly contributes to greenhouse gas emissions, exacerbating climate change and the divide between humans and nature [1]. Buildings emit greenhouse gases (GHGs) throughout their lifecycle. The maintenance and generation of our cities are responsible for over 70% of global emissions [2]. However, amidst these challenges lies an opportunity for innovative climate solutions.

Biophilic design, guided by the “14 Patterns of Biophilic Design,” offers a holistic approach to mitigate and adapt to climate change while benefiting humans, biodiversity, and the climate [3]. Climate mitigation, defined as “reducing emissions of and stabilizing the levels of heat-trapping greenhouse gases in the atmosphere,” is essential [4]. Biophilic design can reduce energy consumption and enhance well-being by integrating natural elements and patterns into the built environment.

For instance, green walls act as insulation, mitigating emissions from temperature control while filtering pollutants [2]. The plants absorb carbon from the atmosphere, further reducing GHGs. They also offer visual access to nature, promote psychological well-being, and support biodiversity [1]. These elements demonstrate the multifaceted benefits of biophilic design in addressing environmental and human concerns.

Yet humans already feel the effects of climate change and must adapt. Cities, in particular, experience heat islands, pockets of heat caused by urban structures re-emitting and absorbing the sun’s heat, exacerbating warming and energy demand [5]. Adding plants to facades can minimize heat islands through evapotranspiration and by providing shade, which reduces cooling needs [2]. Additionally, circadian lighting, a biophilic solution, can help humans adapt to disruptions in sleep patterns caused by a warming world [2, 3].







Climate change also brings mental health concerns such as climate anxiety. By applying the patterns of biophilic design, we can create spaces for active recovery, enabling people to overcome their climate anxiety while fostering connections to nature [6]. Recognizing the interdependence between human health and the environment, individuals may become advocates for nature, contributing to climate action [2].

However, biophilic design is not a one-size-fits-all solution. Adapting solutions for specific locations and including multiple biophilic patterns increase the resiliency of the built environment. For instance, while a green wall may work well in Miami, its irrigation may burden the environment in Arizona. The costs and benefits must be weighed against the local context [2].

Although biophilic design typically saves money in the long run, the initial investment may exclude vulnerable communities who can benefit from it the most. Policy interventions, such as subsidies and minimum biophilic standards, can promote equitable access to these solutions [7].

Singapore has demonstrated successful biophilic design by creating a resilient and sustainable urban environment. Through initiatives like “City in a Garden,” Singapore has reduced heat island effects, energy consumption, and stormwater surges while maintaining biodiversity [8]. This demonstrates the potential of biophilic design to reduce climate change impacts in densely populated areas.

Biophilic cities are resilient in the face of shocks from climate change, such as water scarcity and higher temperatures, as shown by Singapore [7].

Integrating biophilic design into the built environment can mitigate greenhouse gas emissions, enhance climate resilience, and improve human well-being in the face of climate change.

<https://www.designsbyjacquelyn.com>

References:

- [1] Dias, B. D. (2015). Beyond Sustainability – Biophilic and Regenerative Design in Architecture. *European Scientific Journal*, 11(9). <https://core.ac.uk/reader/236408788>
- [2] Africa, J., Heerwagen, J., Loftness, V., & Ryan Balagtas, C. (2019). Biophilic Design and climate change: Performance parameters for health. *Frontiers in Built Environment*, 5. <https://doi.org/10.3389/fbuil.2019.00028>
- [3] Browning, W.D., Ryan, C.O., Clancy, J.O. (2014). 14 Patterns of Biophilic Design. New York: Terrapin Bright Green llc. <https://www.terrapinbrightgreen.com/reports/14-patterns/>
- [4] *Responding to Climate Change*. NASA. (n.d.). <https://science.nasa.gov/climate-change/adaptation-mitigation/>
- [5] Environmental Protection Agency. (2023, August 28). *Learn About Heat Islands*. EPA. <https://www.epa.gov/heatislands/learn-about-heat-islands>
- [6] Gillis, Kaitlyn, et al. “A Review of Psychological Literature on the Health and Wellbeing Benefits of Biophilic Design.” *Buildings*, vol. 5, no. 3, Aug. 2015, pp. 948–63. <https://www.mdpi.com/109466, doi:10.3390/buildings5030948>
- [7] Beatley, Timothy, and Peter Newman. “Biophilic cities are sustainable, resilient cities.” *Sustainability* 5.8 (2013): 3328–3345. <https://www.mdpi.com/2071-1050/5/8/3328>
- [8] Newman, P. (2014). Biophilic urbanism: a case study on Singapore. *Australian Planner*, 51(1), 47–65. <https://doi.org/10.1080/07293682.2013.790832>

SUSTAINABLE INTERIOR DESIGN

“As designers the furniture, the materials, in fact everything we choose has an impact on the environment. With our beautiful planet’s resources running out, we really need to think about the impact the products and materials we specify. Biophilic Design can play a large part of the solution, as it encourages the use of more natural materials, but there is an even greater opportunity.”

Chloe Bullock

Interior designers have often naturally worked sustainably without consciously doing so. Opting for vintage and antique items, Reupholstering furniture. Encouraging better quality things are invested in that will have a longer life. Accurately fulfilling a client brief so it’s done right the first time. Budgets have sometimes meant creatively reusing items or finishes in a space. Sadly, none of this is making much of a difference upon the huge negative impact of our industry.

Humanity’s demand on the planet’s resources will be used up by 1st August this year and interior design uses huge amounts of those precious resources.

Worldwide, the construction industry contributes to

- 50% of all climate change,
- 40% of drinking water pollution,
- 23% of air pollution and
- 50% of landfill waste.

RSA, Mykor start up <https://www.rca.ac.uk/business/innovationrca/start-companies/mykor/#:~:text=Worldwide%2C the construction industry contributes,and 50%25 of landfill waste.> 2022, (accessed 18 October 2022). ‘How Can We Improve The Negative Impact Construction Has On The Environment?’, Procure Partnerships Framework, <<https://procurepartnerships.co.uk/how-can-we-improve-the-negative-impact-construction-has-on-the-environment/>> 13 May 2012, (accessed 18 October 2022).



A forest villa terrace, Tipal.



A pool residence, with vaulted roof made from conical tiles developed by the Centre of Science for Villages; textiles were developed with the Magan Khadi Institute, including leaf-printed curtains.

Our designs are at the whim of marketing in the form of trends or rebranding – or the pursuit of newness or simply new ownership of a space. The frequency of a revamp of a space can happen far earlier than its lifespan duration, with a high turnover of materials and effort in the process. Our industry uses such a broad palette of materials including stone, wood, metal, fibres and plastic – which each have impact, are mostly not renewable or circular – and produce carbon dioxide emissions, and involve extraction, drilling, mining, natural resources, water and toxic chemicals. And then there's the exploitation of people and animals in our supply chains too.

The interior designer's designs and specifications can harm people, planet and animals – OR conversely they can support them to thrive – what an exciting opportunity to have a positive influence!

My own motivation in my work now is to be a voice for the voiceless in our industry – the people, animals and future generations.

We have deeper, more comprehensive and conscious work to do. In my book I have explored 11 approaches into sustainability and have illustrated them using examples from across the world. I'd love to share this excerpt from the book especially for Journal of Biophilic Design's readers on a wonderful resort project I found in Pandharkawanda, India which features in the Place chapter. This wilderness retreat not only delivers accommodation but it is integrated into the community, reviving skills as well as soil health along the way. In doing this it not only sits more lightly and has biodiversity thriving again, but it sets itself apart from competitors. I found the project really thought provoking – I hope you enjoy it.

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the community, reviving skills as well as soil health along the way. In doing this it not only sits more lightly and has biodiversity thriving again, but it sets itself apart from competitors. I found the project really thought provoking – I hope you enjoy it.

Chloe Bullock is the founder of Materialise Interiors, Brighton-based B Corp certified interior design company. Named as this year's **PETA's Compassionate Designer in their Vegan Homeware Awards**.

She is an active Sustainability Committee member of the British Institute of Interior Design (BIID).

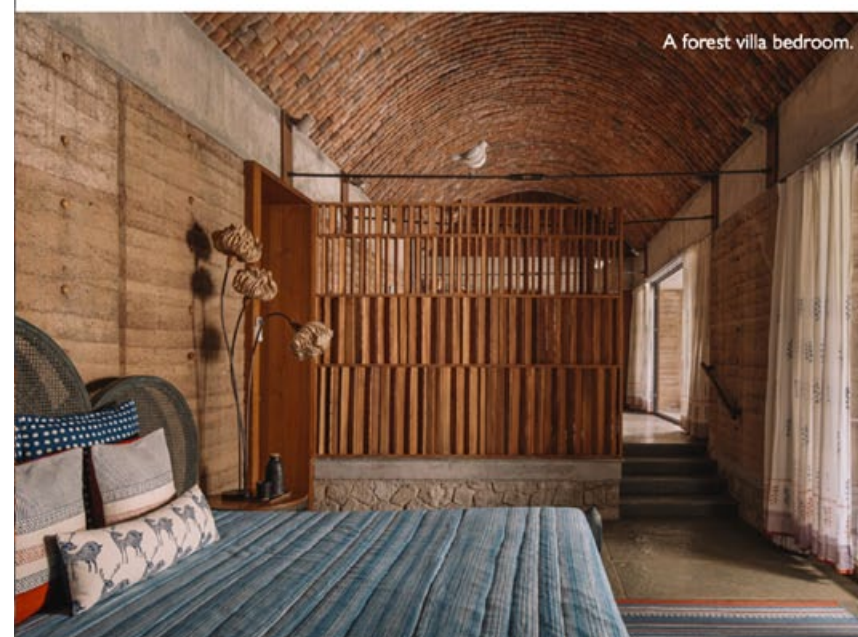
With 30 years experience of the design industry and most of that time in sustainability, Chloe works for clients in South East England and further away – online, supporting project teams with sustainable and regenerative design solutions – sourcing and materials. She also works with designers and architects to form sustainability strategies and statements for their own business.

Chloe's book **Sustainable Interior Design**, was commissioned by the Royal Institute of British Architects (RIBA) and launched Spring 2024.

Look out for the Book Review at the back of this Journal and also a **podcast with Chloe and our editor**.



A pool residence with terracotta-tiled roof, along with rammed-earth and stone walls.



A forest villa bedroom.



Huge woven bird's-nest pendants and leaf-shaped wall lights in the main building.

Photo credits: Pandharkawanda Retreat, India; interiors and architecture – Ishita Sitwala, Ariane Ginwala and team – Meister Meister

The Joy of Skylights

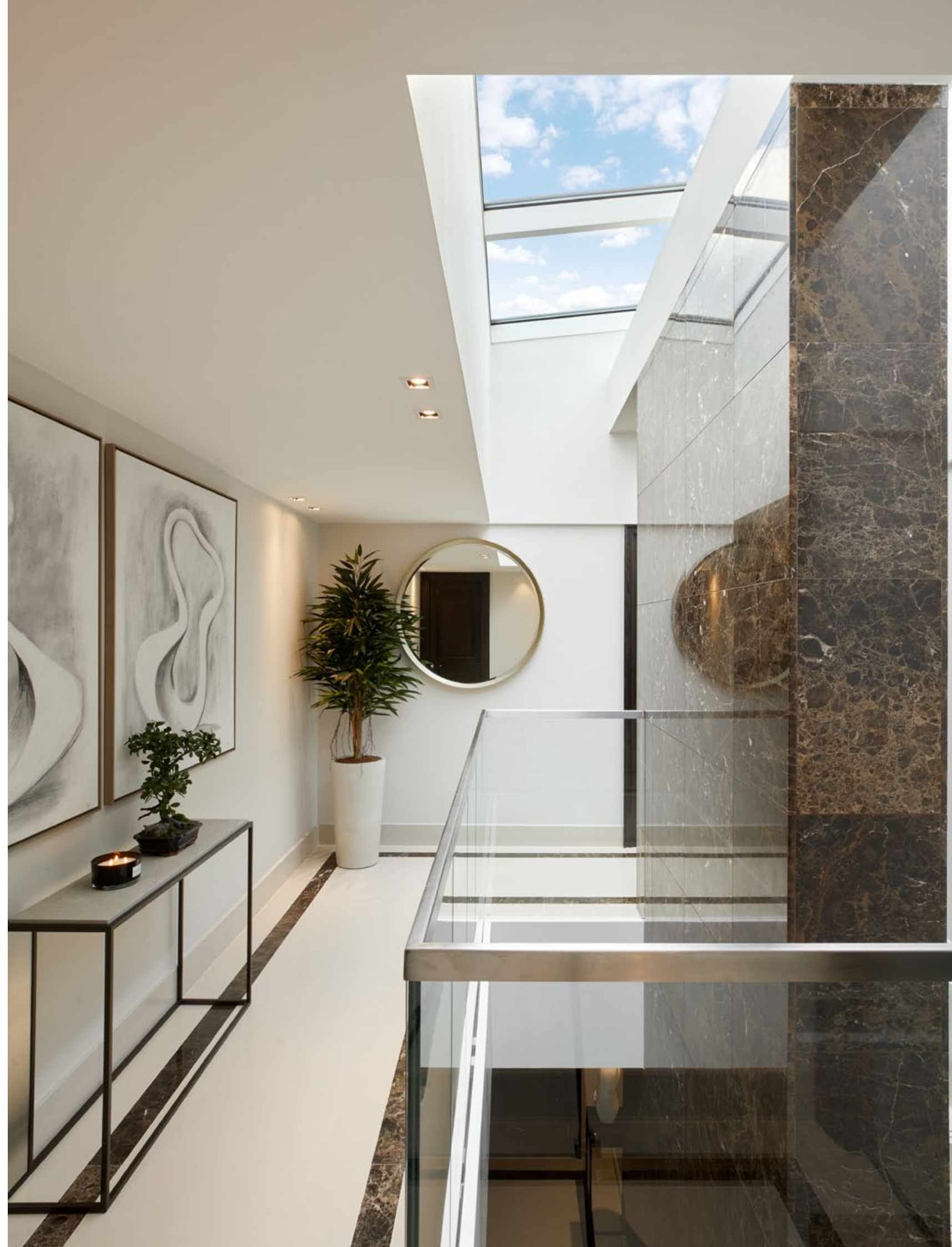
“We are drawn to natural light, it gives us vitamin D but also helps us sleep better, improves our mood, reduces our energy bills and helps our wellbeing no end. How do we bring this into our homes and workplaces. Read on for a great example how to light, naturally.”

Cinzia Moretti

Moretti is jointly run by husband and wife Michele and Cinzia, who are supported by a team of dedicated interior specialists. Holistic and biophilic design inspired by biomimicry is at the heart of all their projects. Embracing sustainability and Biophilic Design is important for creating healthier, more resilient, and more enjoyable spaces for people to live, work, and play. “And that is the aim of our design, to help our clients to improve their lifestyle and helping them to create beautiful memories inside their new homes,” said Cinzia.

As humans, we are drawn to nature and the outdoors. Whilst we spend more and more time indoors is part of our instinct and linked to the natural environment, and experiencing daylight

is a fundamental expression of that connection. It has been proved that we do become happier, more energetic and with a better mood if we are exposed to natural light. There are many reasons for this connection of natural light and our performance, and one of the main is that light and dark regulates the human body clock. Adding more natural light inside our dwelling means as well lower energy costs as natural light is the most sustainable lighting option available, and it is also a free renewable resource. If you think our home billing, one of the largest single expenses that we incur is the use relate to artificial lighting. If you are in the process of doing any structural work in your home adding skylights or bigger windows will make such a difference in both the look of your interior and in your wellbeing.







A couple of important reasons why for me is important natural light in design firstly, because it improves mood, increases vitamin D production, facilitate better sleep patterns, and enhanced overall well-being. Secondly, Natural light enhances the visual appeal of spaces, making them feel more open, spacious, and inviting. It can also highlight architectural features, textures, and colours, creating dynamic and visually interesting environments.

During the project planning stage, we make sure we increase the source of how we can introduce more natural light into the space. This could be through increasing the sizes of the windows in the new areas and adding skylights. Each project is different, so depending on the brief, the dwelling architecture the final space will have different characteristics dependent on how the natural light was increased.

The main aim when embarking on a project is to improve our client's lifestyle hence the feedback we get from our clients after they see the space with so much more natural light is feelings of warmth, happiness, and positivity. Overall, clients typically have positive feelings towards spaces filled with natural light, viewing them as desirable features that contribute to their overall satisfaction with a space.





As designers we are having more conversations about reducing energy bills and clients are worried about their impact on the environment. Energy costs have recently increased and more and more of our clients are conscious of the environmental impact. Hence, one of the conversations we have at the very early stage of the design process is discussing how in the construction phase we can introduce various elements that can help to reduce both energy bills and take into consideration some sustainable solutions.

Biophilic Design is requested more and more over the last few years, and clients are becoming more aware and sensitive to use of sustainable products inside their homes. My hope for the future is to see more suppliers being able to produce and consider this too.

Cinzia Moretti, is Creative Director of
Moretti Interior Design

<https://morettiinteriordesign.com>

Embracing Biophilic Design: A Case Study of Collaboration with Dorchester Collection

Journal of Biophilic Design
ENVIRONMENT

“In the realm of modern architecture and interior design, the concept of biophilic design has emerged as a powerful force, emphasizing the connection between humans and the natural world. This article explores a recent collaboration between MF Design Studio and the esteemed Dorchester Collection, showcasing the transformative potential of biophilic design in the workplace. Situated within the prestigious 1 Knightsbridge, this project serves as a beacon of innovation and sustainability, reflecting a shared commitment to harmonizing built environments with nature.”

MF Design Studio

Led by Christopher Cowdray, the Dorchester Collection has long been a proponent of infusing cultural heritage with elements of the natural world, creating spaces that exude vitality and warmth. With this ethos in mind, MF Design Studio embarked on the challenge of crafting an office space that not only aligns with the Collection's values but also celebrates the intrinsic human affinity for nature.

At the core of the project lay the principles of biophilia – the innate tendency for humans to seek connections with nature. From the moment guests enter, they are greeted by a reception area that seamlessly blends craftsmanship with

natural inspiration. Drawing from Hyde Park's lush greenery and the vibrant hues of the Dorchester Collection's palette, this space sets the tone for an immersive experience that blurs the boundaries between indoors and outdoors.

Throughout the office, biophilic elements abound, fostering tranquillity and connection with the natural world. Collaborative zones are strategically positioned to maximize access to natural light and views, while vibrant colour palettes evoke the energy of a thriving ecosystem. Acoustic considerations ensure optimal comfort, enhancing productivity while maintaining harmony with the surroundings.



The centrepiece of the office, the café, stands as a testament to the power of biophilic design in the workplace. Inspired by the colourful parakeets of Hyde Park, the café incorporates lighting, fabrics, furniture, and finishes that reflect the vibrancy of these birds, creating a dynamic and inviting atmosphere. The timber ceiling, adorned with acoustic lights, evokes the feeling of being beneath a canopy of trees, further enhancing the connection to nature.

In the boardroom, a bespoke oval light fixture casts a warm glow reminiscent of sunlight filtering through a forest canopy, fostering creativity and collaboration. Custom bookshelves, finished with natural materials, add to the space's organic feel, providing a sanctuary for idea generation and innovation.







Beyond its aesthetic appeal, this office space serves as a living embodiment of the Dorchester Collection's commitment to sustainability and environmental stewardship. By thoughtfully integrating natural elements and innovative architectural solutions, MF Design Studio has created an environment that not only inspires and uplifts but also nourishes the soul.



Our collaboration with the Dorchester Collection exemplifies the transformative potential of biophilic design in the workplace. By embracing our innate connection to nature, we can create environments that enhance well-being, foster creativity, and promote sustainability. As we continue to

explore the intersection of architecture, design, and the natural world, may this project serve as inspiration for future endeavours in biophilic design.

<https://www.mf-studio.co.uk/projects/dorchester-collection>



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The importance of connecting with nature

“Our connections with nature run deep. Biophilic Design aims to rekindle this connection. Since we first lit fire, the natural world has provided us with shelter, clothes, food, heat, tools, and a reason for being. It should therefore come as no surprise that we as humans possess an intrinsic need to connect with nature and the outdoors. Before that, the idea of people being separate from nature was inconceivable.”

Claire Francis

Industrialisation and the digital world have camouflaged our connections with nature. The majority of us no longer build our own houses, make our own tools or rely solely on growing our food. We have become tricked into thinking nature is something nice to indulge in or look at now and then. This couldn't be further from the truth.

Connecting, or re-connecting with nature, has a wealth of health and wellbeing benefits, both physical and mental.

Firstly, spending time outdoors has been proven to regulate our circadian rhythm. This is our internal 24-hour clock which regulates sleep-wake cycles, hormone secretion and a host of other bodily functions. Our bodies need to know what real daylight and darkness look like to

function at their best and screen use and artificial light can interfere. Regular daylight exposure has been linked to elevated mood, better quality of sleep and general wellbeing.

Staring at a screen (or anything close up) for too long can actually change the shape of or elongate the eyeball. Our field of vision narrows so that one thing is in laser-sharp focus and the rest is blurrier. Our eyeballs rotate slightly inwards towards our nose. In contrast, when we relax our field of vision and gaze at the horizon the body can switch off the stress response and induce a state of calm. Regular horizon-gazing practice – really softening the field of vision – can ‘trick’ the body into lowering cortisol, our heart rate therefore reduces and we can enter a more relaxed state.

Connecting with nature however isn't just about sight, it's about all the other senses which are working away in the background processing information. From running our hands through long grass to walking barefoot across a babbling stream, when our bodies interact and connect with nature our senses are awakened and we feel part of something bigger. Nature has a unique capability of tickling all our senses, giving us opportunities to connect with the natural spaces around us.

“The part of the brain that is responsible for ruminative and negative thoughts – the subgenual prefrontal cortex – has

been shown to quieten when we connect with nature, which gives people more space to process their problems.” – Beth Collier, Psychotherapist and founder of the [Nature Therapy School](#).

So, how can we connect with nature?

Stop, look and listen when we stop and focus on one or two senses, we can really connect with nature. Perhaps it's noticing some butterflies dancing in the wind, smelling the rain on the soil after a storm or listening to birdsong. By tuning into one or two senses we can truly immerse ourselves in our environment and experience the awe of nature.





Take your food outdoors or go one further and forage for your food. Did you know that our sense of smell and taste are sharpened when we are outdoors? This means that food can actually taste better. You can take this one step further by foraging for a little food. Foraging forces us to integrate with the natural environment, looking for clues, getting hands-on in the search for edibles. “What’s magical about foraging is it really cultivates this sense that nature provides for us with such awesome abundance if we know how to look for it”¹.

Go for a walk the simple act of putting one foot in front of the other can help give a sense of progress and purpose. Walking through the seasons allows you to notice how nature is cyclical. No matter what else is going on, the grass will grow high in spring, the trees will fill out in summer and the blackberries will come out in autumn.

And whilst you’re walking look up – It’s all too easy to look down and ruminate when our thoughts are full and we’re feeling busy. The simple act of looking up relaxes our shoulders, allows our chest to expand and our field of vision to increase. What’s more, we can take in more of our surroundings, and feel more connected to our space.

Take time to listen most of us have learned to live in hectic environments,

where our coping strategies include tuning out the sounds of traffic and other manufactured noise. But tuning in to the sounds of nature is a perfect way of connecting with the detail of the living world, bringing us into a different rhythm and slowing us down.

Take part in nature-based activities from making bird feeders to painting with mud or even stargazing, there are a range of nature-based activities that will help you connect with the outdoors through your senses. Find something that fits in with your lifestyle and interests, get creative and have fun!

The more effort we put into embedding a little outdoor time into our routines, the more chances we give ourselves to feel connected to nature. In turn, we can reap the health and wellbeing rewards of this contact and connection. The next time you go outside, pause for a second and look up or listen in, take a deep breath and see what happens.

For more inspiration and a range of nature-based activities visit www.sensorytrust.org.uk/resources

Claire Francis is the communications manager at Sensory Trust. Sensory Trust is a leading authority on inclusive and sensory design. They create meaningful and lasting connections between people of all ages and abilities and the natural world.

¹ <https://medium.com/forestbathingclub/forest-bathing-essentials-part-one-snacks-16458863deb7>

“On 12 February 2024, the Department for Environment, Food and Rural Affairs (Defra) launched a new set of requirements around biodiversity net gain (BNG) that applies to developers of major sites in England. For anyone involved in designing or influencing spaces that have an impact on the “outside” make sure you read this (and tell your friends) as it now also extends to SMALL SITES. Read on...”

On the first of April the Department for Environment, Food and Rural Affairs (Defra) extended the new set of requirements around Biodiversity Net Gain to include small sites. These new regulations that aim to avoid impacts on, and create enhancements to, nature are mostly relevant to housebuilders.

In November 2025 Defra will launch the same requirement for Nationally Significant Infrastructure Projects (NSIPS) in England, for example, road developments, railways, bridges, etc.

Does this legislation sound a bit dull?
Keep reading.

The introduction of Biodiversity Net Gain (BNG) can be groundbreaking and if done well it should have an extensive, positive outcome on the quantity and quality of nature.

What is BNG?

BNG can be defined as:

‘... development that leaves biodiversity in a better state than before. It is also an approach where developers work with local governments, wildlife groups, land owners and other stakeholders in order to support their priorities for nature conservation.’

For the house builders and infrastructure developers in England, BNG requires that a development will result in a minimum of (so, at least) 10% BNG. This means that the development will result in at least 10% more or better-quality natural habitat (the natural home of an animal, plant or other organism) than there was before development.

Prior to submitting a planning application for any new development, the developer will have to complete a new biodiversity net gain plan that sets out how they measured habitat on the site (piece of land), pre- and post-development plans, including impacts on nature and plans to compensate for any nature loss.

Good practice principles for BNG

There are a set of principles around biodiversity net gain to help ensure the best result for nature. The first is a key consideration – using the mitigation hierarchy – from the design stage of the development all the way through the process:

- Avoid doing damage to nature at all
- Minimise any damage done to nature
- Compensate for damage done to nature. This involves replacing lost habitats with similar onsite.
- Offset damage to nature. This involves replacing lost habitats offsite either on land that the developer owns, or by buying biodiversity units which are like the biodiversity version of carbon credits.

There are several other good practice principles that a competent developer will follow when undertaking BNG. This includes avoiding impacts on irreplaceable habitats, that is, habitats that would be difficult, or take a significant time, to replace. For example, an ancient forest or sand dunes or a salt marsh. Developers should engage external stakeholders, like local communities, in design and delivery.

Nature is not predictable so contingencies need to be in place to offset any unexpected events that will impact negatively on nature, such as climate change.

The new BNG regulation includes the need to be additional, that is, to ensure that whatever plans there are for BNG would not have happened anyway. For example, because funding had already been received to regenerate a piece of land.

Finally, it's important that BNG provides a legacy for both the natural world and for people. The new requirements demand BNG for 30 years.



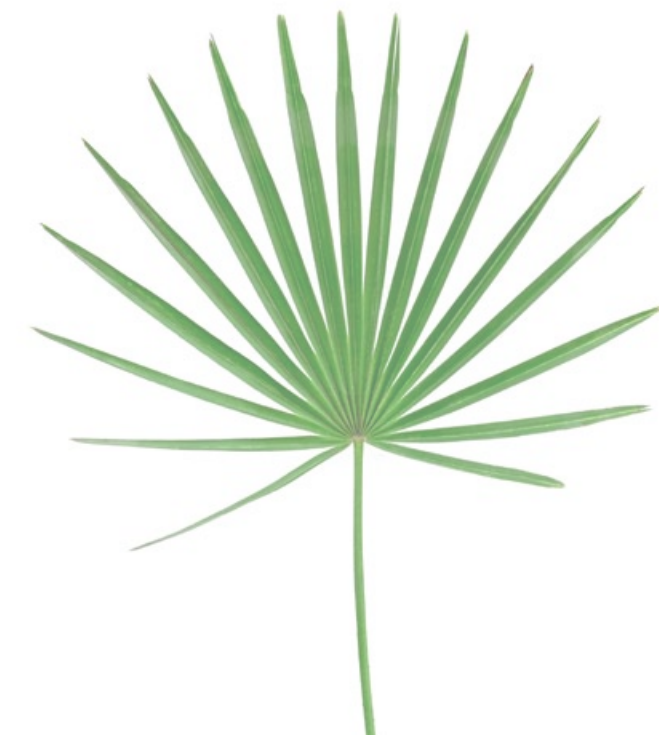


Why is BNG a good thing?

In terms of biophilic design, BNG offers a lot of opportunities. We know that people like to be in nature, to see it outside their window or walk in it. Houses or apartments with a view of nature, by a park or a stream, with a garden, or in a 'green' setting, often demand a higher price than those without.

The People and Nature Survey (2021) found that 94% of adults felt that spending time outdoors was good for their physical health, and 92% thought it was also good for their mental health. 82% of adults reported that being in nature made them very happy, indicating high levels of nature connection among respondents. Good news for the developers.

In the city, BNG can deliver green infrastructure such as green roofs, green walls, permeable pavements, and green spaces such as pocket parks, rain gardens, greenways, and more pedestrian spaces.



A colleague in my workspace in London has recently been part of creating a community orchard in her local area. The orchard provides an educational space, a place to meet and a good location that supports wellbeing.

Further afield in the countryside, there is a larger opportunity to support nature by planting forests, creating corridors of green space for animals to move through, restoring wetlands, restoring, or extending hedgerows (all those hedges you see along the side of the road are teeming with different species).

Nature also provides a range of nature-based solutions, harnessing its power to tackle our climate risks. Trees provide shade on hot days, wetlands store carbon, green roofs slow the run off of water into drains.

All of the above can be achieved by a developer through the BNG requirements.

The knock-on effect of more biodiversity – is more biodiversity!





What does the future look like?

Master planners and landscape architects, tor&co, working with a developer, Grosvenor, and the Wildlife Trust for Bedfordshire, Cambridgeshire, and Northamptonshire, designed a complex and long-term project to build 1,200 homes, called Trumpington Meadows, on the edge of Cambridgeshire.

It included a 148-acre country park and nature reserve creating new habitats from a former agricultural site and new publicly accessible green space for local residents. They took the opportunity to reconnect a local nature reserve along the river Cam, into the centre of Cambridge, offering a route for the community to access the city.

After development, the area was handed over to The Wildlife Trust to maintain. The development delivered a huge 46% biodiversity improvement. This looks like the future, but this was begun in 2005.



This approach for conserving and enhancing nature is becoming established in England. Hopefully, house builders will see these new requirements as an opportunity to go further rather than something that they simply have to comply with.

If done well, with the right principles in place from the design stage, listening to local communities, and talking to local authorities about how a development can fit into the local nature recovery plan, BNG should be able to provide nature that is of better quality, with habitats that are joined up across England, and which all species, including humans, can enjoy.

Lesley Wilson is Policy and Engagement Lead on biodiversity and natural capital at IEMA (Institute of Environmental Management and Assessment)

www.iema.net



The Importance of Sustainability in Interior Design

“The construction industry is a significant consumer of natural resources and even after the completion of the building works, homes continue creating pollution.”

Pia Pelkonen

As designers, we have a responsibility to guide our clients on sustainable design and material sourcing to minimise the impact on the environment and ensure the well-being of the occupants. Our design studio prioritises reducing the use of harmful materials, instead promoting ethically sourced materials with a reduced environmental impact. Our ethos is to reuse, refurbish or recycle what we can before considering replacing with something new. We also urge our clients to choose low-VOC options like lime and graphene-based paints over acrylics and opt for natural fabrics and wallpapers instead of those containing plastics.

Introducing Thornfield House: A Classic Country House in the North Downs

Our clients, owners of a classic Georgian country house nestled in the picturesque North Downs, approached us with a unique brief – to refresh their beloved family home while preserving as much of the existing furniture as possible. Inspired by the breath-taking hilltop views surrounding the house, our concept aimed to embrace the panoramic beauty of nature and seamlessly blend it with the interiors.

Reimagining the Layout and Upholstery: Embracing the Existing Character

To breathe new life into Thornfield House, we started by reconsidering the layout and utilising the existing furniture pieces. We carefully analysed the architectural characteristics of the house and made strategic decisions to enhance its charm, whilst being conscious of how much we would be sending to landfill. The tired carpets on the ground floor were replaced with herringbone oak parquet, instantly adding warmth and elegance to the space. Faded window dressings were updated, and the walls were redecorated.

In the Garden Room, we introduced a captivating mural wallpaper of hanging ivy by Sandberg Wallpaper. This stunning artwork mirrored the rose garden courtyard, creating a seamless connection between the indoors and outdoors. To give a new lease of life to the existing furniture, we reupholstered them, preserving their sentimental value while infusing a fresh perspective.

Natural Fabrics and Thoughtful Additions: Complementing the Existing Features

In our pursuit of sustainability and harmony with nature, we prioritised the use of natural fabrics throughout the project. New curtains and pelmets were carefully created, complementing the shape of the existing coving. Any new additions were meticulously selected to enhance the existing features and furniture, ensuring a cohesive and balanced aesthetic.

The reception room at Thornfield House offers panoramic views of the North Downs. To honour this natural splendour, we chose to carry the landscape across the walls with a bespoke mural wallpaper by Woodchip & Magnolia. The sofas, custom-made by our talented furniture makers, were upholstered in natural fabrics, adding an element of comfort and sophistication. To conceal the television, we introduced a simple yet elegant solution – a bespoke William Morris print screen.



Blue Sky Thinking: Transforming Dark Spaces into Inspiring Havens

One of the challenges we encountered at Thornfield House was a dark and uninspiring study. To unlock its full potential, we sourced an antique desk and strategically positioned it towards the window, providing an inspiring view and maximising natural light. Calming sky blue shades adorned the

walls, creating a serene and inviting atmosphere.

We carried the blue theme into the Library, where we updated the existing Douglas Fir panelling with complementary wood veneer wallpaper by Philip Jeffries. To add a touch of uniqueness, verdigris light switches by Forbes & Lomax were incorporated, infusing a subtle hint of nature-inspired elegance.



Sweet Dreams With a View: Creating a Tranquil Bedroom Retreat

The main bedroom at Thornfield House was designed to complement the lush green landscape view and provide a soft backdrop for the client's elegant wooden bed. To achieve this, we used custom, hand-painted wallpaper by De Gournay to create a captivating feature headboard wall. A contemporary chandelier, reminiscent of fluffy clouds, added

a touch of modernity and whimsy to the space.

To elevate the en-suite bathroom, we replaced the dated suite with contemporary brass bathroom taps and a bespoke vanity unit featuring fluted wood drawer fronts. The shower area was clad in natural Carrara marble, providing an elegant and seamless finish that beautifully complemented the marble mosaic flooring.





The Blue and the Green Suite: Refreshing Twin Bedrooms

Thornfield House offers two twin bedrooms, affectionately named the Blue and the Green Suite. Each room was designed around the existing beds and bedside tables, preserving the clients' cherished furniture. A refreshing new colour scheme and landscape mural wallpaper by Woodchip & Magnolia instantly transformed these rooms into serene havens. The bathrooms in each suite were updated with bespoke vanity units featuring Carrara marble tops, further enhancing their elegance and functionality.

Cloudbusting: A Small But Mighty Guest Bedroom.

Biophilic Inspired Sustainable Home

Thornfield House was featured on Homes & Gardens 'World's Best Homes'. For us as a studio it showcases how sustainable values can be applied to interior design and how this can be an exciting and fulfilling endeavour to

retain the character and sentimental value of much-loved furniture pieces collected over the years – the end result being a home that harmoniously integrates with nature.

Pia Design – Interiors with a Green Soul
<https://www.piadesign.co.uk>



Cloudbusting: A Small But Mighty Guest Bedroom

In our small yet mighty guest bedroom at Thornfield House, we embraced the concept of the 'fifth wall' and adorned the ceiling with Cole & Son's clouds wallpaper, creating a whimsical and dreamy atmosphere. A Verner Panton mother of pearl chandelier added a touch of sophistication and served as a focal point. The colour palette and design of this room were inspired by the surrounding landscape, particularly the vibrant colours of spring and the daffodil-lined sloping driveway leading to the house.



Designing offices for the future

Where wellbeing and sustainability are woven into the fabric of the design.

Sam Peters

While many assumed the shift towards remote working and the accompanying focus on workplace wellbeing would pass with the easing of pandemic lockdown restrictions it is now clear they are here to stay.

The shift towards remote working is a universal one, with even major financial institutions in the UK and North America, those most traditional of establishments, waking up to a 21st century reality where employees require more carrot and less stick when it comes to fostering loyalty and a sense of belonging.

‘Rather than sending threats and

monitoring staff, managers need to think about other ways of encouraging workers back to the office,’ Mark Mortensen, associate professor of organisational behaviour at INSEAD Business School, recently told the Financial Times.

While many businesses have identified the commercial value of designing aspirational and collaborative office spaces, others have recognised essential needs of their neurodivergent staff, estimated to be around 20 per cent of the overall workforce. They are increasingly being catered for with distraction-free workspaces and stimulating community areas.

Journal of Biophilic Design
ENVIRONMENT

Biophilic design, once a niche area, has become mainstream, with the proven mental and physical health benefits of feeling connected to nature whether at work, rest or play, now high on the agenda for architects and designers. Meanwhile, environmentally focused government legislation, perhaps most notably Biodiversity Net Gain, has placed nature front and centre for office planners and developers.

And the result? Softer, and more empathetic spaces, more natural, sustainable materials in the build process and an increased focus on biomimetic design. No better example of this can be seen at British Land’s stunning new Broadgate development, Exchange Square, designed to mimic the fenlands of low lying Norfolk and Suffolk where many of the trains arrive from, bringing office workers into nearby Liverpool Street Station.

Meanwhile, collaboration and meeting zones, an already established

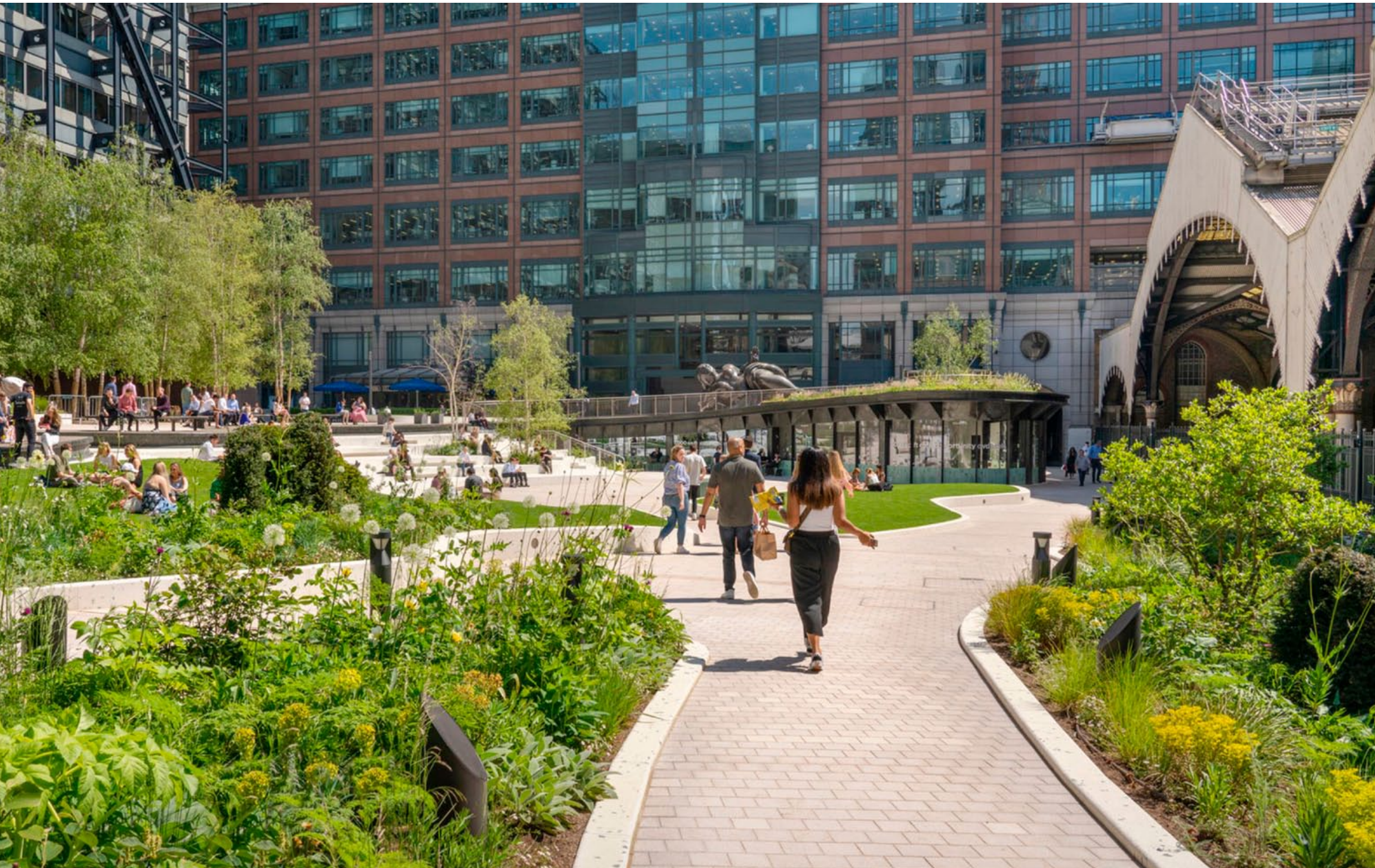
trend in office design, are becoming more intimate, designed for smaller huddle groups aimed at encouraging focussed conversations.

With research by Scoop, which tracks hybrid working, showing 93 per cent of British finance companies now offer hybrid working, compared with 87 percent of their US counterparts, it appears whichever side of the pond you are employed on, and in whichever industry, employees now expect hybrid working options to be available.

But while companies may be willing to offer flexible working packages, many remain heavily invested in office spaces and those organisations keen to lure their staff back into the office, often on a part-time basis. Frequently, they need to demonstrate their values and commitment to their employees through empathic design and catering for their post Covid needs including childcare, pets or other lifestyle changes. Essentially, employers need to show they care.







According to a 2023 by Aflac, a US based insurance company, employees are experiencing higher rates of burnout than during the height of the pandemic with nearly six out of 10 employees reporting at least moderate burn out last year. Businesses who do not address this by providing, among other things, more holistic wellbeing programmes and better designed office spaces, risk being left behind.

With more and more studies showing a direct link between wellbeing in the workplace with staff retention and an increased productivity, the commercial case to design spaces accordingly is increasingly clear.

Architectural certifications such as WELL, along with business certifications including B-Corp and JUST, are increasingly being viewed as indicators that businesses care about the health and wellbeing of both people and the planet.

Thankfully, some smart companies were ahead of the curve when it came to workplace wellbeing, and now find themselves perfectly positioned to service the dramatically increased demand.

Manufacturers and design houses who can show they care about the environment, including Benchmark, Modus, Teknion and Another Country, to name just a handful, are now at a competitive advantage.

For two office furniture manufacturers, Modus (a certified B Corporation) and Teknion, who recently announced a new partnership aimed at facilitating growth into new territories, hybrid working is as welcome as it is overdue.

‘I’ve long since believed in the social element of work and designing office spaces which are empathetic and appealing to the workforce,’ said Jon Powell, co-founder of Modus.

‘Around 2014 we began to shift our product range towards softer colour palettes and a less masculine, more inclusive design. Office spaces should be welcoming, not places to dread. That penny is really dropping now.

‘Ultimately, architects and designers are insisting on this now because the end client, the public, is demanding it.’

This ethos can be seen in both companies’ products. Teknion, whose POD (Privacy on Demand) range of freestanding soundproof booths and rooms help to create a workplace environment where office workers feel comfortable and connected.

Meanwhile, Modus’ ergonomically designed Balance range that combines task chair functionality with the comfort of an armchair, creates a soft and



welcoming aesthetic that is ideal for collaborative environments.

For Teknion and Modus, both businesses who place the wellbeing of their own staff at the forefront of their strategic thinking, the shift towards longer-term, more sustainable thinking, is welcome.

‘Staff retention is increasingly hard for employers so getting the design of your workspace and office culture right is more important than ever,’ said Modus head of sustainability Lucy Crane.

‘We like to practice what we preach at Modus, offering private healthcare and 24-hour mental health support for all our workforce.

‘It’s so important people feel at ease in the workplace with opportunities for both privacy and collaboration. Flexible working with more collaborative spaces is here to stay.’

Teknion too have sought to demonstrate their belief in the benefits of workplace wellbeing and collaboratively designed

office spaces through the development of their social and collaborative furniture range. Teknion’s recent partnership with Modus, who have successfully marketed their range of soft contract furniture for more than 20 years, is another indication of the market’s onward direction.

New concepts are being embraced with more emphasis on diversity of spaces, zoning, wayfinding, adaptable environments, acoustics and finishes all important considerations to encourage a more diverse workforce.

Meanwhile biophilic design, recognising the human need to feel connected to the natural world and the mental and physical benefits this brings, is seeing nature integrated more in the design process.

The continued direction of the industry provides an antidote to the 20th century notion that any time away from the production line was a negative as 'you weren't working or making profit for your employer if not at your desk or active on the production line'.

According to research by Gensler 'As more organizations understand that the workplace landscape has permanently

changed, the focus will shift less on how many people come into the office and more on what the future of work looks like to support their people's needs.'

The future King's Cross office for Google, getting ready for completion this year is an example of an industry leading office space designed with well-being in mind. The UK's longest landscaper will house 7,000 employees across 1,000,000 sq ft complete with a garden roof top.

The building, designed by Heatherwick Studio and Bjarke Ingels Group (BIG) will feature a natural theme, with all materials sourced through Google's healthy materials programme.

By opening up the ground floor and activating the roofscape, the light and airy workspaces are sandwiched between the terraced gardens on the roof.

As well as offering a quiet green space for breaks during the workday, a densely planted outdoor roof garden, with a rainwater irrigation system, will provide a habitat for protected species of bats and birds. We're collaborating with the London Wildlife Trust and the borough of Camden as part of a wider initiative to protect our native species and improve local biodiversity.

Inevitably supply chains are waking up to this sustained trend towards more

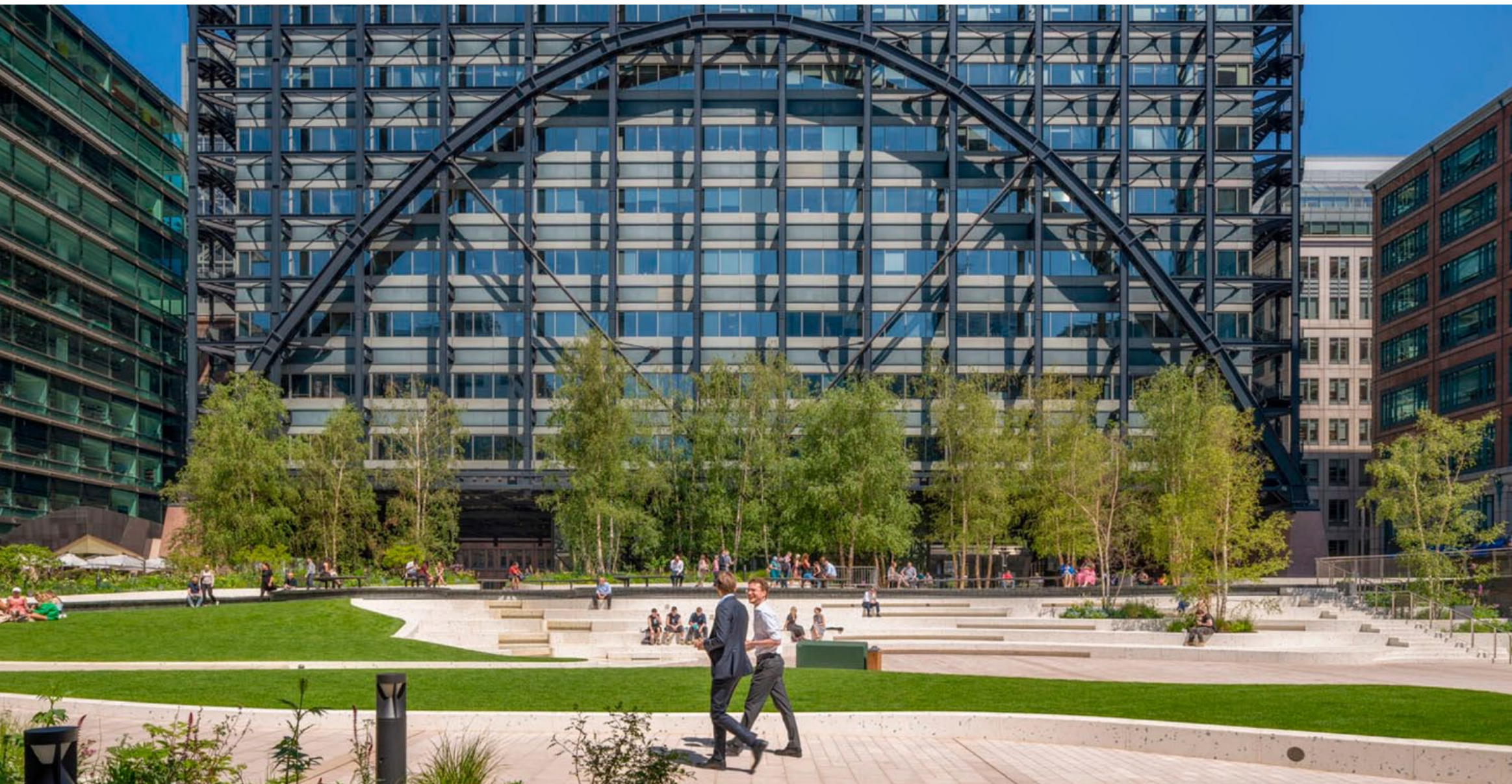
environmentally focused design with the move towards carbon net zero, forcing developers to pay far greater attention than ever before to their overall footprint.

And while office developments are leading the way, domestic property developers are also acutely conscious of the shift in demand with homebuyers now seeking 'planet positive' living such as Arbour's new 10-property development in east London.

With foundations built out of recycled bricks and blocks from the same site and shower units made from recycled yoghurt pots, Arbour's carbon negative newbuilds are just another example of the drive towards more environmentally focused design.

For us at Planted, a business committed to promoting nature-based design which benefits people and planet, we can only hope this drive continues to accelerate.

<https://planted-community.co.uk>





Groundbreaking Biodesign, new materials from waste, and The Mending Hub

Innovators, Makers, Activists

GREEN GRADS at GRAND DESIGNS LIVE

An enthusiastic cohort of **25 Green Grads** showcased their work with an **18m installation at Grand Designs Live**, ExCeL, 4th-12th May. Founded in 2021 by design editor Barbara Chandler (known for her long-running pages in London's Evening Standard), Green Grads is a platform for recent graduates of UK Universities whose final projects have in some way addressed one or more of a wide range of eco-issues.

New for 2024 was a trail-blazing installation of groundbreaking *biodesign*, the new overarching trend. Here designers learn from nature, to work with its living organisms, embrace its systems, and/or to use natural resources. Stars here include: carbon-guzzling algae, featured, for example, in a new paint by Emma Money, who secured a 50K grant for development from the UK government. Then there is algae-filled

“living furniture” by Peter Nasielski and a stunning green building façade by Lucia Giron. Mycelium too play their part – grow a house albeit slowly with mycelium building blocks by Dhruv Shah. Biomaterials utilise potato peelings and more, and also featured are age-old resources such as plant dyes by Jessica Kirkpatrick and native timbers by Jacob Marks and Sam McBride. There is even a stool/table “designed by mealworms” by Will Eliot. And “living letters” made by nature loving Trixi Marx.

Creative use of waste for new materials is another fascinating feature, with a table made of 10,000 discarded chopsticks from Hammersmith Wagamama by Simon Roberts, and new ceramics made of waste materials by Rosy Napper (ReCinder) and Sara Howard (Circular Ceramics). Also on show, a fully-functioning heating mat for refugees, by Sri Hollema which should be shortly available worldwide. Enthusiastically interactive are the girls at The Mending Hub who mended clothes live at the show.

Co-director and show orchestrator is Michael Czerwinski of Studio Tucktite, who is long experienced in events/fairs/media. Michael and Barbara comment: “Our vision is to fuel UK environmental action with new talent from UK Universities.” There are now 150 Green Grads listed on their website and they come from a wide range of disciplines, from art to engineering, materials innovation, animation, graphics, ceramics, glass, textiles, fashion, interior design and architecture.

Key highlights at the Green Grads 2024 show at GRAND DESIGNS LIVE are listed below (numbers refer to the detailed biographies which follow):

- Cyanoskin living paint: Emma Money has received a 50k grant from UK government (more details, 5 on list below).
- Algae-filled living furniture makes food and purifies air (Peter Nasielski, more details, 14 on list below).
- Stool/table designed by/with mealworms (by Londoner Will Eliot, 24 on list below).
- Mycelium building blocks for a DIY house (Dhruv Shah, 3 on list below).
- Hidden low-energy system for heating and ventilation (Preethi Jyakumar, 15)
- Table built from 10,000 chopsticks (Simon Roberts, 21)
- Ceramic commercial tableware made from industrial waste (Sara Howard, 18)
- Exquisite glass chandeliers fashioned from London's discarded bottles (glass artist William Harris, 25)
- The Mending Hub (Lucy Ralph and Jade Durling, 11 and 12)
- Solar-powered heating mat for refugees (by Sri Hollema, 22)

Green Grads operate in many different ways choosing to tackle various issues from nurturing nature, inventing materials to eliminating waste, restoring and repairing, recycling and “closing loops” for a more circular economy.

www.greengrads.co.uk / [@greengradsuk](https://twitter.com/greengradsuk)





Trixi Marx

Trixi has created the alluring “living signage” of our central Biodesign feature, using clay and local plants such as moss. Indeed, it is biophilic design which underpins all of Trixi’s work. This is the idea that all humans seek and receive beneficial contact with nature. “Accordingly, architecture and interior design can mimic nature through colours, shape, light or smell.” Biophilic design, says Trixi, can foster good mental

health, increase productivity and reduce stress. “And I have invented biophilic graphic design.” Examples are Trixi’s *Growable Graphics* and *Living Letters*. “Yes, we can grow our graphics instead of printing them,” says Trixi. “Biophilic graphic design reconnects humans with nature. It can enhance urban biodiversity, clean our air and generates no waste.” Trixi is seeking opportunities to leverage her expertise in sustainable design – “I am totally committed to making a positive impact in this field.” She has an MA in Graphic Design from Middlesex University.

www.sugarstudio.uk
[@sugar_.studio](https://www.instagram.com/sugar_.studio)



Sara Howard

Ceramics can be durable and last generations, but are typically made from finite natural resources, the extraction of which may damage the environment and communities. Circular Ceramics was Sara’s graduate project proposing the use of waste for making ceramics, as explained in a self-published book, available now in a second edition. Sara is a Green Grad who has been particularly successful in implementing her sustainability ideals and concepts. She won our first Green Grads Earth Award in 2021, has now upscaled Circular Ceramics during a residency with global brand Kevala Ceramics in Bali. The result is elegant handmade tableware made from Bali’s waste, such as glass from rivers; marble and granite factory slurries; and clay/glaze residues from water treatment systems. Circular Ceramics tableware is now selling in Indonesia and can be ordered wholesale in the UK. Explore the ecological and social issues surrounding the ceramics industry and

proposed solutions in the Circular Ceramics book. Sara’s methods are open-source released under the creative commons license ShareAlike. Sara has a BA in Ceramics Design from Central Saint Martins, UAL.

[@sara__howard](https://www.instagram.com/sara__howard)
<http://www.sarahowardstudio.com>
www.kevalaceramics.com

Sri Hollema

Green Grad Sri Hollema's timely invention is *Mat Zero*, a clever heating mat that's placed directly on the ground. Here, working off a rechargeable battery (or hub) powered by solar panels, it gives safe and sustainable heating for refugees, disaster relief and informal settlements at minimal cost. Currently – and tragically in far too many cases – the need for such a device is highlighted nightly on our TV screens, as war and uprisings drive thousands from their homes all over the globe. Mat Zero is particularly beneficial for children, the elderly and the sick.

Just one of 15 out of 329 applications, Mat Zero has won a share of the Energy Catalyst Grant Early Stage from Innovate UK. In total, £40 million has been awarded to innovators delivering clean energy in Africa, Asia, and the Indo-Pacific. Helping Sri develop her project has been Dr Alan James, a high-profile energy consultant and ace entrepreneur, who first came across Sri at a Green Grad show in Manchester. He's now part of an impressive team of industry experts bringing Mat Zero to market. Exposing GREEN GRADS in such a way to industry contacts through dynamic shows, social media and an ever-expanding website with attendant publicity is a crucial part of Green Grads.

<http://www.matzero.com>
[@matzerolt](#)



Caroline LA Wheeler

Artist/sculptor Caroline has created an installation especially for Grand Design Live. It is called *Grains and Chains: An Act of Measured Material*. It asserts that sand is the second-most used resource on Earth, after water, and the bedrock of human construction. And protests that the world is running out of sand, with humans to blame. Caroline has built a “chain” of linked images and text protesting the impact of sand depletion on landscape and habitats, and other knock-on environmental effects. It measures 66 feet, the length of a historic *Gunter’s chain*. This old-established surveyor’s tool dates back to around 1620 and was used to measure out not only the British Empire, but also the American wilderness and early settlements. It has 100 links, usually marked off into groups of 10 by brass rings or tags. It has left a permanent imprint on the way land is measured and divided in the United Kingdom and America. Thus 1 rod = ¼ chain or 16.5 feet; 1 furlong = 10 chains or 660 feet; 1 mile = 80 chains or 5,280 feet; 1 acre = 10 square chains or 43,560 square feet. Caroline has an MA in Jewellery and Metal from Royal College of Art.

www.carolinelawheeler.com
[@claw.artworks](#)



THE SCIENCE BEHIND BIOPHILIC DESIGN



Reimagining Health

“Imagine a space where nature’s tranquillity meets modern design, transforming everyday environments into sanctuaries of wellness and peace.”

Frank Gschiegl, MA

Interior Architect

&

Ziya Altug, PT, DPT, MS

Physiotherapist

INTRODUCTION

With some simple modifications, everyone can turn their home, workplace, and school into a healing space and an oasis for happiness. Biophilic design, which strategically incorporates elements of nature into built environments, not only beautifies spaces but fundamentally enhances well-being. According to Zhao and colleagues (2022), integrating elements of nature through biophilic design not only enhances the quality of our environments but also fundamentally improves our health.

Imagine the calming effect of listening to birds singing merrily, the joy sparked by watching butterflies dance, smelling the natural perfume of gardenias, feeling the gentle wind glide across your skin, and tasting fresh basil leaves or blackberries from your garden. This article proposes a unique approach to wellness by embracing such biophilic

principles to reconnect our living spaces with nature.”

BIOPHILIC WELLNESS

After establishing a serene backdrop of biophilic design in our everyday environments, it is essential to explore specific architectural elements that embody this concept. Structures such as gazebos, pergolas, and garden sheds are not just aesthetic enhancements; they serve as functional, liveable extensions of biophilic principles and help facilitate self-care (Altug 2024). Each offers unique ways to foster closer connections with nature – whether through the open designs that invite the outside in, or through the integration of natural materials that blend seamlessly with the outdoor environment. These structures are chosen for their versatility and ability to transform ordinary spaces into centres of health and tranquillity, making them ideal for demonstrating the practical applications of biophilic design in homes, workplaces, and schools.”

In addition to their numerous health benefits, biophilic design principles inherently promote sustainability. By integrating natural elements such as wood, stone, and living plants into architectural designs, these structures help reduce carbon footprints by leveraging renewable resources and enhancing energy efficiency. For instance, the strategic placement of trees and pergolas can provide natural cooling, reducing the need for air conditioning during warmer months.

Moreover, the use of local and sustainable materials in the construction of gazebos, pergolas, and garden sheds not only supports local economies but also minimizes environmental impact associated with transportation. Water features incorporated in these designs can be designed to use recycled water, contributing to water conservation efforts.

The holistic approach of biophilic design extends beyond individual

wellness to encompass environmental health, demonstrating a commitment to preserving our natural world for future generations. By fostering an environment where nature and human-made structures coexist harmoniously, biophilic design serves as a model for sustainable living practices that can be replicated in diverse settings worldwide

HEALING SPACES

Gazebos, pergolas, and garden sheds each uniquely enhance wellness, but they do so by leveraging different aspects of biophilic design. Each structure has its own unique benefits and can serve as restorative environmental designs (McGee et al., 2015). These designs provide fresh air, daylight, sunshine, views of nature, a place for refuge and reflection, and a quiet atmosphere (Tekin et al., 2023). Figure 1 outlines some potential medical benefits of outdoor spaces.

Benefit work related outcomes	Brossoit et al. 2024
Benefit individuals with Non-specific chronic low back pain	Huber et al., 2019
Enhance exercise adherence in postmenopausal women	Lacharité-Lemieux et al., 2015
Improve alertness	Figueiro et al., 2018
Management of chronic pain	Selby et al., 2019
Reduced incidence of myopia	He et al., 2015; Rose et al., 2008; Wu et al., 2018

Figure 1. Potential Benefits of Outdoor Spaces

For instance, the openness of a pergola, often characterized by its lattice roof and support for climbing plants, naturally promotes wellness by facilitating sunlight exposure which is vital for Vitamin D synthesis and improving mood. The open structure also allows for unimpeded fresh air circulation, which can reduce stress levels and enhance cognitive function.

In contrast, garden sheds, while more enclosed, offer a different kind of benefit. These structures can be personalized into tranquil retreats or hobby rooms that provide a quiet space for meditation, yoga, or other mindfulness activities. The inclusion of windows and French doors maximizes natural light, which helps regulate circadian rhythms, improving sleep quality and overall mental health.

Gazebos, typically found in more communal settings like parks or large gardens, combine the benefits of both pergolas and garden sheds. They provide a sheltered space that still maintains a strong connection to the surrounding landscape. This makes them ideal for social interactions that can decrease feelings of isolation and depression, all while enjoying the therapeutic effects of being in nature.

BENEFITS OF OUTDOOR STRUCTURES

This section outlines some potential benefits of gazebos, pergolas, and garden sheds.

Healing Space

In *Healing Spaces: The Science of Place and Well-Being*, the author identifies personal health as linked to the environment (Sternberg 2010). For

example, biophilic designs may be used as healing spaces to help individuals with migraines, chronic pain, and depression (Huntsman et al. 2022).

Ample Ventilation

Pergolas, with their open design, offer exceptional ventilation, which is crucial in maintaining air quality and comfort. This natural airflow makes pergolas ideal for outdoor social spaces, reducing the reliance on artificial cooling systems and enhancing the enjoyment of natural settings. Studies, such as those by Andrade et al. (2018), highlight the problems with poor ventilation in enclosed spaces like gyms, underscoring the benefits of structures like pergolas in promoting health through enhanced air quality.

Outdoor Light

In *Winter Blues: Everything You Need to Know to Beat Seasonal*, the author indicates the importance of natural outdoor light to help reduce depression (Rosenthal 2013). A study in PLoS One (2016) found that job satisfaction may improve through exposure to nature and sunlight.

Sunshine Exposure

Professor Holick outlines the importance of sensible sunshine exposure for vitamin D benefits (Holick 2016; Holick 2007).

Soundscape and Wellness

An article in the *Frontiers in Psychology* (2021) indicates the importance of natural sounds as a restorative strategy for mental health. For example, natural sounds may consist of birdsong, wind, and flowing water. Furthermore,

Cerwén and colleagues (2016) discuss using soundscape for nature-based rehabilitation. For example, natural pleasant sounds may consist of birdsong, wind, running water in a stream, dripping water, ocean sounds, and leaves rustling.

Smellscape and Wellness

A study by Pálsdóttir and colleagues (2021) found that a garden smellscape may be used in nature-based rehabilitation.

Mindfulness Training

Nature-based mindfulness training and experiences may help reduce stress and fatigue and improve work performance (Menardo et al. 2022). For example, the wellness gazebo incorporates natural scenery, sounds (birds and wind), taste (taste the mint or basil plants from your garden around your gazebo), and touch (feel the textures of the herbs and plants around your gazebo).

Physical Activity

A study in the *Environmental International journal* (Grellier et al. 2024) found that nature-based physical activity reduces the risk of multiple non-communicable diseases such as heart disease, stroke, cancer, and diabetes.

Sustainability

The wellness gazebo is sustainable because it uses minimal resources, and the design may be adapted to regional supplies and preferences.

Economical

The wellness gazebo is a cost-effective solution for individuals who cannot afford a gym membership.

Children's Wellness

Gardening may be a safe, fun, and practical physical activity to improve children's wellness (Gatto et al., 2017). Also, using the gazebo for outdoor learning may be a good tool for health promotion and improved educational outcomes (Marchant et al., 2019).

STYLES OF STRUCTURES

The following describes different styles of gazebos, pergolas, and garden sheds that can be customized for homes, neighbourhoods, corporate settings, and schools (see Figures 2 through 9).

Open Gazebo

An open gazebo with no windows may be a suitable choice for warm-weather locations.”



Figure 2



Figure 3

Closed Gazebo

The enclosed gazebo with windows and screens is a great choice for cold-weather locations.



Figure 4

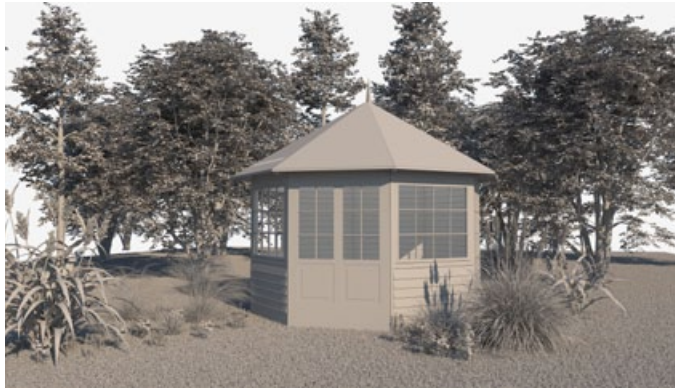


Figure 5

Pergola

Consider choosing a pergola, a structure without windows, especially for warm-weather locations.



Figure 6

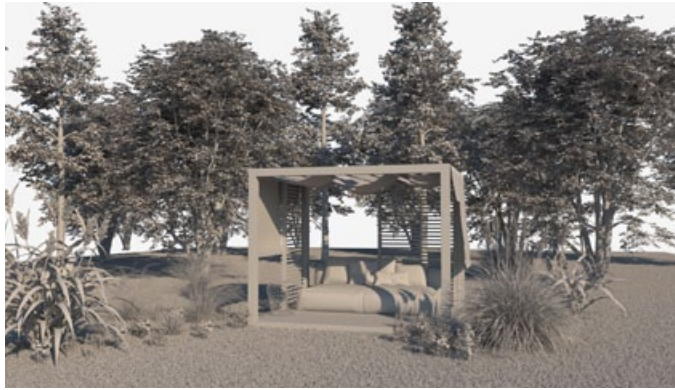


Figure 7

Garden Shed

The garden shed with windows and screens may be a suitable choice for cold-weather locations.



Figure 8



Figure 9

CUSTOM FEATURES OF GAZEBOS, PERGOLAS, AND GARDEN SHEDS

Fitness and Activity

Equip gazebos with a pull-up bar at various heights and attachment sites for resistance bands to create a versatile workout area and exercise stations suitable for all fitness levels.

Meditation

Install smooth, durable wooden flooring in pergolas and garden sheds, providing a stable and serene environment for yoga, Tai Chi, or meditation practices (see Figures 10 and 11).



Figure 10. Tai chi in gazebo

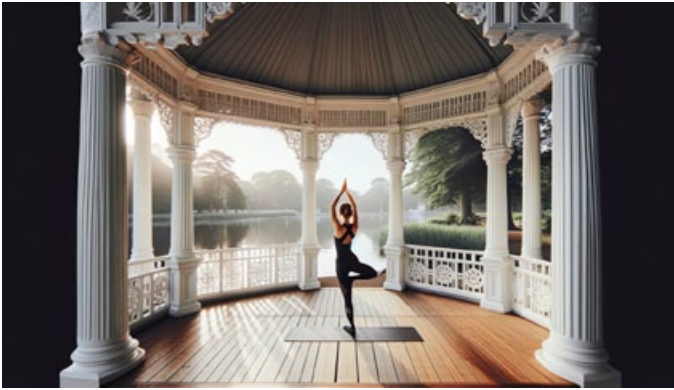


Figure 11. Yoga in gazebo

Relaxation and Comfort

Add a hammock or a rocking chair to enjoy the natural sounds and sights, ideal for mental recovery and enjoying a quiet cup of herbal tea.

Healing Gardens

Surround the structures with aromatic and medicinal plants to enhance the aesthetic and therapeutic qualities of your space (see Figure 12).



Figure 12. Healing vegetable garden gazebo

Innovative Features

The gazebo could include integrate bench seating for social interactions and rainwater harvesting systems for garden irrigation (see Figure 13).



Figure 13. Innovative and sustainable gazebo

CONCLUSION

In conclusion, gazebos, pergolas, and garden sheds represent unique biophilic designs that can be used for healing, wellness, and socialization in a person's home, neighbourhood, corporate setting, or school.

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REFERENCES

- Altug Z. Nature-based therapies. In: The Lifestyle Medicine Toolbox. London, United Kingdom, Jessica Kingsley Publishers, 2024. <https://uk.jkp.com/products/the-lifestyle-medicine-toolbox>
- An M, Colarelli SM, O'Brien K, Boyajian ME. Why we need more nature at work: effects of natural elements and sunlight on employee mental health and work attitudes. *PLoS One*. 2016;11(5):e0155614. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4877070/>
- Andrade A, Dominski FH, Pereira ML, de Liz CM, Buonanno G. Infection risk in gyms during physical exercise. *Environ Sci Pollut Res Int*. 2018;25(20):19675-19686. <https://pubmed.ncbi.nlm.nih.gov/29736645/>
- Brossoit RM, Crain TL, Leslie JJ, Fisher GG, Eakman AM. Engaging with nature and work: associations among the built and natural environment, experiences outside, and job engagement and creativity. *Front Psychol*. 2024;14:1268962. <https://pubmed.ncbi.nlm.nih.gov/38274672/>
- Cerwén G, Pedersen E, Pálsdóttir AM. The role of soundscape in nature-based rehabilitation: a patient perspective. *Int J Environ Res Public Health*. 2016;13(12):1229. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5201370/>
- Figueiro MG, Nagare R, Price L. Non-visual effects of light: how to use light to promote circadian entrainment and elicit alertness. *Light Res Technol*. 2018;50(1):38-62. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6221201/>
- Gatto NM, Martinez LC, Spruijt-Metz D, Davis JN. L.A. sprouts randomized controlled nutrition, cooking and gardening programme reduces obesity and metabolic risk in Hispanic/Latino youth. *Pediatr Obes*. 2017;12(1):28-37. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5362120/>
- Grellier J, White MP, de Bell S, et al. Valuing the health benefits of nature-based recreational physical activity in England. *Environ Int*. 2024;187:108667. <https://pubmed.ncbi.nlm.nih.gov/38642505/>
- He M, Xiang F, Zeng Y, et al. Effect of time spent outdoors at school on the development of myopia among children in China: a randomized clinical trial. *JAMA*. 2015;314(11):1142-1148. <https://jamanetwork.com/journals/jama/fullarticle/2441261>
- Holick MF. Biological effects of sunlight, ultraviolet radiation, visible light, infrared radiation and vitamin D for health. *Anticancer Res*. 2016;36(3):1345-1356. <https://ar.iijournals.org/content/36/3/1345.long>
- Holick M. F. Vitamin D deficiency. *The New England Journal of Medicine*. 2007;357(3):266-281. <https://pubmed.ncbi.nlm.nih.gov/17634462/>
- Huber D, Grafetstätter C, Proßegger J, et al. Green exercise and mg-ca-SO4 thermal balneotherapy for the treatment of non-specific chronic low back pain: a randomized controlled clinical trial. *BMC Musculoskelet Disord*. 2019;20(1):221. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6524239/>
- Huntsman DD, Bulaj G. Healthy dwelling: design of biophilic interior environments fostering self-care practices for people living with migraines, chronic pain, and depression. *Int J Environ Res Public Health*. 2022;19(4):2248. <https://pubmed.ncbi.nlm.nih.gov/35206441/>
- Lacharité-Lemieux M, Brunelle JP, and Dionne IJ. Adherence to exercise and affective responses: Comparison between outdoor and indoor training. *Menopause*. 2015; 22 (7): 731-740. <https://pubmed.ncbi.nlm.nih.gov/25423324/>

- Marchant E, Todd C, Cooksey R, et al. Curriculum-based outdoor learning for children aged 9-11: A qualitative analysis of pupils' and teachers' views. *PLoS One*. 2019;14(5):e0212242. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6544203/>
- Menardo E, Di Marco D, Ramos S, et al. Nature and mindfulness to cope with work-related stress: a narrative review. *Int J Environ Res Public Health*. 2022;19(10):5948. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9140663/>
- McGee B, Marshall-Baker A. Loving nature from the inside out: a biophilia matrix identification strategy for designers. *HERD*. 2015;8(4):115-130. <https://pubmed.ncbi.nlm.nih.gov/26123971/>
- Pálsdóttir AM, Spendrup S, Mårtensson L, Wendin K. Garden smellscape-experiences of plant scents in a nature-based intervention. *Front Psychol*. 2021;12:667957. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8288369/>
- Ratcliffe E. Sound and soundscape in restorative natural environments: a narrative literature review. *Front Psychol*. 2021;12:570563. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8107214/>
- Rose KA, Morgan IG, Ip J, et al. Outdoor activity reduces the prevalence of myopia in children. *Ophthalmology*. 2008;115(8):1279-1285. <https://pubmed.ncbi.nlm.nih.gov/18294691/>
- Rosenthal NE. *Winter Blues: Everything You Need to Know to Beat Seasonal Affective Disorder*, 4th edition. New York, NY: The Guilford Press, 2013. <https://amzn.to/3UAmj0H>
- Selby S, Hayes C, O'Sullivan N, O'Neil A, Harmon D. Facilitators and barriers to green exercise in chronic pain. *Ir J Med Sci*. 2019;188(3):973-978. <https://pubmed.ncbi.nlm.nih.gov/30377913/>
- Sternberg, EM. *Healing Spaces: The Science of Place and Well-being*. Cambridge, MA: Harvard University Press, 2009.
- Tekin BH, Corcoran R, Gutiérrez RU. A Systematic review and conceptual framework of biophilic design parameters in clinical environments. *HERD*. 2023;16(1):233-250. <https://pubmed.ncbi.nlm.nih.gov/35996349/>
- Venes D. (Ed.). *Taber's Cyclopedic Medical Dictionary*, 23rd ed. Philadelphia, PA: FA Davis, 2017.
- Wu PC, Chen CT, Lin KK, et al. Myopia prevention and outdoor light intensity in a school-based cluster randomized trial. *Ophthalmology*. 2018;125(8):1239-1250. <https://pubmed.ncbi.nlm.nih.gov/29371008/>
- Zhao Y, Zhan Q, Xu T. Biophilic design as an important bridge for sustainable interaction between humans and the environment: based on practice in Chinese healthcare space. *Comput Math Methods Med*. 2022;8184534. <https://pubmed.ncbi.nlm.nih.gov/35818624/>

ADDITIONAL RESOURCES

- Kotite E. *She Sheds: A Room of Your Own*. Minneapolis, MN: Cool Springs Press, 2017.
- Pierce C, Pecen J, McLeod KJ. (2009). Influence of seated rocking on blood pressure in the elderly: A pilot clinical study. *Biological Research for Nursing*. 2009; 11 (2): 144-151. <https://pubmed.ncbi.nlm.nih.gov/19419977/>
- U.S. Department of Veterans Affairs. Office of Construction & Facilities Management. *VA Healing Environments Design Guidelines*. U.S. Department of Veterans Affairs, 2016. https://www.wbdg.org/FFC/VA/VADEMAN/healing_envir.pdf

TOP TIPS FROM THE NOTEBOOKS OF THE SPACE DOCTORS

In a recent article on [bbc.com](https://www.bbc.com), excerpts from Carolo Ratti's introduction to *The House of Green*, published by Gestalten, shows that the chorus advocating nature views, indoor use of plants, and many more things that are good for our planet is growing even louder.

Ratti reports that "In the age of climate change, we cannot afford to simply use green elements for our enjoyment. If we do not build with nature, we will demolish ourselves along with it . . . we must protect nature – and copy nature – in our use of resources. Reducing unnecessary, wasteful building is an even more important strategy, but we still need to create new homes and businesses . . . we must bring living things into the built environment – not solely for aesthetic appeal but for practical functionality. . . ."

Nature Sounds – another reason to build in wildlife corridors, and why biodiversity net gain will enhance our wellbeing.

Hearing nature sounds is relaxing, very relaxing. A press release from the United Kingdom's National Trust reports, "The crunch of snapping twigs underfoot. Lilted birdsong from above. The rustling of trees in the breeze. Woodland sounds have been shown to have a direct impact on our wellbeing, making us more relaxed, less stressed and less anxious. A new study commissioned by the National Trust explored how soaking up the sounds of the natural world affects people, and found it relaxes us more than if we listen to a voiced meditation app, and in the tests, reduced feelings of stress and anxiety by over a fifth on average, those immersed in woodland sounds such as a trickling stream, birdsong, or crunching leaves, reported a 30% increase in feeling relaxed. This is compared to no change in feeling relaxed for those listening to a voiced meditation app." Study participants' feelings of stress decreased by 24% and anxiety by 19%. Nature soundscapes are readily available online.



Wild Swimming – helping reconnect you to the environment

Dahl and Backstrom (2023) found that the sensory experiences linked to wild swimming are more powerful than those in pools: “Why are people fascinated by swimming in nature? This article addresses the aesthetic experiences of wild swimming as expressed by five wild swimming authors in their books. Drawing from aesthetic philosophy, we analyze the ways in which the appeal of wild swimming is described on three levels: the allure of water in the environment, the sensory encounter between water and the body, and the experience of moving in water. . . . We can conclude that the special intensity of the sensory experience of moving in water allows a closer connectedness to the surrounding natural world than land-based activities or swimming in artificial outdoor pools. This leads to a stronger ethical awareness, both regarding protection of natural water as well as the necessity of developing ‘water competency’ amongst humans.”

Also, Gould and colleagues reported in 2021 on the various benefits, social and otherwise, of wild swimming, using data collected from wild swimmers in Australia: “Wild swimming is currently experiencing a surge in popularity as people avowedly attempt to reconnect with the natural world. Previous research has positioned wild swimming as a solitary pursuit whereby individuals retreat from society to connect with or overcome nature and



better themselves . . . while being in nature and personal fulfillment are key motivations for these wild swimmers, it is the social interactions that facilitate a deep engagement with their local ‘bluespace.’ We argue that rather than swimming away from the world, by ‘wayfaring’ together these swimmers become connected to their environment, and each other, simultaneously. Such findings indicate potential social, health, and environmental benefits of collective wild swimming.”

And finally, when you’re back in the office or in your home and studying your energy bill:

Ventilation – helping reduce your energy use.

Effective ventilation enhances our physical and mental health, which is no surprise, because logically shouldn’t “breathing better” do just that?

The single best thing that you can probably do to breathe mind, body, and mood elevating air is to open your windows and let the outside air in (but only if the air outside is healthy to breathe and a comfortable temperature for living). Opening the windows flushes out all the musty smells that can be disheartening to smell and moving air seems to be healthier, higher-quality air, whether it is or it isn’t. Open windows do a better job making the air inside your house good for breathing than plants do, even if you have lots of potted plants inside your house.



Letting in fresh air can lower the carbon dioxide levels you're experiencing which helps your brain and your body perform more effectively, in short, it can make you smarter and healthier.

We also sleep better when the windows are open, as long as temperatures and outside noise levels make doing so possible.

An added plus: moving air that is actually warmer can seem cooler than non-moving air that is at a lower temperature; air that moves intermittently, as wind naturally does, brings the most psychological benefits.

Originally shared to The Space Doctors members. The Space Doctors, are **Dr Sally Augustin and Dr Vanessa Champion** www.thespacedoctors.com

2 Stunning Buildings That Bring Nature Inside <https://www.bbc.com/culture/article/20240420-12-stunning-buildings-that-bring-nature-inside>

"Woodland Sounds Boost Wellbeing, According to New Study." 2019. Press release, National Trust, <https://www.nationaltrust.org.uk/press-release/woodland-sounds-boost-wellbeing>

Daymar Dahl and Asa Bäckström. 2023. "Meeting, Moving, Mastering – A Text Analysis of the Aesthetic Attractions of 'Wild Swimming.'" *International Journal of Aquatic Research and Education*, vol. 14, no.1, <https://doi.org/10.25035/ilare.14.01.12>

Gould, F. McLachlan, and B. McDonald. 2021. "Swimming with the Bicheno 'Coffee C.ub': The Textured World of Wild Swimming." *Journal of Sport and Social Issues*, vol. 45, no. 1, pp. 39-59, <https://doi.org/10.1177/0193723520928594>



A Scholarship to Help Architects & Designers

The Timber & Forestry Foundation (TFF) was co-founded by **Criswell Davis**, internationally recognized American hardwood expert, advocate, speaker, and hardwood specification consultant. Criswell passed away in late 2022 but was an ambassador for the American hardwood industry for over three decades. He believed that designing with American hardwoods improves our personal health and the health of the planet.

The Criswell Davis Scholarship is designed to honor the memory and legacy of Criswell Davis, a passionate advocate for biophilic design and the integration of hardwoods into architectural projects. The scholarship aims to be an annual, recurring program that supports college candidates pursuing a career in architecture or interior design and furthering the vision of sustainable and nature-inspired environments.

Promoting Biophilic Design

Eligible Candidates: The Criswell Davis Scholarship is open to college candidates who are committed to the principles of biophilic design and incorporating hardwoods into architectural and design projects. Eligible candidates may include undergraduate or graduate students studying architecture or interior design at an accredited institution.

Financial Contributions

Contribute to the next generation of architects and help spread the influence and popularity of biophilic design.
Donate today!



timberandforestry.org/scholarship

PLANTS



The Power of Plants in supporting ESG

“In an era marked by growing environmental concerns and an increased focus on corporate social responsibility, companies worldwide are seeking more innovative ways to align their day-to-day operations with sustainability goals. An often-overlooked aspect that should be considered by companies looking to improve their Environmental, Social, and Governance (ESG) performance are plants.”

Adrian Byne



The integration of plants into corporate environments is not merely an aesthetic choice but should be a strategic decision at the design and building stage of any office renovation. Greenery has far-reaching benefits, from improving indoor air quality to enhancing employee well-being and productivity - plants have emerged as a cornerstone of sustainable design.

One shining example of the power of plants is the transformative project at Avison Young's offices in Manchester, who sought to revitalise their office space with a comprehensive sustainability strategy. The project has recently been named the best new build outside of central London and provides Avison

Young with a future-ready, engaging and experiential workspace, with sustainability and well-being central to its design.

At the heart of the project lay a deep understanding of biophilic design principles, which emphasise the innate human connection to nature. By strategically incorporating plants throughout the workspaces, creative plant designers Benholm Group, sought to create an environment that fosters creativity, reduces stress, and promotes overall health. Moreover, the use of plants plays a crucial role in mitigating the environmental impact of the built environment, a key consideration in achieving ESG objectives.

PLANTS

Through meticulous planning and execution, the once conventional office space underwent a remarkable transformation into a thriving ecosystem where sustainability and productivity coexist. From lush green walls that serve as natural air purifiers to strategically placed planters that optimise natural light and temperature, every aspect of the design was carefully considered to maximise its environmental benefits.

Central to the project's success was its alignment with internationally recognised certification standards, BREEAM and SKA Gold Certification. Attaining BREEAM Excellent certification signifies commitment to best practices in sustainable construction and operation, while SKA Gold Certification further validates exemplary environmental performance. By surpassing industry benchmarks, the Avison Young Offices in Manchester set a new standard for sustainable workplaces, showcasing the tangible results of integrating plants into corporate settings.



As stakeholders increasingly scrutinise their companies' environmental impact and social responsibility, plants are also an easy and cost-effective solution to improve health and productivity of employees. Research suggests that those sitting at computer monitors will be 12% more productive when there are plants nearby, whilst complaints of minor ailments such as coughing, blocked sinuses, headaches, skin irritations and dry throats, decrease by an average of 25% when there are plants indoors.

Other lesser-known benefits of creative planting are their sound absorption properties which, when used effectively as living walls and room dividers, can contribute to calmer, quieter spaces. When plants are watered, they return

over 90% of that water back into the atmosphere, thereby combating dryness caused by temperature control equipment such as air conditioning, computers and other electrical devices. Plus, during summer months, air conditioning can be reduced as plants will absorb some of the heat instead.

The integration of plants into corporate environments represents a powerful tool for advancing ESG initiatives and fostering sustainable business practices. Using greenery in creative ways will greatly contribute towards a healthier, more productive workspace. As businesses worldwide seek to navigate the complexities of the modern marketplace, the benefits of plants are invaluable.

www.benholm.com



Plants in and around buildings: are they really green?

“Biophilic design is all about creating spaces in the built environment that are healthy, happy, engaging and effective.”

Kenneth Freeman

The readers of this journal know that the reason why biophilic design works is that we create spaces that allow us to rebuild connections to nature and our natural habitat. We enrich our spaces to make the lives of domesticated, ‘battery humans’ so much better. In the workplace, biophilic design can lead to better business outcomes. More productivity per kilowatt hour of energy consumed – so possibly a gain for the environment.

A significant element of almost every biophilic design is greenery – indoor and outdoor plants displayed in a naturalistic fashion. It is easy to assume that, because live plants are being used, that they must be an environmentally friendly addition to any building. But does that assumption survive scrutiny?

Does the green part of biophilic design create a net benefit to our environment?

Interior landscapers, the providers of office greenery, use a variety of plants in their schemes. Indoor plants tend to have their natural origins in the tropics and subtropics – places where seasonal variation is minimal (much like the insides of buildings, which also have a near constant environment. Office blocks and rainforests have more in common than you might think.) This doesn’t mean that indoor plants are sourced from the wild – that would be bad for the environment. They are grown by specialists under controlled environmental conditions in nurseries. In temperate climates, the use of native species in buildings is guaranteed to fail.



In Europe, most indoor plants are sourced from The Netherlands. Dutch growers have perfected the art of producing millions of plants using quite complex technology to regulate the light, temperature, water, and fertilizers used in their glasshouses to produce pristine crops to exacting specifications. However, this comes at a cost. The energy used to heat and light their glasshouses must be generated somewhere. The water used for irrigation is treated with fertilizers and any leftover must be recycled and re-treated before it gets discharged back into the environment. Over the last few years, the Dutch nursery industry has significantly reduced its inputs, with a significant reduction in the impact it has on the wider environment, but let's not shy away from the fact that nursery production is a resource-consuming industry.

Another impact on the environment comes from the substrates used to grow the plants. Peat is still used. Even if it is not extracted from fragile habitats anymore, its extraction can lead to significant greenhouse gas emissions. As the peat dries out and oxidizes, it releases carbon dioxide. This carbon dioxide is, essentially, a fossil fuel. It was originally taken out of the atmosphere thousands of years ago.

Fortunately, peat is being used less and more sustainable substrates are now being used, such as coir, composted green waste and even volcanic minerals (vulcaponics).



Once the plants have been produced, they need to be transported to the buildings where they are going to be installed. Hundreds of trucks burn diesel fuel transporting plants from the Netherlands all over Europe and beyond.

What about other countries? In North America, plant production is rather less intensive. In the major growing areas of Florida and California, plants are grown more-or-less outdoors under polythene and heavy shade cloth. The energy inputs are significantly less than in Europe, but other inputs, such as pesticides tend to be higher. Here, as in Europe, plants need to be transported across an entire continent and large, climate-controlled trucks drive thousands of kilometres to deliver plants from Florida to Montreal and all places in between.

Florida and California are both subject to ever more extreme climate events. The Florida nursery industry has often suffered existential threats due to hurricanes, and California is frequently under severe water stress.

There are other places in the world where indoor plants are grown. I have recently visited India, where vast office complexes are being constructed at an astonishing rate. These buildings are being constructed to the highest standards – often to high LEED and WELL buildings specifications. Biophilic design is integral to these projects, both inside the buildings and in the campus environments where so many of them are being developed.

In India, most of the plants used are grown by Indian commercial nurseries. It is a very well-developed industry, which is superficially similar to the Florida industry. Vast, heavily shaded polythene structures are used to grow exceptionally good plants for both the retail and interior landscaping markets. Pesticide inputs are low, growing media are often locally sourced coir-based products (essentially a waste product of coconut farming) and little, or no energy is used for lighting their nurseries. Supply chains tend to be relatively short (there are nurseries relatively close to many of the big cities), so that too is a benefit.

However, every nursery owner that I spoke to (and it was a lot) is seriously concerned about climate change. Near Pune and Bangalore, temperatures are significantly above average, and rainfall is scarce. This is partly explained by the El Niño effect, which is near its peak, but there is no doubt that man-made climate change also has an impact.

Water shortages are a major concern. High on the Deccan Plateau, rivers are uncommon, and much irrigation water



is often sourced from boreholes and stored rainwater. Groundwater is rapidly diminishing, and rains are increasingly unreliable.

The seemingly insatiable desire for indoor plants in India is threatened by changes happening to the environment right now.

I don't want to be too gloomy, though. Compared with other elements in a biophilic space, greenery still contributes relatively little to environmental damage (though it can be improved), but the impact it has on wellbeing and business outcomes is very high. Plants are still a high impact, low-cost addition to the built environment and if they make the built environment more effective, you get more output (however you choose to measure it) for every tonne of carbon dioxide (or other harmful emission) put into our environment.

Kenneth Freeman has a global reputation in interior landscaping, biophilic design and workplace wellbeing, and an extensive technical background in interior landscaping and horticulture
<https://purposefulplaces.co.uk>

AnthoFile – Your Digital Companion for Bee-Friendly Gardening

“How do we ensure we are creating sustainable environments with our designs?”

Claire Roos, Meg Seybold, Justin Zhou, Melissa Ziegler

The U.S. landscape is a picture of profitable land conversion filled with farmland and lush green lawns framing suburban homes. Additionally, approximately 2% of the land in the continental U.S. has been converted into turf grass¹. With the guidance of biophilic designer Nicole Craanen, we asked ourselves how we might encourage a redesign of built landscapes in order to support more life? More specifically, how might we create more spaces that support the wellbeing of bees native to Wisconsin in urban areas while also fostering a human-nature connection to build interest in these spaces?

As Master of Science in Design + Innovation students at University of Wisconsin, we are focused on creating innovative solutions for real world problems through our interdisciplinary, design-driven program. Our introduction to this project was a practice in empathy: rather than working with a business, we were tasked with providing a solution for a more-than-human client: the bees in Wisconsin. As four individuals with diverse backgrounds, we were brought together by a shared interest of providing solutions aimed towards the wellbeing of bees.



Many are already aware that bee populations are in decline. However, most awareness focuses on honeybees, with little attention paid toward the value and precarious situation of native bees. Native bees are hard workers pollinating the crops we rely on, and they are declining rapidly due to issues such as habitat loss, climate change, and pesticide use. In fact, a 75% decline in flying insect biomass was recorded in the last three decades². With over 400 species of bees native to Wisconsin³, there is an opportunity to support a great diversity of these uniquely helpful and often overlooked beings.

We knew that there were ways to design landscapes that provide critical pollinator habitat and were determined to discover why this was not the norm. We sought conversation with professionals in landscape design and architecture, entomologists, native plant specialists, and independent gardeners interested in supporting native bees. As interdisciplinary outsiders, we were able to ask bold questions to identify barriers that people are facing when creating spaces for native bees. In our interviews, we focused on the following:

- How does the built environment impact native bees?
- What's being done already to support them?
- What practices need to be instilled to better support native pollinators in our built environment?
- What barriers need to be overcome to get there?

The connection between native plants and native bees emerged within our research. By growing plants native to an area, we provide nesting habitat and foraging resources that bees need to survive. By enabling more of these plants to be included in landscape designs and ensuring proper maintenance practices, we can start to increase native bee populations in our built environments.

We set out to develop a solution to address these findings:

- Homeowners who want to support bees are confused about how to do so and are hindered by a lack of resources on what to plant and how to obtain them.
- There are misconceptions that native plants are messy and hard to maintain. This presents a barrier to their adoption in the residential landscape, where a formal and easy-to-maintain design may be preferred.
- Among both landscape maintenance professionals and homeowners, there is a lack of education around maintenance practices that are safe for bees; in fact, many current techniques are harmful.
- Landscape architects and designers are typically under-resourced in both time and prioritization in larger building projects; many are lacking easily accessible information about designing native wildlife-supporting landscapes that could facilitate this work during times of high pressure.



In response to our findings, we are developing a multimedia toolkit, called AnthoFile, to help guide people in planting and maintaining native plants and conducting native bee-friendly practices. It also helps professional landscape designers communicate and resolve common native planting misconceptions when working with clients to achieve those goals.

AnthoFile will meet the needs of its clients with the following tools:

- Slide deck: for landscape designers to use when pitching native plantings to clients.
- App: guides landscape designers, clients, and independent gardeners to select a palette of native plants that fits their style and property desires based on their region and site conditions while providing plenty of quality nutrition and habitat to bees and other pollinators. Users can also use the app to learn how to correctly care for their plants after planting.
- Care sheets: to provide documentation for a user's plants with information on how to care for plantings in habitat-supportive ways, encouraging eco-friendly supplies and season-specific maintenance practices.
- Seasonal e-newsletters: to be accessed via the app or email, engaging the homeowner in learning about the plants in bloom at this time of year, key maintenance tasks that should be done, and which bee species are likely to be active on their property.



With AnthoFile, we hope to create positive change for both humans and native bees. When using our product to learn how to design and care for native plants and pollinators, there will be an added benefit of increased well-being for humans. Whether someone is a landscape designer, a client, or wanting to plant gardens themselves – we would be more likely to see an increase in native bee populations by creating safe and healthy environments for them to thrive. This would be especially helpful in urban environments where native bees have been greatly displaced. In addition, by spending time with and learning about the plants and insects around them, people are more likely to be aware of their natural surroundings, creating a sense of connection to nature in their environments that promotes positive well-being, enhancing our personal biophilia.

Our hope is to turn these prototypes into a product that landscape designers and property owners can utilize. In the future, we plan on incorporating additional pollinators into the app with the hope to foster a healthy relationship with nature in the built environment that benefits both humans and pollinators.

You can explore a preview of the AnthoFile toolkit at www.anthofile.com

Works Cited

1. Milesi, C., Running, S.W., Elvidge, C.D. et al. Mapping and Modeling the Biogeochemical Cycling of Turf Grasses in the United States. *Environmental Management* 36, 426–438 (2005). <https://doi.org/10.1007/s00267-004-0316-2>
2. Hallmann CA, Sorg M, Jongejans E, Siepel H, Hofland N, Schwan H, et al. (2017) More than 75 percent decline over 27 years in total flying insect biomass in protected areas. *PLoS ONE* 12(10): e0185809.
3. University of Wisconsin Extension. (2021). *Supporting Native Bees in Wisconsin: How to Identify, Protect, and Encourage Native Bee Populations*. Retrieved from <https://dane.extension.wisc.edu/files/2021/11/UWEX-Publication-Supporting-Native-Bees.pdf>

Bee Aware: Apiculture in Ancient Rome

“There is (thankfully!) a growing awareness that we need to refocus our attention on valuing bees and the planting associated with them, and as designers it’s good to remind ourselves why we need to consider how we landscape.

Bees are vital to us and our planet, from pollinating crops to feeding livestock and supporting all manner of ecosystems. This is not new, but maybe somewhere, somehow, we have lost our way. As a reminder, Dr Patty Baker shares with us how important bees were in the ancient world.”

Dr Patty Baker

Bees, beekeeping, and honey were highly valued commodities and pursuits in the Greco-Roman world. Indications for the significance of bees and honey survive in various ways. For example, coins minted in the ancient city of Ephesus, located in modern Turkey, had bees depicted on them because they represented the Anatolian goddess connected to the city whom the Greeks associated with their goddess Artemis. Her priestesses were called honey bees or *melissai* in Greek.¹ In ancient Rome, honey mixed with wine was supposedly imbibed

by newlyweds for a month after their marriage because it embodied abundance and was regarded as an auspicious beginning to their lives together.² Honey was also used in medical recipes for the skin, eyes, and other ailments,³ and was an ingredient in ancient recipes.⁴ Although sweet, medical texts classified honey as bitter because it had the power to cut through thick humours in the body.⁵ As honey was such a valued and multi-faceted product, the health of the bees was of primary concern. So, what were the secrets of ancient apiculture?





For apiculture, most of our information survives in the works of the Roman agronomists: Varro's *Res Rustica* (2nd BCE), Virgil's *Georgics* (late 1st BCE), Pliny the Elder's *Historia Naturalis* (mid 1st CE), and Columella's *de res Rustica* (mid 1st CE). Columella provided the most detailed information on the subject, and it is his work that is reviewed here to consider two main issues related to beekeeping. First, the construction of hives and apiaries is explored. Second, since the health of the hive was vital for the amount of honey produced, consideration is given to how beekeepers cared for their bees.

Bee Constructive

Before setting up a hive, a swarm of bees was required. The desired swarm was populous, active, and had one king. The Romans were unaware that the main bee was female. The swarm then had to be moved to a desirable location with beneficial aspects and environmental features necessary for the bees' health.

The hives were placed on an apiary constructed of stone, about three feet high and three feet wide. The stone was plastered for an even surface. Columella suggested that the hives be placed side by side and on three levels.⁶ To avoid disturbances when neighbouring hives were being inspected, the hives were separated by bricks or concrete.

The hives were constructed from readily available materials that determined the shape of the hives. For instance, cork bark, woven withies, and earthenware containers were round. Square hives were made from fennel stems and wooden boards.⁷ The hives were open

at the front and back, allowing air to flow through them. The front entrance was lower than the back to facilitate the movement of rainwater from the hive. A roof placed over the apiary also protected it from rain, snow, and helped keep a median hive temperature that was neither too hot nor too cold.⁸ By placing bees in well-balanced conditions, they could produce high-quality honey.

Bee Sweet

Honey was ripe when the drones were expelled from the hive, at which point it was time to gather the combs. I have yet to find information about how ancient beekeepers defended themselves from stings with the exception of using smoke to move the bees. It is possible that they did not rely on protective clothing but moved slowly and gently like some beekeepers today.

When collecting the combs, the beekeeper used smoke to force the bees to the opposite end of the hive and cut out the combs with a long knife. The combs were placed in a conical basket, allowing the honey to strain through it. When seemingly empty, the combs were wrung out for the last remains of honey.⁹

Honey was categorised by flavour, much like wine. The best honey came from thyme. This was followed by Greek savoury, wild thyme, and marjoram. The third class of honey was from rosemary and Italian savoury. Next were flowers from the tamarisk and the jujube (*ziziphus jujuba*) trees. The worst was derived from woodlands and vegetables. To ensure that the bees produced high quality honey, their health had to be maintained.

Bee Healthy

The beekeeper had a number of ways to ensure a safe hive. Aside from protecting the swarm from predators like birds, frogs, and moths by setting traps, creating barriers, and vigilantly sweeping them away from the bees, the preservation of their health was vital. This began with placing them in salubrious locations for disease prevention.

In ancient medical literature, much was written on the maintenance of health, and bees' health was similarly described. One aspect of a healthy regimen was to ensure humans and animals alike lived in ideal environmental conditions. The Greeks and Romans recognized a symbiotic relationship between the environment and health because the environment could positively or negatively affect the balance of bodily humours: black bile, yellow bile, blood, and phlegm.¹⁰ Their explanation for this relationship was established by the mid-fifth century BCE. Philosophers at that time argued that all things in the cosmos consisted of a mixture of the four elements: earth, air, fire, and water, each of which had corresponding properties and were associated with a humour.¹¹ Earth (black bile) was cold and dry; air (blood) was warm and moist; fire (yellow bile) was hot and dry; and water (phlegm) was cold and moist. These ideas permeated into Columella's recommendations for the maintenance of a healthy hive.

To ensure the balanced health of

the bees, ideally, the hives were placed in valleys so the bees could fly upwards to collect pollen and downhill when loaded down with the weight of pollen. These low-lying apiaries were to be positioned so they had the best sun at midday in the winter to keep the hive warm. Overall, though, they were to be in a place that was temperate. They had to be far from noise, which could aggravate and scare the bees, and far from foul odours that emanated from places like latrines, dunghills, and marshes, as foul odours were a cause of illness.¹²

A healthy water source, one with ever-flowing water or drawn by hand from such a source, should also be near the hives. Marshy and stagnant water was unhealthy. A good source of water, aided in the production of young bees, combs, and honey. Sticks and stones were also placed in or by the water to create bridges and to allow the bees to rest.

Small trees and shrubs should be planted around the apiary. Columella suggested that wild cinnamon, pines, rosemary, marjoram, thyme, and violets were the best for the health of the bees. They created pleasant odours, gave protection from wind and sun, and had beneficial pollen for the bees to forage.

Another issue the beekeepers had to be wary of was angry and quarrelsome bees. To calm them, Columella suggested honey-water, raisin-wine or another sweet liquid be given to them to pacify their temperament.

**Bee Harmonious**

Ultimately, the evidence from the past demonstrates that honey and bees were vital to many aspects of ancient life. Bees were treated well because the honey they provided was a source of food, medicine, luck, and connected people to certain deities. Beekeeping allowed the Greeks and Roman to have a harmonious relationship with nature, shown by their methods of care and concern for their swarms.

Dr. Patty Baker

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Bibliography Secondary Sources

Baker, Patricia 2018 "Identifying the Connection between Roman Conceptions of 'Pure Air' and Physical and Mental Health in Pompeian Gardens (c.150 BC–AD 79): a Multi-sensory Approach to Ancient Medicine." *World Archaeology* 50 (3): 404-17.

Baker, Patricia 2017 "Tastes and Digestion: Archaeology and Medicine in Roman Italy." In K. Rudolph (ed.) *Taste and the Ancient Senses*. The Senses in Antiquity Series, London: Routledge, pp. 138-60.

Cilliers, Louise and Francois Retief, 2012. *Bees, Honey and Health in Antiquity*. Akroterion 53.

Totelin, Laurence 2017. "Tastes in Ancient Botany, Medicine and Science: Bitter Herbs and Sweet Honey." In K. Rudolph (ed.) *Taste and the Ancient Senses*. The Senses in Antiquity Series, London: Routledge.

¹ *Inscriptionen von Ephesus* 2109; Pausanias *Guide to Greece* 8.13.1

² Cilliers and Retief 2012

³ e.g. Celsus *de Medicina*

⁴ e.g. Apicius *de re Coquinaria*

⁵ Baker 2017; Totelin 2017; Galen *On the Properties of Foodstuffs* 3.36 [Kuhn 6.740]

⁶ *de res Rustica*

⁷ Columella *de res Rustica* 9. 14.13; Pliny *Historia Naturalis* 10 14.13; 21. 47; Varro *res Rustica* 15-17

⁸ Columella *de res Rustica* 9. 7. 1-5

⁹ Columella *de res Rustica* 9. 14-15

¹⁰ <https://plato.stanford.edu/entries/galen/>

¹¹ <https://plato.stanford.edu/entries/empedocles/>

¹² Baker 2018



ENVIRONMENT PEOPLE PLANET

HOW TO CHANGE YOUR PERSPECTIVE ON CLIMATE CHANGE

A journey through the ripple effects of a global crisis

Alexander Verbeek

Between October 6 and October 31, 1957, the Western world faced such a massive crisis that the New York Times wrote about it in more than 11 articles per day. The cause of all fear was tiny; Sputnik was a polished metal sphere the size of a beach ball with four external radio antennas to broadcast radio pulses.

I remember my father describing his memories of hearing the beeps that amateur radio operators worldwide could easily detect. He told me this decades later when considerably larger structures orbited Earth, manned by astronauts who lived there for months, and Sputnik was considered ancient technology.

But in '57, the cosmic beeping still captivated the world like a doctor listening to a heartbeat. The West feared losing its technological advances to the Soviet Union, and the 'Sputnik Crisis' became a significant event in the Cold War. It catalysed the creation of NASA and kicked off the Space Race between the two superpowers.

The Soviets' development of the world's

first artificial satellite didn't come as a complete surprise for the Americans, but their estimates were off by a factor of ten. Instead of expecting a massive satellite over five meters wide, they faced one just half a meter in diameter. This undersized object created a global panic, and its beeps heralded the dawn of a new era of communication, weather prediction, scientific research, and political rivalry.

Fast forward to our time, and everything has turned around. The story of a small satellite launching a global crisis in 1957 is today replaced by the story of a worldwide climate crisis leading to the launch of a tiny satellite.

In late May, Rocket Lab launched the first of two NASA climate satellites designed to study heat emissions at the Earth's poles in New Zealand. The PREFIRE (Polar Radiant Energy in the Far-InfraRed Experiment) mission involves two tiny CubeSats, each the size of a shoe box, much smaller than that Soviet skippy ball of '57, which the Americans had imagined as one of more than five meters in diameter.

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The PREFIRE mission will send two CubeSats into space to study how much heat the planet absorbs and emits from its polar regions. (Source: NASA Jet Propulsion Laboratory / NASA/JPL-Caltech, Public domain)

These CubeSats will measure the amount of heat the planet emits into space from the Arctic and Antarctica. This information is essential for climate change researchers to understand better the balance of energy coming into and out of Earth. It helps them predict changes in Earth's ice, seas, and weather patterns in a warming world. The second PREFIRE CubeSat will likely lift off soon. Following a 30-day checkout period, both satellites will operate for about ten months.

Today, I was reminded of the vast changes in the Arctic when I passed

an iceberg sculpture in the heart of Ottawa. Bill Lishman, a sculptor who has explored both the Arctic and Antarctic, created it in 2015. In that icy part of our planet, he found inspiration in the monumental forms of icebergs – nature's frozen sculptures.

Lishman, also known as "Father Goose," is famous for his viral videos on social media, which show him as the first human to lead birds in the air with an aircraft. You may have seen his work with migratory birds in the 1996 Oscar-nominated film "Fly Away Home."



I still need to warm up to the icy monument's beauty from an artistic point of view, but I like the environmental awareness it creates. It certainly attracts attention in the middle of Canada's capital. That was likely a consideration when Lishman created this stainless steel monument. He invites viewers to contemplate the delicate balance between colossal icebergs and the fragile Arctic tundra.

Therefore, some recreated Arctic tundra encircles the sculpture. I tried to capture it in a photo, but two girls, at the age when pink is the colour of choice for their dolls and themselves, broke the illusion. They ignored the fake iceberg in a barren, cold landscape of the stark, treeless tundra. Instead, they enjoyed their play in the sun on one of the first days with summer-like conditions in Ottawa.

A nearby information board explained that the sculpture dramatizes the natural disparities that define Canada's Arctic. In that cold north, colossal icebergs contrast with minuscule flora. So, this artistic impression of an iceberg shows us the delicate equilibrium of this remote ecosystem.

A Nevada Bumblebee

I found an example of that disparity directly beneath the stainless-steel iceberg. My attention was drawn away from the 13-meter-high structure by a beautiful Nevada bumblebee actively searching for nectar in the chive flowers of the recreated Arctic landscape. She must have felt at home since this black and gold bumblebee inhabits open areas such as prairies and meadows, where

it prefers to nest underground.

I followed the busy bumblebee on her route from flower to flower and tried to capture her. She moved so fast and efficiently that only one of the dozen pictures I took was in focus and good enough to share with you.

The bumblebee was indeed a she. I had to look that up online; her black head makes her a she-bee. The males, or drones, have yellow hairs on their faces. Besides, male bumblebees leave collecting pollen to the women, just like they don't help build the hive or care for the young; their primary role in life is to mate with new queens from other colonies. Only the women have stingers; with that advantage, I wonder if it isn't time for a social revolution in the bumblebee world.

But bumblebees have far bigger worries than modernizing their social structure. Climate change threatens many of their colonies. Unlike most insects that thrive in the tropics, bumblebees prefer much cooler places like the Alps or northern Europe. A quick look at one of these beauties and you will understand they are well equipped for cooler conditions due to their size, round shape, and furry appearance. One species even prefers to live in the Arctic, the *Bombus polaris*.

These characteristics make them vulnerable to climate change. A recent study published in *Frontiers in Bee Science* found that the ideal temperature range for incubating bumblebee nests is between 28 and 32 degrees Celsius. Most broods will not be able to survive above 36 degrees Celsius; the nests become too warm to raise healthy larvae.

It likely explains the massive loss of bumblebees in North America and Europe, where average temperatures rise and heatwaves become more frequent and extreme. Habitat loss and the use of pesticides have already challenged the bumblebees' survival, and the impact of global warming will likely make their plight far worse.

Last summer, I saved several bumblebees I found on the pavement by transferring them to a safe corner of my garden and putting a teaspoon of sugar water next to them. Each bumblebee enjoyed the treat, and it took them only minutes to take off again.

I realize my actions added nothing to a structural solution for their challenges, which requires developing and implementing firm climate action policies at the government level. However, if you would ask each of these individual bumblebees, they will likely tell you that this energy shot after removal from a busy sidewalk saved their lives.

Changing your perspective

It often only takes a slight change of perspective to contribute to a better world. And if it's not a better world for all, it's at least a better world for this handful of furry friends.

Life in the polar regions remains interesting if we move our search to even smaller organisms. A few months ago, a fascinating study led by biologists from Ghent University,

Belgium, concluded that communities of microorganisms found at the bottom of polar lakes had evolved independently from other regions; they have been influenced by their regions' particular geological, biological, and climate history.

The researchers used DNA to compare the composition of communities in hundreds of Arctic, sub-Antarctic, and Antarctic lakes to resolve whether they have the same evolutionary history. They found striking differences in the microbial communities' composition between the polar regions, with lakes at the North and South Poles dominated by different groups. Their work is the first large-scale DNA study of these unique microbiomes. It was published in the journal Science Advances.

Until this study, scientists assumed that microorganisms, because of their astronomical numbers and small cell size, have moved unhindered across the Earth and colonized all suitable habitats. Scientists will now have to revise this hypothesis.

PREFIRE satellites

Meanwhile, high above these microorganisms, NASA's PREFIRE CubeSat has deployed. After some testing, it will start measuring heat loss from the Arctic and Antarctic. When the second shoe-box-size twin is soon launched and tested, both PREFIRE satellites will be in near-polar orbits and provide daily observations of Arctic and Antarctic surfaces and clouds.

Their data on a range of climate variables, including atmospheric temperature, surface properties, water vapor, and clouds, will assist researchers in better understanding Earth's energy budget – that is, when, where, and how much of Earth's heat is lost to space from the Arctic and Antarctica. The collected information will also contribute to updating climate and ice models, leading to better predictions of how sea level, weather, and snow and ice cover will likely change in a warming world.

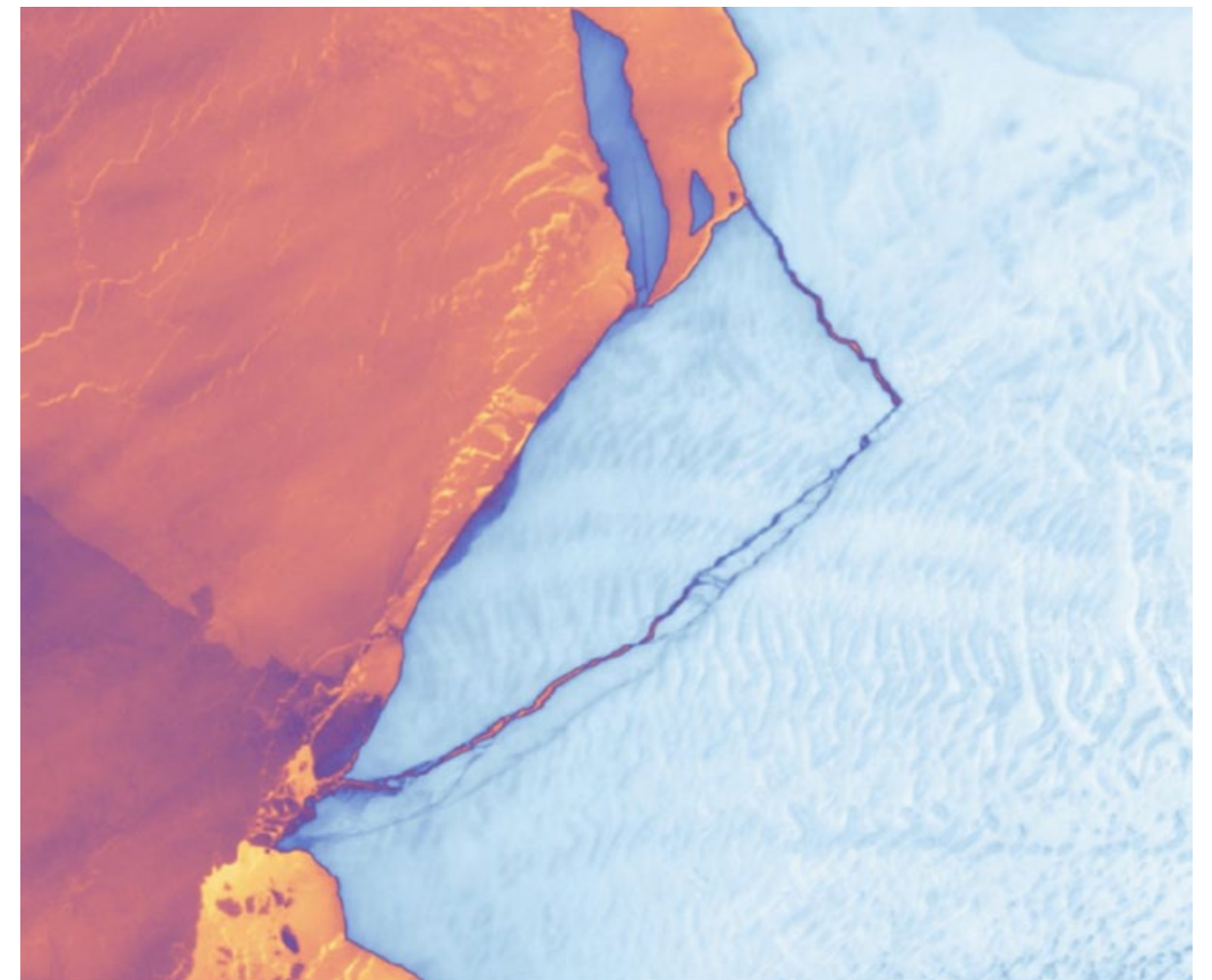
Scientists are eager to receive the new data since the CubeSats will gather information over the poles using sensors ten times more sensitive to infrared wavelengths than any similar instrument. Better data will contribute

to a better understanding why the Arctic has warmed more than two-and-a-half times faster than the rest of the planet since the 1970s.

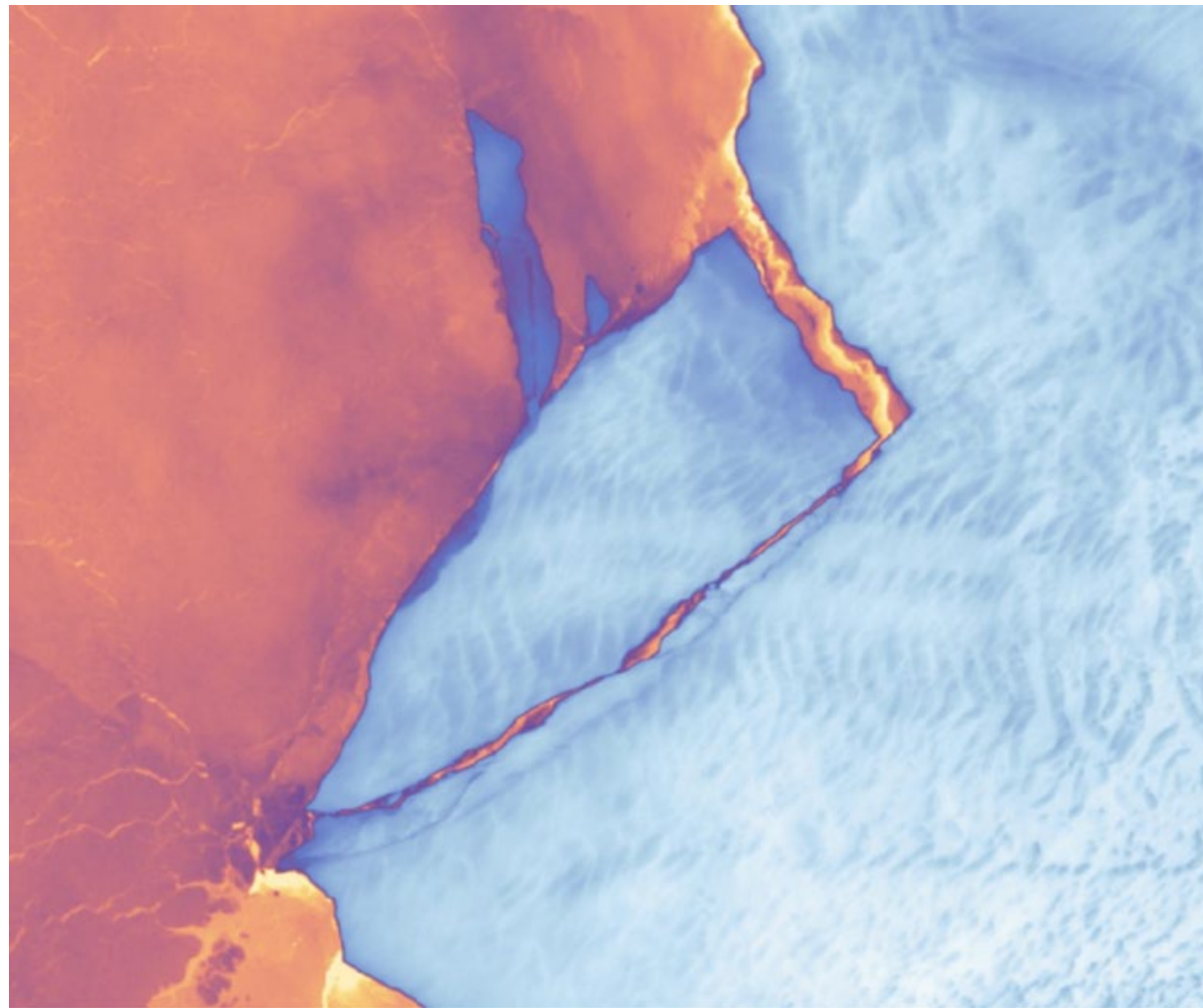
The Brunt Ice Shelf

This week, NASA's Earth Observatory published an exciting example of the dynamics on the other pole, the Antarctic, where a large wedge of ice broke from Antarctica's Brunt Ice Shelf. Look at these two thermal images, which use false colours to facilitate interpretation. Landsat 9 captured these images shortly after the break.

The first image shows the situation on May 20. The second one shows the same spot **two days later**.



Antarctica's Brunt Ice Shelf on May 20, 2024 (Source: NASA Earth Observatory images by Michala Garrison, using Landsat data from the U.S. Geological Survey)



Antarctica's Brunt Ice Shelf on May 22, 2024 (Source: NASA Earth Observatory images by Michala Garrison, using Landsat data from the U.S. Geological Survey)

Warmer temperatures, like open water or thin ice, are shown as yellow or orange. You can see that the ice shelf is already on the move. It is about the size of Portland, Oregon.

You may have noted that images of iceberg calving, especially those filmed at Greenland, are often prevalent in articles and videos about climate change. However, the storyline is a bit more complex. The calving of icebergs is a normal process; glacial ice flows from the inland ice sheet and spreads out over the sea. It's like a river flowing in slow motion, and nobody is worried when the water reaches the ocean.

But that is not the whole story; the situation at the poles is dramatically changing. One aspect is the low sea ice conditions. This year, Antarctic sea ice reached its lowest annual extent on February 20, totaling 1.99 million square kilometers (768,000 square miles). Compared to the 1981 to 2010 end-of-summer average, 30 percent of the sea ice is missing. That difference is comparable to an area about the size of Texas.

The lack of sea ice exposes ice shelves to destabilizing wind and wave action. This process raises the question of what will happen to the remainder of the Brunt Ice Shelf after it has lost several icebergs.

Although the area of Antarctic sea ice fluctuated dramatically from year to year, historical averages over decades have been relatively stable. However, scientists are increasingly concerned that this stability is no longer there now that the sea ice cover around Antarctica has plummeted since 2016. After three record lows in seven years, we may witness a dramatic regime shift.

How changing your perspective helps in times of climate change

This planet gives us so much to admire and worry about. Changing perspective helps me when I feel overwhelmed by the folly of humanity's creation of inhuman conditions on Earth, our only home. After reading news about heatwaves and floods, I walk into nature and admire trees, birds, flowers, or insects.

When writing, I frequently shift perspectives as well. In this story, the turn from the large shiny sculpture to the beauty of that colourful bumblebee was an actual event; the insect was just steps away from the iceberg monument. Other perspective shifts in this story happen while reading and writing; storylines form in my mind and flow on my screen like a natural sequence. This process brings me to one last different outlook; for that one, we have to zoom out from microorganisms, bumblebees, shoe-box-sized satellites, or icebergs to a hard-to-imagine frame of time and space.

A distant galaxy

Yesterday, NASA announced the discovery of the most distant galaxy ever found. It is surprisingly luminous, implying that the galaxy is hundreds of millions of times the sun's mass. It puzzles scientists that nature created such a bright, massive, and large

galaxy in less than 300 million years at the dawn of the universe.

I'm not an astronomer, which makes me struggle to shift my perspective from a bumblebee I photographed this week to scientists studying light as old as only some 300 million years after the Big Bang. That early light then took 13.5 billion years to reach us. Astronomers live the dream of any historian: travel back in time and watch past events in real time.

When reading about those timeframes and unimaginable distances, my perspective returns to Ottawa, the iceberg, and the nearby cafe on Bank Street. There, I asked the kind woman who always wears her red apron like a uniform for a cappuccino and scribbled the first notes and thoughts that form the basis for this story.

Before going home, I peeked again at the iceberg sculpture and hoped it would trigger some thoughts of people passing by about climate change in the Arctic, a region that heats up several times faster than here in Ottawa. I saw a tourist with a colourful backpack photographing his partner in front of the sculpture. A bit further, a school class of happy, babbling kids walked to the nearby museum. Unlike my generation, some of these kids already worry about their future in a rapidly warming world. Some may become the future leaders and scientists we need to escape this crisis, with the motivation and perspective to see a bright future for humanity.

Please do follow Alexander Verbeek, every week he writes about nature, the environment and weaves in history and art which threads together into a beautiful moment of reading which we hope will inspire you to design and create from an holistic perspective.

<https://alexanderverbeek.medium.com/subscribe>

BECOMING A B CORP



“There are now over 8000 B Corp certified businesses. B Corp measures a company’s entire social and environmental impact and is a designation that a business is meeting high standards of verified performance, accountability, and transparency on factors from employee benefits and charitable giving to supply chain practices and input materials.”

Lisa Ferrari

From day one (some 16 years ago) founders, Adam & Steve, aimed higher than simply achieving growth. They started Burtt-Jones and Brewer (BJB), which is a Workplace Design and Strategy Consultancy, over a coffee with the desire to make a difference in a marketplace where they felt not all companies had good values and principles. They also wanted to stand apart from the crowd, with a clear philosophy; Planet, People and Place.

Using Planet as their anchor, they wanted to strengthen their

commitment with something tangible, they recognised that becoming a B Corp was consistent with their aims so they began to explore how to successfully become accredited. Becoming a B Corp would mean that BJB would be part of a wider network of like-minded, for-profit organisations that see the business sense in making money, but more crucially regard business value in its capacity for positive social change, working within a community of businesses that are leaders in the global movement for inclusive, equitable and regenerative economy.





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Through vigorous assessment the team have been able to prove that BJB meet high standards of social environmental performance, transparency and accountability. Although the journey was challenging, it has allowed us to put our existing standards and behaviours under a magnifying glass, to see what is already doing well and provide us with guidance for continual improvement.

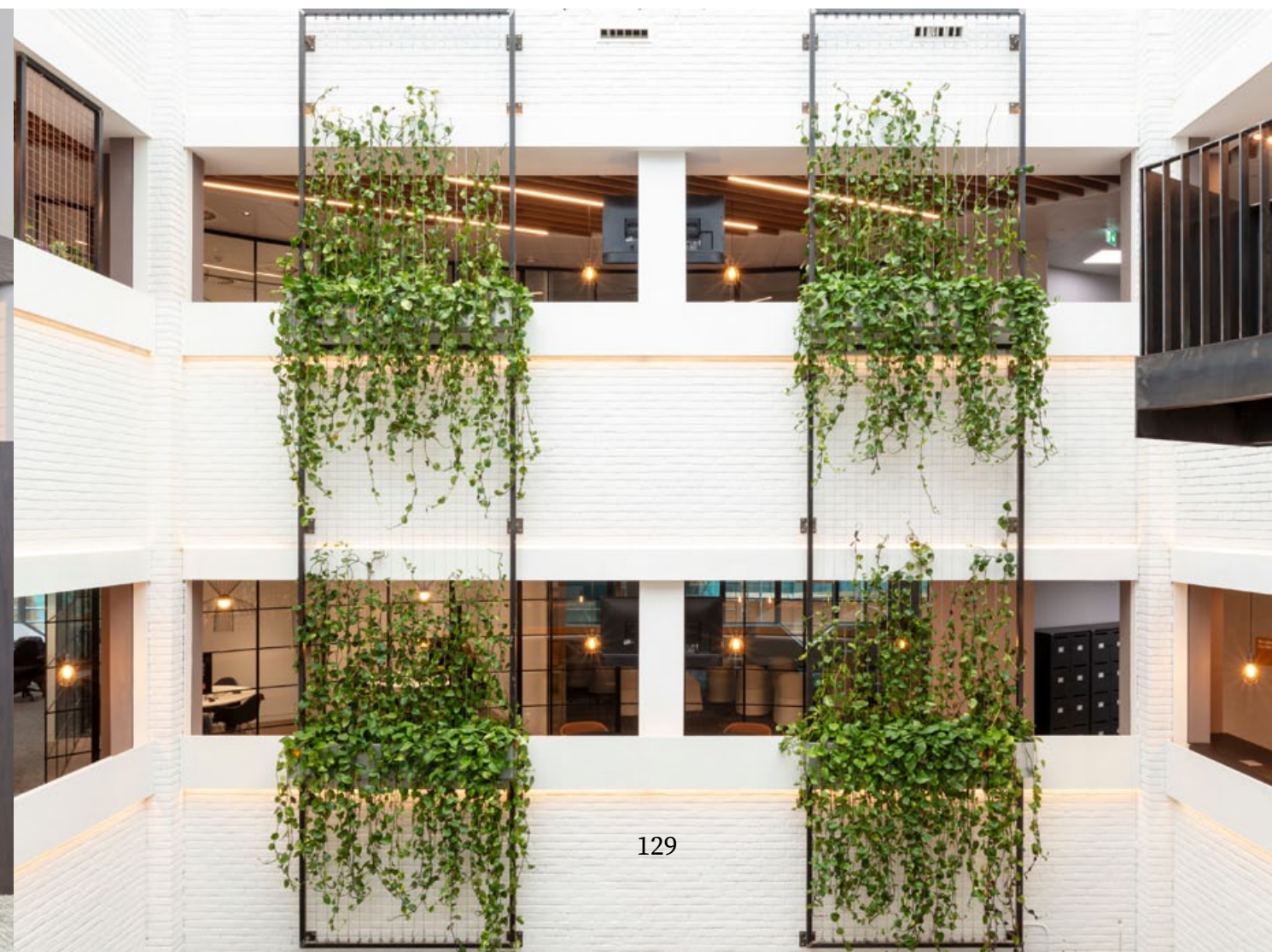
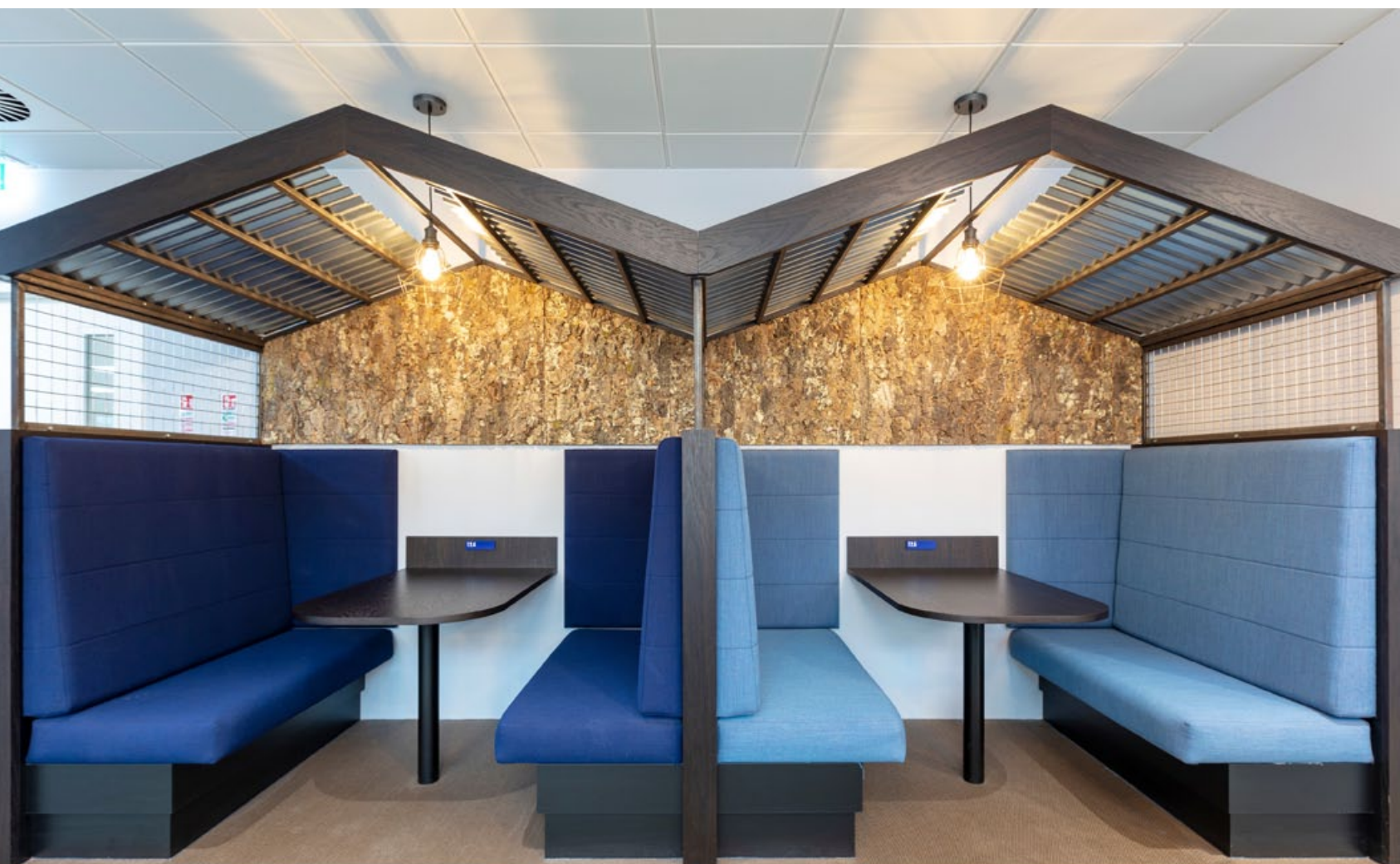
The B Corp assessment also means BJB will not stand still, we must constantly pursue our next challenge. Now whenever a decision needs to be made, we ask whether it aligns with our founders' principles, and what impact it has on our commitment to being a sustainable B Corp business. We are thrilled to say that we received our

B Corp Certification during March 2024, made even more special to certify during B Corp Month!

Gaining B Corp status means that we are committed to treating people, communities and the environment as they should be treated: respectfully, sustainably and ethically. BJB now flies the B Corp flag proving via credible means that we are a business committed to making positive change, which was the original plan, that day 16 years ago over a coffee!

<https://www.burt-jonesandbrewer.com>

For more information about becoming a B Corp business visit:
<https://www.bcorporation.net/en-us/>



Odile Smith

“You might not think these things are related, Glacial retreat and Biophilic Design, but it is proven the more nature focused design we can bring into the build environment, the less impact it has on the planet. Here our correspondent in Milan, shares some thoughts on how Alpine glaciers have been rapidly shrinking due to rising temperatures, impacting entire ecosystems. The rate of glacier melt in the Alps has accelerated in recent decades, leading to concerns about water availability during dry seasons and increased risks of natural hazards such as landslides and floods.”

Vivid in my memory is the terrible accident that happened a couple of years ago in the Marmolada, “The Queen of the Dolomites,” and its biggest glacier, a breathtaking paradise in the Dolomites. On the afternoon of Sunday, July 3, 2022, around 13:45, a massive avalanche was triggered.

At an elevation of 2800 meters, the lower end of a glacier snapped off.

The break-off had a width of about 80 meters and a height of 25 meters. The detached volume was estimated to be $65,000 \pm 10,000$ cubic meters.

This was no normal avalanche.



According to initial assumptions, the extremely high temperatures of the previous days were a factor leading to the accident. On the summit of the mountain, 10°C had been measured the day before the accident. In addition, much less precipitation than usual had fallen in the previous winter, so the glacier lacked an insulating layer of snow as protection against the sun and the high temperatures. Furthermore, according to Glaciologist Christoph Mayer, the meltwater had penetrated the glacier and accumulated underneath it, ultimately serving as a lubricant. This was later confirmed in scientific publications.

This incident caused 11 deaths and 8 serious injuries.

I found it particularly shocking, signalling to us that we had truly reached a tipping point. Real action must be taken now to save this delicate ecosystem.

Data from National Geographic underscores the severity of the situation, revealing that Alpine glaciers have relinquished approximately 50% of their volume since the 1850s, with some disappearing entirely. Projections indicate a grim future, with most glaciers in the Alps predicted to vanish by the century's end if current warming trends persist. This impending reality is daunting, as confronting glacier retreat entails addressing climate change as a whole, a monumental task requiring global cooperation. The glaciers being the canary in a mine.



As a fervent mountain enthusiast, I relish the tranquil walks amidst the majestic Alps, yet, as a conscientious citizen, I grapple with the unsettling truth of environmental degradation. Engaging in a fireside chat with my friend Mirko, an Alpine guide intimately acquainted with these changes, provided a platform for candid conversations. While scientific data underscores the gravity of glacier melt and its environmental repercussions, Mirko offered insights from the perspective of mountain communities. He emphasized the gradual nature of day-to-day changes observed by locals, facilitating adaptive adjustments over time. **However, he underscored the need for collective action beyond individual lifestyle modifications to address the broader systemic issues.**

High mountain communities in the Alps, the throbbing heart of the Alps, are facing increasing challenges due to the impacts of climate change.

The Alpine Convention treaty is dedicated to fostering sustainable development in the Alps, and champions various efforts to mitigate the impacts of climate change. Notably, the promotion of sustainable tourism initiatives to balance economic growth with environmental preservation. While tourism constitutes a significant economic driver, unsustainable practices pose risks of environmental degradation. Mirko attested to the need for responsible visitor behaviour and applauded initiatives aimed at fostering **eco-friendly accommodations and activities.**



There is a growing recognition of the importance of sustainable land management practices and conservation efforts to protect the natural resources that sustain traditional livelihoods. Mirko also confirmed that there are a number of mountain lovers that have the courage to move to these remote villages and take on traditional crafts such as husbandry or cheesemaking

The Club Alpino Italiano (CAI) plays a pivotal role in advocating the protection of the Alpine environment. Founded in 1863, the CAI spearheads environmental education and awareness campaigns, instilling a sense of responsibility and stewardship among mountain goers. Collaborating with local authorities and environmental organizations, the CAI actively engages in habitat restoration projects and advocates for the expansion of national parks and protected areas across the Alps.

While the challenges loom large, the resilience and adaptability of Alpine communities offer a glimmer of hope. By fostering collaboration, promoting sustainability, and advocating for environmental conservation, stakeholders can work towards safeguarding the Alpine ecosystem for generations to come. How we build, design and what we leave behind, all have an impact. We need to be mindful.

www.thebiophilichub.com



Temperate times

“Britain was once brimming with rainforests, and this article is a beautiful prompt to encourage that replanting. I also hope it might act as a nudge to remind ourselves that as designers, if we were to consistently plan our environments with biodiversity in mind then our world would be teaming with life.”

Gary Cook

You might not think that spending 27 years in the harsh, high-paced environment of The Sunday Times newsroom would inspire an interest in trees, but it did. As an associate editor and the paper’s senior artist, I specialised in articles and graphics that focussed on the environment which gave me an ever greater respect for the natural world around me and made me pause for thought about our impact on the planet. I also worked closely with journalists such as the war correspondent Marie Colvin, often to tight deadlines and I covered every major news story during those years including Lockerbie, the Gulf Wars, the death of Princess Diana and the twin tower attacks. But for me, the most shocking things I saw were frightening documents explaining how we were changing our climate.

Those information wake-up calls were incorporated into our diagrams as long as 35 years ago. Sadly, it often felt that our politicians rolled over and ignored most of them, and now we are where we are. When I left the newspaper and started painting full-time ten years ago I was determined to embed environmental information in my paintings and this is where trees came in. For example, ash trees support 1,058 different species, from birds to beetles, fungi to lichen. Sadly we are predicted to lose 90% of our 70m ash trees to dieback disease. I wondered what will happen to all of that interconnected wildlife. So when I am working I hide the silhouettes and names of the species dependent on the trees or surroundings in the background of each work. I often include a drawing of an insect that I have seen while painting in situ in the corner of the watercolour.

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ENVIRONMENT, PEOPLE, PLANET

Painting in woodlands en plein air under the canopy of the trees is a real privilege. A very different workspace to my old life. Standing still and observing a scene, often for hours, makes you appreciate details that can otherwise go unnoticed, even when walking. Small things come to the fore: birdsong, the buzzing of insects, shadows slowly moving in the day. The calmness can sometimes be overwhelming.

For my latest exhibition *Temperate times*, I’m focusing on rainforests. You might immediately think of the Amazon but the trees I am painting are not in South America but are the incredible temperate rainforests that we have in the UK. There is even some evidence that we have small remnants of rainforest right here, near my home in Dorset. The solo show will be at the Art Stable in Blandford from 22 June to 20 July

I have also made sketching trips to the

several precious pockets of rainforests that we have in Devon, Cornwall, Wales and the Lake District. These environmentally vital woodlands used to cover up to 20% of our country but now, sadly, they make up less than 1%. They are particularly enchanting because they thrive in damp conditions so their trees tend to be mistily romantic with branches draped in mosses and ferns. They really do look as though they’ve come straight from a fairytale book.

I was inspired to begin this project after reading Guy Shrubsole’s brilliant best-selling book *The Lost Rainforests of Britain*. I was particularly intrigued by the passages where Shrubsole describes the plants to look out for because they are telltale signs of these magical, enveloping places. Tree branches, mostly gnarly oaks, are covered in mosses, liverworts, lichen and polypody ferns. Oh and the clue is in the name, they need lots of rain.



French mill oak



I turned amateur detective on walks around my home in Shaftesbury's misty damp valleys, concentrating on nooks next to streams that have the necessary plant tick list, so there is a theory that the oaks growing there could be remnants of rainforests in our county. It is an amazing thought. I think people will be surprised to discover that some of the small tracts I have painted in the Lake District, Devon and Cornwall are actually in popular tourist areas. They may well have walked in them without realising their ecological significance.

As with my other series, this collection of paintings have hidden silhouettes of some of the 2,300 species dependent on oak trees, as well as some of the

wildlife I see as I paint written into the background of the artwork. I'm also enlisting the help of the public by giving a gift of an oak sapling to everyone who buys one of the paintings. I hope that they will plant their presents with care, helping to replenish the UK's diminishing tree cover and maybe even make a small start in re-growing our lost rainforests.

If you get the chance to visit any of these mesmerising forests, remember this advice from an old hack; take your sketchbook, sit down, be still and observe. Your senses will thank you.

Gary Cook RI SGFA Arborealist
cookthepainter.com



Meanderings



Winter stream

Recent exhibitions and you can search for him online to view his upcoming shows

28 Mar - 13 Apr: [Royal Institute of Painters in Water Colours Annual exhibition](#),
at Mall Galleries, London

16 - 29 April: [ReWolding solo exhibition](#) at Daylesford Organic Farm, The Cotswolds

21 June - 20 July: Temperate Times solo at The Art Stable, Child Okeford, Dorset

Represented by

[Kevis House Gallery](#) Petworth / [Adrian Hill Fine Art](#) Holt and Stamford
[The Art Stable](#) Blandford / [Mall Galleries](#) London / [John Davies Gallery](#) Moreton-in-Marsh



Stream off the moor

Making Moths Epic

MOTHS

Sarah Smart

Moths. Do you wonder at their beautiful wing patterns or worry that they will get tangled in your hair? These mysterious (mostly) nocturnal creatures produce a range of reactions from horror to awe; I am firmly in the latter.

I am developing a fascination with moths which it is hard to articulate. It began when I gave my daughter Mary a moth-trap for her birthday, a present suggested by a local amateur entomologist with whom I was discussing Mary's obsession with insects.

Quite often in our house a little row of these sleeping winged night-travellers sit patiently in jars, waiting to be identified, recorded and released. I look in each one and observe the small furry faces, the minute details on the wings and the various forms of antennae, ranging from innocuous to ostentatious. Moths which look like they are wearing reading-glasses or expensive fur robes and large, other-worldly specimens with ornately shaped aerodynamic wings. Who knew that all this was outside? I just couldn't see it until now.

Moths appeal to me on a level which I cannot explain, and I do not claim to be anything other than an amateur observer. Mary, at 11 years old, has already developed the enviable ability to identify many of them on sight (not always an easy feat, given the myriad of moths whose intricate markings vary only slightly from species to species), yet these facts do not stick in my head. I know from the piles of books on entomology that are slowly building up in the house that moths are a fascinating and valuable part of the insect world. They are not only sources of food for other animals such as birds and bats, in both their larval and fully-grown form, but they are also important pollinators. The versatility and ingenuity of some moths is also notable from modern scientific research. In her 2020 book *Extraordinary Insects*, p.211, Anne Sverdrup-Thygeson details how the greater wax moth, notorious for eating the wax-combs in bee-hives, can also devour polyethylene, used most in plastic bags, and produces, as a result of this, ethylene glycol, otherwise known as antifreeze; as such they are now of

interest to scientists looking at ways of tackling the universal plastics problem. Peter Wohlleben, in *The Secret Network of Nature* (2017), describes 'a regular arms race going on between moths and bats' (108), and in one example, details how the great tiger moth produces a terrible noise which frightens off hungry bats (110). The tenacity of these tiny creatures should be the stuff of legend.

So, as a Classicist, I turned, as I usually do, to the ancient world. I felt that there must be some wonderful mythology about moths to be found. A tale of a failed contest with a god, which consigned the moth to its night-time lair, or perhaps a vase-painting of a moth on the shield of a warrior. My hopes were raised by the fact that the ancient Greek term for moth, shared with the butterfly, is *psychê*, which is also the word for 'soul'. The Greeks believed that the souls of the dead departed their bodies and travelled to the underworld, or if unburied, roamed about, unable to pass on. What a fabulous image for these little night visitors, which often look other-worldly, particularly in the daylight.



Detail: Eyed Hawk moth
(*Smerinthus ocellata*) wing



Pale Tussock moth (*Calliteara pudibunda*)

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Mary and Eyed Hawk moth



Eyed Hawk moth on hands

I found every reference I could ever need in *Greek Insects* (1986) by Malcolm Davies & Jeyaraney Kathirithamby (pp.1-36, 99-113). I felt slightly aggrieved on the part of all insects to read that animals tend to appear in epic poetry mainly as similes for human activity, rather than in their own right. Insects do feature in *Aesop's Fables*, where creatures often appear as protagonists in stories that hold lessons for humans, but of the lepidoptera order only a butterfly features. As for ancient science, Aristotle, in his *History of Animals*, believed that the first stage of development for lepidoptera was the caterpillar stage (he did not record their eggs), then cocoon and then what he refers to as *nekydallos*, or 'little corpse', out of which the moth or butterfly emerges. It is perhaps not surprising then that they are called 'souls'. Davies and Kathirithamby note that it is ancient Greek art, rather than poetry, which makes use of this image of the butterfly as soul, an image that is also found in later Roman art. On the moth in particular, a few references exist, often obscure and difficult to attach to any particular moth, and some general negative references to moths as metaphors for destruction. My hopes for ancient moth mythology faded fast.

It should perhaps come as no surprise. Few people in the modern world really know what flies around outside at night, even with the benefit of traps, infrared cameras and the incredible cinematography of wildlife documentaries. Why should the ancient observers have any better understanding than we do? However, I am not alone in thinking that there is something epic about moths, but it turns out that it is

scientists, not the ancients, who gifted mythology to some of them. In their work *Insect Mythology* (2000, 39-45) the scientists Gene Kritsky and Ron Cherry discuss the naming system for insects which employs Latin and often Greek names. While less people are familiar with Latin and Greek now than when many of the species were named in the 18th and 19th centuries, this system provides a universal definition for species which using local names would complicate. Kritsky and Cherry note that there are those entomologists who criticise some of the more elaborate classical references used in naming insects because these names do not actually add any descriptive value by which to identify the insects. The Atlas moth (*Attacus atlas*), for example, bears little physical resemblance to Atlas the giant who held up the sky in ancient mythology (whatever he may have looked like), but as the largest moth in the world it seems appropriate. In response to the critics of this system, the authors comment that, in their opinion, this has '...added much spice to our science' and that 'insects that have been named after mythological figures connects entomology to some of the world's greatest legends'. It is a connection well deserved.

For now, I must continue my hunt for moth mythology in other cultures and time periods. I hope I have shed a little light, pardon the pun, on these fabulous creatures. I would like to think that if the epic poet Homer had had the benefit of a moth trap, he too might have considered them worthy of at least the odd simile.

Creating Healthy Eco-systems

“Biophilic design aims to embed the value of nature into urban developments to underline and reinforce our connection to nature. Ecocide law is the means by which we protect that precious relationship.”

Sue Miller
Head of Global Networks
Stop Ecocide International

The intersection of ecocide law and biophilic design offers a fascinating lens through which to view our connection to the Earth – both are innovative interventions which recognise our dependence on healthy ecosystems and the need for sustainable interactions with our planet. Biophilic design aims to embed the value of nature into urban developments to underline and reinforce our connection to nature. Ecocide law is the means by which we protect that precious relationship.

Ecocide, from the Greek *oikos* – home, and the Latin *cadere* – to kill, literally

means “killing one’s home”. It describes the acts of severe damage that humans inflict on the Earth, usually in pursuit of profit, and almost certainly because so many of us have lost our sense of connection with and belonging to the natural world. It happens because there is no effective law against it.

Our legal systems and rules were created in a time when the Earth’s resources seemed infinite. Since the earliest days, we took what we needed from the Earth to live and to trade. For millennia that was no problem: there seemed to be plenty to go round.





Over the last five years, huge progress has been made towards the goal of establishing ecocide as the fifth crime against peace within the jurisdiction of the International Criminal Court (ICC). There, it will sit alongside those crimes humanity considers the most heinous: genocide, crimes against humanity, war crimes and crimes of aggression. As we are beginning to see, the effects of ecocide law can be as catastrophic as genocide.

In 2021 an Independent Expert Panel of international legal experts, convened by Stop Ecocide Foundation, formulated a definition of ecocide to propose as an amendment to the Rome Statute, the founding document of the ICC:

“Ecocide” means unlawful or wanton acts committed with knowledge that there is a substantial likelihood of severe and either widespread or long-term damage to the environment being caused by those acts.”

Publication of the definition caused a flurry of international interest. Countless articles were written and at least 27 countries are now on record as having discussed it at governmental level. Since the definition’s publication, several states have taken concrete steps towards introducing ecocide law into their own legal systems, a development that greatly amplifies the conversation around the need for an international law.

The industrial revolution, and the massive growth in productivity and global population that it triggered, changed that. We are now running up against limits of what the Earth can withstand in terms of emissions, pollution, environmental degradation and biodiversity loss. We are locked into a cycle of relentless extraction, mass production and thoughtless disposal without due consideration for the effect it is having on the Earth

Existing laws, pacts, treaties, and agreements have proved to be unable to curb the most harmful practices. Any fines or civil damages incurred by corporations for damage caused are treated as a business expense – a line on

a spreadsheet – and business carries on as usual: the profits are too great.

At present, individuals are not held criminally accountable when it is proven that their decisions have led to devastating environmental damage, such as vast chemical or oil spills or the clear-cutting of primary rainforests. Ecocide legislation removes an individual’s ability to shelter behind the limited liability of a corporation or the impunity that comes with being part of a ruling government. It also draws a moral red line beyond which actions which damage the planet are deemed unacceptable and it underpins and strengthens the existing and future legal and regulatory frameworks.





In February of this year, Belgium brought ecocide into its penal code. A month later, the European Union voted through its revised Environmental Crimes Directive which included a new category of crimes “comparable to ecocide”. EU member states will now have a 2 year period within which to bring domestic legislation in-line with the revised directive. Several other countries, including the Netherlands, Italy, Mexico, Brazil, England and Scotland, have formerly proposed ecocide bills and many more are in the pipeline. Alongside this national and regional level progress, work continues to establish ecocide law at the international level. Although the wheels of the law turn famously slowly, it is hoped that a crime of ecocide could be in place at the ICC by 2030.

In step with the political advances there is a drive to familiarise the term and concept of ecocide through various networks, including business and finance communities, youth and faith groups, scientists, ocean conservationists and those living and working on the land as well as partner NGOs. Once people hear about and understand ecocide law, they are often amazed that such a law does not already exist and that our planet has so little protection.

More and more, ecocide law is being seen as a key part of the solution to the multiple environmental crises the world is facing. In its statements to COP26 and COP 27, the International Corporate

Governance Network – an organisation of financial institutions whose members have \$70 trillion under management - called for governments and standard setters to support the creation of an international crime of ecocide. Ecocide law was also highlighted as a “driver and influencer” in the Race 2 Zero “Pivot Point” report on the importance of moving from voluntary to regulatory measures to accelerate climate action, launched to great fanfare during New York Climate Week. And, in December 2023, the University of Exeter’s Global Systems Institute published an authoritative assessment of the risks and opportunities of tipping points in the Earth system and society, identifying ecocide law as a positive tipping point.

There is much discussion, action and energy around ecocide law but, at its heart, it is a powerful symbol of the fundamental importance of the natural world and a recognition that we cannot exist without it.

<https://www.stopecocide.earth>

Listen out for a podcast with co-founder of Stop Ecocide International on the Journal of Biophilic Design podcast series (on Spotify, Audible, iTunes, Apple Music, YouTube, and all RSS feeds)

WELLBEING



Islands and Resilience

“Jersey is the largest island in the archipelago that is the Channel Islands... aka the ‘Isles de la Manche.’ It’s an island of contrasts – some still see it as that tourism isle popularised in the 50s and 60s, others, an offshore banking hub. Really, it is neither, those are identities that it has been known as.”

Amanda Bond

My parents moved from Devon in the early 60s, establishing a home in the countryside early on, converting an old barn. Dad felt most at home nestled in the green realm, whilst Mum was, and is happier nearer the sea, having grown up in Bude, Cornwall.

Even before the formal diagnosis, as you’d think living on an island, 9 miles by 5, at high tide, (on a low tide the island’s mass extends a further couple of miles at times), that whether living centrally or on the coast wouldn’t really make a big difference. However, it clearly does, with more and more homes being created jostled close together around the coast, and the island’s green zone being slowly encroached by housing developments.

The town of St. Helier is now also being transformed, the Victorian buildings giving way to apartment blocks and offices, its character a distant memory – it’s certainly a far cry from the place I knew in childhood.

And yet, the essence of Jersey is still present. The families who stand by a traditional way of life making a difference, where farming has been practised for generations. The Jersey Cow, known worldwide as a superior dairy cattle breed; the Jersey Royal, a sought after early new potato. Still here but shaped by modern farming methods and the requirements of supermarkets







The last few years have also birthed a new awareness of the need to preserve the heart of Jersey – its natural beauty, its hidden green valleys and outstanding coastline. Many work to conserve this, and now regenerate what has been lost over the years. Traditions matter – like gathering vrac, seaweed, to cover the soil to nourish and regenerate. There is also a resurgence in interest in the island's own language, Jèrriais. A language that describes the diverse geological and cultural nature of the island.

How have I come to have a sense of belonging? By connecting with the land itself, by walking along its green country lanes, finding hidden, old pathways, foraging for wild herbs. A sensory world, shaped by sound, texture, aroma, patterns and fractals. Getting to know the plants from shoreline to country,

the natives, and those that have been brought in, that shape the landscape. I feel closest to the land in its valleys, immersing myself amongst the Oaks, Ash, Beech and Sycamore, the woodland flowers; once dotted by mills, a few surviving to tell tales of distant ways of living. The north coast, with high granite cliffs, is a place that I love, its wildness touches my soul. The wild west coast, cleansed by the rolling waves of the Atlantic, the sand dunes, a playground.

Last November, Storm Ciàran with its accompanying tornado, ravaged the island. People woke, in shock, to see the extent of loss and damage. Thousands of trees had fallen, uprooted, or snapped in half like a twig. Houses broken. Visiting places that were accessible over the next few months, I often saw people just standing, witnessing, grieving.

Journal of Biophilic Design WELLBEING

People rallied, the community supporting those who had lost homes, and many are now involved in planning, planting, and regenerating the landscape. Islands are good at adapting. Resilient, always needing to roll with the changes that perhaps happen quicker here, innovation through necessity.

Over the last few years, since 2015, I have guided individuals and groups into immersive experiences with nature, reconnecting with the land and themselves. Supporting folks through cancer journeys, with anxiety and depression (described by the medical profession as conditions themselves, but really the result of overwhelm in the nervous system, reacting to their environment), and other malaises.

I came to this work through a long journey myself – finding a way to navigate living with chronic fatigue.

Back in 2008, this was diagnosed as ME/CFS, the result of decades of trauma, loss and overwhelm, after contracting glandular fever whilst at university. Now, it seems that it may be the result of the effort of coping with the daily challenges of living in today's world, of its toxic environment in all its guises. I lived in London and Los Angeles as a young girl, and have always been a bit of a nomad, loving experiencing different lands and cultures. I wonder now whether that is because feeling different within my own community didn't impact me in the same way when in foreign environments.



Being and belonging – immersing myself in the sensory appreciation of the natural world began to regulate my shattered nervous system, slowly my own nature started to reveal itself, after a lifetime of wearing masks. Reclaiming my wild ecological self, at home with myself, at home with nature, living from the heart. As Joanna Macy’s book, ‘World as Lover, World as Self,’ describes in her work on “Deep Time.”



A message from a retreating glacier on the West Coast of the South Island, Aotearoa in 2014 to “get to know the plant realms” set me on a path that has led me to yet another nascent transformation – picking up the threads of earlier generations of my own family – of growing plants, flowers and herbs, to make culinary and medicinal elixirs, balms, salves, creams, of creating wildflower meadows, restoring lost landscapes and regenerating biodiversity in the land’s microbiome and within us.

<https://wildedgewalker.earth>

Rekindling Our Connection

*A Biophilic Design Practitioner's Guide
to Nature Connectedness*

Nicole Craanen

What is your favourite place?

I've asked over a thousand architecture, design, and construction professionals: Think of any place you've been, without restrictions. Were you...

- in a windowless room?
- In a room with non-operable windows?
- In a room with operable windows?
- On a small balcony or patio?
- In a natural setting, completely detached from any building?

Unsurprisingly, 90-95% choose natural spaces, with the remainder favouring balconies or rooms with open windows.

We build buildings for function, joy, safety, and awe – yet often

our favourite places aren't these structures. I've visited architectural marvels like the Taj Mahal, Angkor Wat, and the Pantheon. Despite their beauty, they do not capture my heart like the valley in the Rocky Mountains where I backpacked with my spouse, or the sunrise in Alaska's Kenai Fjords.

This raises a fundamental question: What is the true goal of biophilic design? Is it to add natural elements to our spaces, or to deepen our connection with nature, cultivating a biophilic lifestyle? I believe its core purpose is to design for 'love of life.' Recently encountering the term 'interspecies design,' I see a possible expansion of biophilic principles, prompting us to consider if we are truly designing for all life.





Becoming a Nature-Connected Practitioner

For practitioners advocating integrating nature into projects, maintaining our own connection to nature is foundational – not only for the authenticity of our work but also for our well-being and inspiration.

Being ‘nature-connected’ means cultivating a personal relationship with the more-than-human world, with the same intentionality as our most cherished bonds. This means consistent presence, attentiveness, and active participation. This type of connection influences our thoughts, feelings, and interactions with nature, enhancing our sense of belonging to the natural world. Research shows that a stronger connection to nature not only leads to better mental health and greater happiness but also makes life seem more worthwhile. And a personal connection to nature is a key driver of increased sustainability efforts.

Where is the disconnect?

As a biophilic design expert and forest therapy guide with 15 years of experience in commercial interior design, I regularly address architectural audiences in which I regularly observed



a significant nature disconnect. Based on feedback, the most success I found in reconnecting designers to nature was in taking people outside. This realization was so impactful that I became a certified guide through the Association of Nature & Forest Therapy. Forest therapy, or forest bathing, which I often refer to as a mindful nature walk, offers participants opportunities to engage with nature while the guide holds space for participants, allowing them to experience whatever unfolds.

Building meaningful relationships with nature is challenging in our busy urban and digital lives, yet it’s essential to nurture this connection.

Why does this matter?

Reconnecting with nature enhances our awareness and deepens our understanding of designed spaces, enhancing their impact on human experiences and place-based connections. Forest therapy, proven to reduce stress, improve mood, and boost the immune system, has informed biophilic design research. I’ve found leading ‘biophilic walks’ with design and owner teams invaluable for fostering creativity and steering project discussions towards biophilic and interspecies design solutions.



How can we actively nurture our relationship with nature?

Reconnecting with nature can begin with just 15-20 minutes a few times a week. Here are some tips to get started:

- Find a comfortable place: Choose a spot where you feel safe and at ease, like a local park, your backyard, a balcony, or indoors near a window or surrounded by plants.
- Disconnect from electronics: Use a watch or set your phone to airplane mode to minimize distractions.
- Make yourself comfortable: Bring something to sit on, dress appropriately, and consider bug spray or sunscreen.

Next, explore the prompts listed below, which we refer to as invitations in forest therapy. These are designed to help you engage with nature at your own pace. You may follow them precisely or adapt them to suit your comfort, the goal is to connect with your surroundings. Challenge yourself to gradually expand your sensory experiences in ways that feel safe and enjoyable. If it feels a bit edgy, explore how far you can comfortably go, always paying attention to your body's cues.

During each activity, take a moment to

reflect on what you observe, whether it is sensory, emotional, physical, a memory, an insight – or perhaps nothing at all. Approach these observations without judgment, just noting your experiences as they occur. Allow for 15-30 minutes per activity to fully engage with your surroundings.

- Sit Spot: Choose an easily accessible spot and sit quietly. Be present. Observe the unfolding of life around you. Repeat several times a week. For guidance, download free printable sit-spot invitation cards at www.BiophilicDesignInstitute.com.
- What's in Motion?: Pay attention to anything that moves. You will move slower than usual, at a pace that feels comfortable and allows you to observe the dynamics of your environment.
- What Do You Hear?: Close your eyes and focus on the sounds around you. Initially, notice all sounds, then gradually focus on sounds that are closest to you and then shift to distant sounds.
- Greet a Being: Use your senses to find and interact with a natural element like a tree, rock, or plant. Introduce yourself (out loud or silently), get acquainted, and exchange thoughts or feelings. Engage with this being with openness, using your heart and imagination to connect.



After your session, take a moment to reflect on a current project. Consider how this perspective might alter your approach. These practices will deepen your connection to nature, ignite your creativity, enhance your projects, and improve your wellbeing.

To find a forest therapy guide near you, visit <https://www.forestbathingfinder.com/>

For those interested in deepening their nature connection as biophilic design practitioners, consider joining the Biophilic Design Practitioner Certification Program: Biophilic Fundamentals. Here, you'll deepen your personal connection to nature and learn how your unique abilities can synergize with nature's offerings to foster a more beautiful world. For more details, visit Nicole Craanen's www.BiophilicDesignInstitute.com

Photos credit Nicole Craanen



CULTURES OF RESISTANCE: CHICHA MAKING AND THE GUARANI E KAIOWAA PEOPLE OF MATO GROSSO DO SUL

Paula Neubauer

“Another reminder of how building on, extracting from, or exploiting the land we construct business around, can have a massive negative impact on the environment and subsequently a whole people. This article is a great reminder that as designers we need to consider that every time we change the earth, there will be an impact. The key is to minimise it.”

Agro business is serious business in Brazil – Soya is the biggest export contributing 47 billion dollars to the economy last year alone. It has overtaken the US as the biggest global supplier of soya, most of which is destined to China, US and Argentina for animal feed.

From the early 21st century soya and other commodities became a driving force in the Brazilian economy.

That led to an immense drive for land grabbing and deforestation and pressure from government and business to GROW. In order to do this they converted old pasture into soya fields. Intense use of this not usually extremely fertile land was based on the use of GMO seeds and fertilizers and pesticides, some of which are banned in the EU. In 2023, during one of the longest unusual droughts they have had the biggest crop yet – and there is evidence that that the growers have been dipping into underground aquifers at the Pantanal /Amazon basin, unchecked by authorities and without any idea of wider implications for environment and people.

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WELLBEING

The threat to the Guarani e Kaiowaa people who originally occupied much of the land in Central Brazil and in particular Mato Grosso do Sul has been widely reported, the United Nations – Brazil produced a documentary in 2017 about the appalling conditions they are submitted to.

Their original territory has long been encroached by industrial cattle farming, but since the 70s, there has been a lot of increased pressure from

the government for the occupation of the area and clearing for industrial agricultural practices.

They have been displaced and dispossessed ever since – being 3rd biggest indigenous group in Brazil it only occupies 2.5% of its original territory. Reserves in different territories had been randomly allocated to families, which denied them their fundamental way of life in the tekoha – the ancestral land.







Of the Guarani e Kaiowaa population of around 45,000, a third live in makeshift roadside encampments, the others are distributed over 8 recognized indigenous reserves. These overcrowded conditions, combined with limited access to their raw materials and ecological pressure on their environment due to climate change has caused great harm in the practice of chicha making as part of a familial structure. There is no space for the traditional setup of the tekohas – (traditional communal villages) to exercise the agricultural practices that underpin chicha making. In 2023, a persistent drought caused issues with access to clean water too.

Chicha is a traditional fermented drink, usually made with the local white corn or sweet potato, and used to be widely consumed on social occasions by the Guarani e Kaiowaa community of Mato Grosso do Sul.

This traditional process of making chicha is female-led, usually by an elder woman shaman (nhandesy) – the guardians of the chicha. The whole process is overseen by the nhandesy, from harvest to processing of the plants to final fermentation. It is usually a familial practice with mothers teaching

daughters and granddaughters. It is a process that thrives on the communal spaces of the tekoha (the community).

Recently, I have been invited to record a webinar for The Fermentation School, US based online fermentation platform on chicha making and its significance in the context of the Guarani e Kaiowaa resistance to their culture and way of living. I went to Gwyrá Kamby'I – a retomada village, and I was joined by two nhandesys Adelina Ramona e Neuza Conzianza and Jancira who shared their knowledge of this most beautiful fermented drink which lies at the heart of their culture.

They explained that the existence of the white corn itself determined the future of the Guarani e Kaiowaa people. When the local white corn ceases to grow, so will their people.

By denying their ancestral right to live on the land and grow their own food, is to deny them the right to exist.

<https://getpickledsomerset.com>

For more information watch the UN documentary on the subject:

<https://www.youtube.com/watch?v=ED5rHU1YEKE>

Benites, T. (2012) "Trajetoria de luta ardua da articula  o das lideran  as Guarani e Kaiowaa para recuperar seus territ  rios tradicionais tekoha guasu: in Revista de Antropologia da UFScar, 4:2 pp. 165-174

Pimentel, S. (2012) "Cosmopolitica kaiowaa e guarani: uma critica amerindia ao agronegocio" in Revista de Antropologia da UFScar, V. 4, N.2 pp 134-150.

BIOPHILIC CITIES



THE 3+30+300 RULE FOR GREENER AND HEALTHIER CITIES

Journal of Biophilic Design
BIOPHILIC CITIES

“In early 2021 the author launched a new evidence-based guideline for providing access and exposure to urban trees and other green spaces, the so-called 3+30+300-rule. This rule calls for everybody to see at least 3 large-sized trees from where they live, work, and go to school. Moreover, every neighbourhood should have at least 30% tree canopy cover. Finally, nobody should live more than a 300-metres walk or bike ride from the nearest high-quality public green space. Research supports these components in terms of health and climate adaptation impacts. In this article the rule is introduced, and opportunities and challenges related to its implementation in built-up areas around the world are discussed.”

Cecil C. Konijnendijk

Why we need guidelines for green space access and exposure

There is increasing focus on the essential role of trees and other vegetation in our cities. The evidence-base has been growing steadily, highlighting for example the impacts of different types of vegetation and green spaces on our mental, physical, and social health. Moreover, we now have a lot of information about using trees and other vegetation to cool cities and adapt them to climate change. Studies have also looked into additional benefits of

trees and green, for example, related to economic development and enhancing biodiversity. Research has shown as well that to obtain the benefits of trees and other vegetation it is essential that all people have good access and are well exposed to trees and green space. Everybody needs to have trees and green nearby so that benefits are easy to obtain. This was stressed in a recent report on the greening of streets and squares in the UK (Create Streets and Berkeley Group 2023). Evidence-based guidelines that combine access and exposure are called for.





Threes for Trees: 3+30+300 explained

In response to this call for evidence-based guidelines, the author proposed a new guideline (or 'rule') for providing universal access and exposure to urban trees and green space at the start of 2021 (Konijnendijk, 2021a). This 3+30+300-rule for greener and healthier cities builds on the latest evidence stressing the need for us to live amongst trees, be able to see trees, and have easy access to parks and other green spaces for various recreational activities.

In brief the rule stipulates that everybody should:

- See at least 3 large-sized trees from where they live, work, learn, or are cared for.
- Live in a neighbourhood with at least 30% tree canopy cover.
- Walk or bike no more than 300 metres to get to the nearest high-quality public green space of at least 0.5 ha.

The rule and the evidence behind it are elaborated upon in various publications (Konijnendijk 2021b, 2023). Especially the 30 and 300 components are supported by several recent studies that link these thresholds for minimum canopy cover and for nearby access to public green space to a range of climate (cooling in particular) and public health benefits. The European Office of the World Health Organization has also called for a maximum distance of 300 metres to the nearest park or other public

green space of 0.5-1 ha (WHO 2017). Several studies have also pointed at the importance of visible green space, including trees, on our mental health and creativity. A recent study found that seeing 3 or more threes from your home results in higher levels of wellbeing (Li et al., 2024). The rule combines measures of exposure and access to trees and other vegetation, bringing trees and green space are brought into every neighbourhood and street.

Use of the 3+30+300 rule to date

Since its launch the rule has rapidly gained traction across the world, inspiring and being adopted by international organisations, city and regional governments, not-for-profits, researchers, and citizen groups. It has also seen considerable interest from 'non-green' professions, such as planning, architecture, engineering, and medicine. Its use to date has ranged from research studies to integration in green space strategies and even city masterplans.

Research and assessment

Various researchers, students, and companies have made the rule 'measurable' and have assessed the current 3+30+300-situation in neighbourhoods, cities, and metropolitan areas around the globe. Sometimes this has resulted in commercial products. As there is no

single, prescriptive way of assessing the three components, different approaches have been developed, as also summarised by Browning et al. (2024). The 30 and 300 components are relatively straightforward to assess using satellite imagery and GIS, although decisions and assumptions are required on how to define 'neighbourhood' for the 30-component and what a high-quality public green space entails for the 300-part. The 3-component is more challenging, as it will be difficult to find out how many larger-sized trees are actually visible from individual homes, offices, schools, and places of care.

Expressing political ambition

The rule and its 'stickiness' have also led to interest from political parties and individual politicians. During elections in both Sweden and The Netherlands, for example, several parties across the political spectrum included the rule in their national and local election programs. Political parties have also proposed the rule locally as an evidence-based, visionary way to green cities, adapt cities to climate change, and contribute to residents' health. In The Netherlands, the rule has featured in ongoing discussions about adopting a national 'green norm' which would set a minimum requirement for urban green space in municipalities. In Flanders, Belgium, the rule has been adopted as new regional green norm.

Inclusion in green space and other strategies and policies

The rule has been integrated in green space strategies, urban forest, climate strategies, and other 'green' plans in many cities across the world. In countries like Sweden and The Netherlands, this had happened widely, while in other countries some cities have taken the lead. Sometimes the rule is used to frame an ambition or overall vision while in other instances it is seen as part of targets and key performance indicators to monitor urban greening progress. In other cases, local adaptations have been made, for example replacing 30% tree canopy cover with 30% green space, even though there is no evidence that supports this change. In the case of Swedish cities like Malmö and Kalmar, local political commitment has even resulted in inclusion of the rule in city masterplans, driving an ambitious and balanced greening program.

Use for urban (re-)development

There has also been an interest in the rule from private developers, for example in The Netherlands. Being faced with a demand for developing more climate adapted, healthier, and greener neighbourhoods, they see the 3+30+300-rule as a promising and 'operationable' tool. Some of the developers have prepared plans for '3+30+300-neighbourhoods'. The threes rule will not only be applicable to new developments but also urban renewal projects.

Use for awareness raising, citizen science, and activism

Not-for-profits and citizen groups have also started using the rule, often as a tool for advocacy. Local groups have assessed the 3+30+300 status of their city or neighbourhood, encouraging individual residents to e.g., share photos of their views or streets on social media. A citizen group in the Australian town of Mount Pleasant, for example, used the rule to advocate for a new local park. Environmental groups have also called upon political parties to integrate the rule in urban and new housing policies. The rule is easy to use and comprehend, also for non-experts, and it focuses on trees and nature in people's own streets and neighbourhoods, which helps with its popularity.

Opportunities and challenges

Although the 3+30+300-rule is still young it has already gained wide following. It has also met criticism, not really challenging its evidence base but doubting its high ambition, especially for municipalities with dense built-up areas and low tree canopy cover. Other concerns raised relate to the rule's focus on trees rather than other vegetation. In a time of climate emergencies, public health challenges, and biodiversity loss, however, it is important to have ambitious greening programs that reflect the latest evidence on access and exposure to trees and other vegetation. Moreover, urban areas are far from static and often change quite rapidly. Major transformations can be expected also in terms of housing, mobility, and space reserved for private cars. Having clear ambitions and guidelines for green space will help with transforming cities into more resilient and liveable places, giving trees and green space planners and managers a seat at the table.

Vegetation other than trees should not be ignored but the research is very clear about the essential role that especially trees play in e.g., cooling and health promotion. While trees provide the framework, focus should be on having multiple layers of vegetation and a diversity of green spaces across neighbourhoods and municipalities. It will also be important to focus on quality rather than just quantity, ensuring a sound mix of climate-adapted trees species and focusing on the development of high-quality public green space that cater for a wide range of recreational demands. Emphasis should also be on letting trees grow old and large, where possible, as large trees with large canopies provide more ecosystem services. The rule does not have to be met overnight but can drive longer-term urban development, decades into the future.





The contexts in which the rule is to be used will be very different, which also calls for a certain nuance and carefulness in applying it. For historical city centres and cities in arid climates, for example, reaching 30% canopy cover and maybe also 3 larger trees in sight will often be difficult. In these cases, alternatives need to be explored, using other types of vegetation and maybe e.g., more building green such as green roofs or facades.

Although 3+30+300 is called a ‘rule’ it is more of a guideline. It can be important to use the word ‘rule’, however, also

in negotiations and coordination with planning, engineering, architecture, and other fields where clear norms and rules are more common. This will give a higher priority to trees and green space as essential infrastructure rather than just ‘icing on the cake’ when all other demands have been met. Green needs to be an integral part of health, housing, transportation, education, economic, and other agendas.

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References

Browning, M., Locke, D., Konijnendijk, C., Labib, S., et al., 2024. Measuring the 3-30-300 Rule to Help Cities Meet Nature Access Thresholds. *Science of the Total Environment* 97, 167739.

Konijnendijk, C., 2021a. Promoting health and wellbeing through urban forests – Introducing the 3-30-300 rule. Blog posted by the IUCN Urban Alliance, 22 February 2021. <https://iucnurbanalliance.org/promoting-health-and-wellbeing-through-urban-forests-introducing-the-3-30-300-rule/>

Konijnendijk, C., 2021b. The 3-30-300 Rule for Urban Forestry and Greener Cities. *Biophilic Cities Magazine* 4(2).

Konijnendijk, C., 2023. Evidence-based guidelines for greener, healthier, and more resilient neighbourhoods: introducing the 3-30-300 rule. *Journal of Forestry Research* 34, 821–830.

Li, H., Browning, M.H.E.M., Bardhan, M., Ying, M., Zhang, X., Cao, Y., Zhang, G., 2024. Nature connectedness connects the visibility of trees through windows and mental wellbeing: a study on the “3 visible trees” component of the 3-30-300 rule. *International Journal of Environmental Health Research* 9, 1-13.

WHO, 2017: Urban green spaces: A brief for action. World Health Organization, Regional Office for Europe. Bonn. <https://www.euro.who.int/en/health-topics/environment-and-health/urban-health/publications/2017/urban-green-spaces-a-brief-for-action-2017>

Graham Street Park and the rise of urban commons

A pocket park with a powerful past

“The leaves of the newly planted community orchard in Graham Street Park whisper tales of resilience. Nestled on the banks of London’s historic Regent’s Canal, this green patch boasts a fascinating past. Once a bombed wasteland scarred by the World War II Blitz, the space has since transformed into a vibrant testament to the power of community spirit.”

Kirstie Wielandt

The local post-war landscape in Islington was one of devastation. While permission was being sought for high-rise residential developments to be built on a former bombed factory site on Graham Street in the south of the borough, bordering what is now the ‘tech roundabout’ on Old Street, a pocket of ‘rewilded’ green space had sprung up amidst the rubble. Residents, fiercely protective of their emerging green refuge, drove a successful campaign against commercial developers, leading to Graham Street Park’s eventual establishment as a formal pocket park* in the 1960s.

**Pocket parks are small outdoor spaces, usually no more than 100m², located in urban areas and often surrounded by commercial buildings or houses offering few places for people to gather, relax, and enjoy the outdoors.*

Small in size, big in heart

As the surrounding area has continued to succumb to development, Graham Street Park has persisted and adapted. Despite its small size at roughly 0.8 acres, equivalent to half a football field, the park punches above its weight in testimony to how much even small urban green spaces can come to matter to their locals.



Amongst other things, the park now contains communal micro-allotments, composting areas, a free mini kids library, and even a “butterfly corridor” and “insect hotel” for pollinators. Squawks of resident swans, geese, and herons, and thumping tunes from occasional passing canal party boats, punctuate the urban clamour of nearby busy City Road, and in the canal basin itself, you’ll find fish like Perch and Pike as well as more than a few abandoned public e-bikes.

A day of dirt and delight: A community orchard takes root

On a brisk February morning this year, a dedicated team of volunteers from the Friends of Graham Street Park (FROGS) joined forces with Lizzy, the London Group Coordinator for The Orchard Project, to breathe new life into a previously unused corner of the park.

This collaborative effort marked the public start of a project initiated in 2023 by FROGS and [The Orchard Project](#), the only national charity dedicated to the creation, restoration, and celebration of urban orchards in the UK. After several productive chats and training sessions facilitated by The Orchard Project, the way was paved for planting day itself.

With shovels firmly in hand, enthusiastic residents – neighbours, parents, and children alike – gradually transformed the space planting apple, pear, cherry, plum, fig, and crab apple trees alongside over a dozen varieties of thornless berry bushes, including gooseberries, loganberries, and raspberries. The collective effort fostered a palpable joy in the muddy faces of everyone involved,

including children sporting fruity face tattoos and sketching out colourful chalk drawings of fruit on nearby paths in anticipation of fruity harvests to come.

From here on in, the orchard will be pruned, mulched, watered and harvested by a small team of dedicated local volunteers through a carefully crafted annual care plan. The next significant event is the planting of the orchard’s companion plants in line with the permaculture principles The Orchard Project encourages its custodians to adopt. Intentional companion planting helps to promote a natural balance in ecosystems by deliberately growing mutually beneficial plants alongside each other, to aid pollination, prevent disease, and keep pest numbers down.

More than berries

While the community needs to wait a few years for the first fruit tree harvests, the first berries are expected to ripen as early as this summer.

The new orchard is more than just a source of fruit, the plan is for it to become a platform for environmental education, hosting local workshops exploring the seasonal growing cycle, urban food production, and the importance of biodiversity and self-reliance in an ecosystem increasingly under the influence of an unpredictable climate. With Islington being one of the most socio-economically diverse boroughs in the country, the project’s main goal is to nurture a passion for nature and food growing in local children, many of whom lack access to expansive green spaces.



The orchard will also increase the resilience of the park's ecosystem; the new tree root systems will act like sponges, absorbing rainwater and preventing London's Victorian-era drainage systems from becoming overwhelmed; foliage and fruit will provide habitat and food for local wildlife and pollinators; and the expanding tree canopy will provide shade for everyone during heatwaves and hot summer days.

"We're thrilled to have set up this little 'urban commons' said Kirstie, one of the project organizers. 'The orchard will hopefully provide homegrown fruit with literally zero airmiles for years to come. Initiatives like this are so important in bringing people together. In an increasingly disrupted world, they refocus our minds on the important things – nature – sharing – and our collective wellbeing.'

How urban commons are reimagining our cities

Urban commons projects, exemplified by the orchard in Graham Street Park, challenge the traditional notion of cities solely driven by market forces. They advocate for shared ownership and collective management of spaces and resources for the benefit of the community. These are often physical locations like community gardens or pocket parks, but can also extend to shared knowledge and skills.

The benefits of urban commons are multifaceted. They promote social cohesion by providing spaces for diverse populations to interact and build relationships. They enhance a city's sustainability by encouraging local food production and resource sharing. Public parks and green spaces demonstrably improve air quality and mental well-being, offering crucial sanctuaries within the urban environment. Notably, they can also address issues of social inequality by providing equitable access to resources and fostering a sense of shared ownership in the city.



Of course, urban commons also face challenges. Balancing individual needs with collective responsibility requires careful planning and management. Funding and maintenance necessitate innovative solutions involving collaboration between communities, governments, and non-profit organizations. Ensuring equitable access also requires inclusive planning and outreach strategies to avoid the exclusion of vulnerable groups.

Despite these challenges, the concept of urban commons offers a compelling vision for a more just and sustainable future for our cities. As we grapple with urbanization and resource scarcity, fostering a culture of shared ownership

and collaborative management of green spaces like this can be key to creating thriving, urban environments for all.

Graham Street Park's micro story is a testament to the enduring power of nature and community spirit. Its transformation from wasteland to a vibrant community hub and orchard exemplifies the growing movement of urban commons. By harnessing the principles of biophilic design and fostering a collaborative approach, urban commons can offer a path toward more resilient, sustainable, and equitable cities.

<https://grahamstreetpark.wordpress.com>

<https://www.theorchardproject.org.uk>

Nurturing Wellbeing: Children's Utopia in the Barbican

"Children have lost a connection to the 'wild'. In this project which was based at the Barbican where our Biophilic Design Conference will be held later this year, the idea of how biophilic design principles can alleviate children's mental ill health and depression symptoms is explored, while also celebrating how the improved design puts something beautiful back into the city."

Elvira Salyahetdinova

In the past children could freely go out and play on the streets, they could explore the city. The author of "Life Between Buildings", Jan Gehl, states that today the high speed of vehicle movement automatically reduces the activity level on the streets. Without the freedom to explore, the children's perception of the city is of a world "out there" and they cannot feel that they are part of it.

This negative impact on children's psyche is evident from a Public Health England report which states that 1 out of 10 children in London suffer from significant mental ill health and depression symptoms. The cities' environment has a great effect on young minds and children are often exposed to rush hours from early life stages.

As a result, my aspiration for this theory-based design project was to set up a challenge to investigate how architecture can deal with psychological conditions. I was inspired to promote the idea that the world we see around us can be playful, that

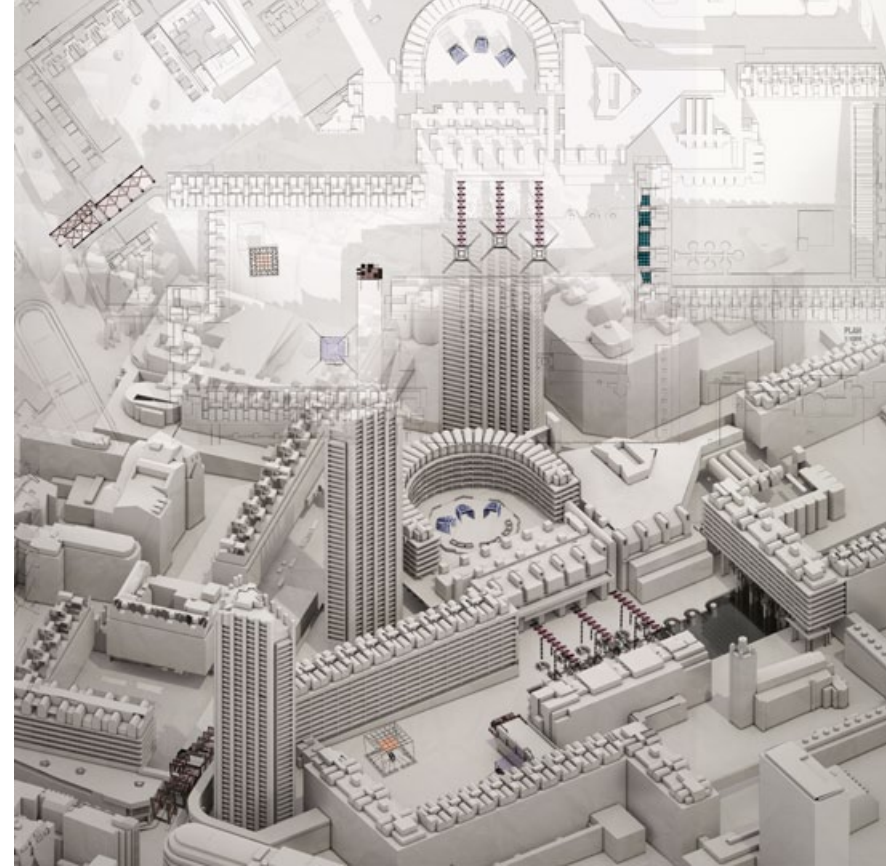
it is not fixed, and that we have the power to transform our environment.

The Barbican

And what better site for the wellness aspirations of the project, than the Barbican Estate? Uninterrupted by road traffic, a quiet precinct was opened in the 1980s, where people could move about freely enjoying constantly changing perspectives of terraces, lawns, trees, and flowers. Nowadays, the Barbican is one of the earliest and most famous examples of biophilic architecture.

The 7 interventions

The project manifests in 7 children's interventions, scattered around the estate, dealing with specific depression symptoms. Each intervention has its unique joints, just like the interiors in the Barbican with their bespoke windows, doors, and fittings. Made out of kinetic timber structures, the interventions can be deployed and transported to other parts of the city.



"The Resonator," an installation in Frobisher Crescent, uses music to calm anxiety. Inspired by the piano, it features pedals, strings, and reflective panels to enhance sound within the semi-circular space. Its main structure has interlocked joints forming hollow columns. Panels are attached to ropes and pedals, with the central podium serving as a stage for group music symphonies. The intervention is located near the Barbican Conservatory which provides a direct visual connection to nature. The responses to nature views have been linked to reduced sadness, anger, and aggression.

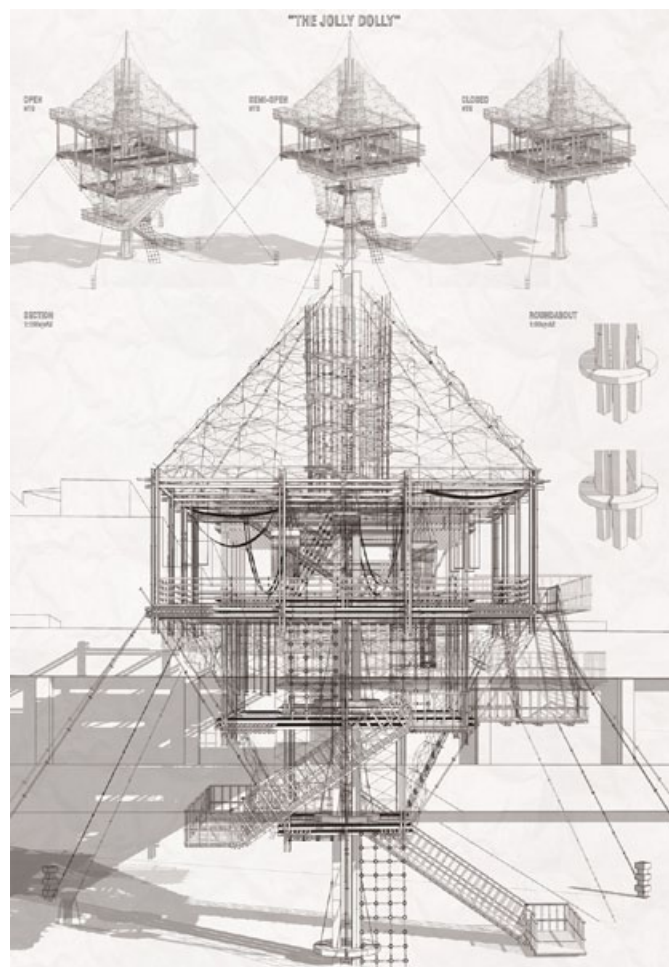
Another symptom of depression is tiredness. "The Joiner" promotes activity through ascending and scale transformation. Located near the Barbican Underground Station, it offers quick access from the street to the estate's higher platform. Extended balconies provide varied views of the Barbican's landscape. The design symbolizes the children's floating, imaginary world. Comprising four differently scaled boxes and a staircase, it highlights scale differences and offers a new perspective on the body-environment relationship.

Loss of self-confidence is also linked to depression. "The Puppeteer" helps

overcome low self-esteem using the theme of Reflection of Movement. Located near the Guildhall School of Music and Dance, its hanging stages deploy into an open platform above the water, making performances visible to all. The scissor-like joints gradually increase visibility, while perforated metal floors reveal glimpses of water below.

Another symptom is difficulty concentrating. "The Solitude Chamber" uses the theme of "Exposure" to focus attention. When a child enters the gallery pod, their weight activates a hydraulic pump, causing the pod to sink underwater, providing darkness and insulation from the outside world. A single rooftop light illuminates the centre, where art is exhibited, focusing the visitor's attention. Water insulation blocks outside noise, enhancing visual sensibility. "The Solitude Chamber" extends from the Barbican Art Centre, offering exhibition spaces above the water. Both "The Puppeteer" and "The Solitude Chamber" interventions are further enhanced by the biophilic benefits of water, provided by the Barbican open-air lake, which include increased feelings of tranquillity and improved concentration.





Avoiding others is linked to depression. "The Social Pod" addresses this by using the theme of "Light and Darkness" to encourage social interaction. The box grows lighter and larger as more children enter, mimicking interpersonal relationships. It features kinetic furniture with three positions – seats, benches, and floors – and flexible joints allowing it to expand in all directions, visually representing growth. Accessed via deployable stairs, the box is elevated like a treehouse, creating an intimate space to foster closer relationships among children. By being located in the urban forest between Defoe House and Thomas More House, children are exposed to the benefits of nature sounds, such as birds chirping and leaves rustling, which accelerates physiological and psychological restoration and reduces cognitive fatigue.

Finding it hard to function at school is another symptom addressed by "The Pinpression Grid." This intervention acts as a classroom extension for the City of London School for Girls. The floor is inspired by the Pinpression toy, with stacked wooden furniture blocks

arranged in a square grid. Originally, the City of London School for Girls was planned so that all the classrooms face due south. Following the same biophilic design ethos of bringing daylight into the interior, "The Pinpression Grid" features a two-layered façade made of timber cladding and fabric that opens and closes, creating different atmospheres with natural light inside the classroom. Research shows that children perform better in well daylighted classrooms and quality daylighting induces a more positive mood.

Finally, depression often leads to sadness, inspiring the creation of "The Jolly Dolly." This intervention fosters group activities and is activated by roundabout games, allowing children to ascend to the top while playing. At the peak, a viewing platform offers visual connections to the other interventions. This intervention is associated with the advantageous aspects of biophilic design related to a prospect. A space with favourable prospect conditions offers a sense of openness and freedom and its positive impact on

well-being is believed to include reductions in stress and alleviation of boredom.

At the end of the project, it became apparent the wellness process is mutual. While the children's depression symptoms can be cured through the city's environment, the city environment can be cured through the children's imagination and creativity.

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Biophilia Camp 2024

The "Biophilia Camp" returns for its third edition, this year immersed in the beauty of Caldaro on the Wine Road in South Tyrol, Italy. This four day experience brings together professionals from all over Europe and trainers from different disciplines in a formative exploration of the various aspects of biophilic design, to create professional figures capable of provoking a change in the built environment design, construction, and management.

23rd - 26th September in Caldaro on the Wine Road, South Tyrol



Biophilia BarCamp 2024

Following up the Biophilia Camp, Living Future Europe launches the first Biophilia BarCamp in Bolzano, South Tyrol. The Biophilia BarCamp is a first of its kind unconference style one-day in person event gathering biophilic lovers from all over Europe and beyond, focused on bringing together the latest trends, tools, case studies, stories, and best practices around biophilic topics in the fields of architecture, fashion, art, psychology, leadership and many others.

27th September at NOI Techpark Bolzano, South Tyrol



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The Urban Forest

"The landscape of the city is made up of gardens, parklands, commons, ancient woodland, waterways, allotments, streets and civic space, but it is the urban forest that embraces them all."

Johanna Gibbons

I practice Tai Chi on Highbury Fields early every morning in meditative conversation with a group of monumental trees, probably planted some 130 years ago. I know that whatever the rules of the day may be, whatever the weather, whatever my state of mind, I can rely on those trees. To me they do everything; anchor the ground, hold open the soils, reach to the sky, give birds a perch from which to sing, catch the morning light, present huge volumes of biomass that provide for urban bee pollination and manifest the natural cycles of the seasons. In those trees I feel the sheer scale of the forces of nature, its beauty complexity and time depth. The trees and the urban forest of which they are a part, are in turn a fundamental part of my identity. They give meaning to my life and to urban living, especially now when humanity seems to be on the edge.

The landscape of the city is made up of gardens, parklands, commons, ancient woodland, waterways, allotments, streets and civic space, but it is the urban forest that embraces them all. The urban forest is the sum total of all the individual trees, street trees, avenues, woodland and forests. In London this accounts for some 8.4 million trees – almost a tree for every person. They combine to create a tree canopy cover of some 21% of the land area, which according to the United Nation is technically a 'forest'. It is a dynamic organic structure of remarkable biodiversity embedded within the fabric of the city, an essential part of the character and heritage of the urban environment, which is often taken for granted







Far from any inert technology, the urban forest is a natural, refined, responsive, resilient and elegant entity, that enables humanity's evolutionary adjustment to life in the city. It bridges the gap between the urban and the natural world. The forest provides critical respite and coolth through evapotranspiration, while providing shade, carbon capture and rainfall interception, biodiversity and oxygen release into the atmosphere – filtering the air the very air we breathe, trapping pollen, dust and particulate matter.

This urban forest doesn't just happen. It is a conscious act in its planning, planting, protection and stewardship. The urban forest is therefore as much to do with people as trees themselves in an interwoven cultural and ecological entity.

'Conversations on Urban Forestry' celebrates trees and their relationship

with extraordinary people. From diverse perspectives, it explores interconnections of life that underpin humanity's purpose, wellbeing and survival. It ends with a hopeful yet urgent message, that if cities are growing at a pace, then so too must the urban forest. And this is up to us! Particularly at a time when cities across the UK are hitting record high temperatures of over 40 degrees centigrade, and extreme heat is fuelling inequalities, impacting mental health and quality of life.

The extract which follows is taken from the book published in 2019, and recounts a conversation with artist Michael Smythe who established Phytology, an artist and community led project exploring the environmental and social complexities of a small part of London's urban forest, located in Bethnal Green, London.

<https://jlg-london.com>



CONVERSATIONS ON URBAN FORESTRY

EDITED ABSTRACT

Johanna Gibbons in conversation with Artist **Michael Smythe**

The big billboard orientated toward the cluster of towers that define the City of London is intentionally incongruous. WE DIG, EVERYTHING IS CONNECTED and WHO HAS THE KEYS?, have been writ large on its canvass. The billboard is not managed by an advertising agency, it is curated by artist Michael Smythe as a provocation. It marks a modest but charged piece of land, a patch of self-seeded urban forest defined by a high metal fence erected originally to keep people out. Smythe describes the fence as both a blessing and a curse. He is growing to like it, because of what it says about the human state, and humanities relationship with the land. From an urban mammal perspective, it is sufficiently permeable, all flora and fauna can grow or pass through it, and so in a sense the site is always open to the mini-migrations along unmapped urban corridors. The passage of air and water and the visual connections are all protected. In itself, the fence invites people to consider what it is that is being protected – a wasteland, an oasis, a physic garden, a nature reserve or an urban forest?

We sit in an open sided timber hut by the medicinal meadow framed by sycamore trees wrapped in a billowing vertical habitat of arboreal ivy. This is where Nick Bridge, formerly UK's special representative of Climate Change has been 'in residence'. A secret place, somewhat more inspiring for strategic thinking than a government office environment. For decades, this bomb site of just 0.1ha was abandoned until the 70s, when the urban ecology movement took

hold in London, and with the help of the Environment Trust, a local group realised its value. A fence was erected at that time to prevent fly tipping and the Tenants Residents Association of the adjacent housing estate became custodians, allowing spontaneous natural regeneration. It is where nature has taken hold in its own way amongst the good free draining growing conditions, creating a rich habitat for urban flora and fauna.

As Michael and I talk, I realise the full dimension of this place, known as the Bethnal Green Nature Reserve. It is as much a cultural institution as a 'reserve' – reserving space for research, exploring and enhancing the relationships between urban community and urban ecology through the arts and sciences. An invitation to walk across the threshold and become immersed in a complex set of dynamics.

Over the last fifteen years Phylology has been the active agent of the reserve, conceived as an intriguing curation of interconnected yet distinct projects. There is a palpable desire to explore how nuanced urban strategies can provide for sharing and investing in this precious resource in the city. The radical and sensitive programme is grant funded by established organisations such as The Wellcome Trust, Kew Gardens and the Arts Council England, who appreciate the creative and cross sector approach to sustainability that the project embraces with the community at its heart.

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BIOPHILIC CITIES

This patch of urban forest is multi-faceted – a physical, social, political and ephemeral entity. Within the fence, horticultural tables display a presentation of so-called 'weeds' – wildflowers potted up to focus on their valuable and traditional phototherapeutic characteristics. The human activity this patch of land supports, lying discretely beneath the canopy invites the community to grapple with realising for themselves their own place in the ecosystem

From the whimsical to the fundamental, this patch of urban forest provides a conceptual and actual umbrella. In the true nature of a forest, it supports a mosaic of habitats, meadow, wetland, woodland. These are made accessible through the people who inhabit the place. The wetland is an oasis even in the driest of summers for urban wildlife. With diversity comes multiple perceptions of nature and stewardship. Woodland management maintains ecological diversity at the same time as enabling intensity of use. The project is political and on the front line. Macro concerns of climate change and social cohesion are addressed with nimble micro initiatives. The forest provides an environment for action research, growing the project not in size but in influence.

Focused on City Hall and Mayoral agendas of environmental justice and social cohesion, Phytology demonstrates in real-time an alternative definition of 'growth' in real-time.

Just as the term 'urban forest' is ambiguous, so is the Bethnal Green Nature Reserve, and that is surely its magnetic force. With deep compassion, Smythe says, 'I love the gaps'. It is the seasonal dynamic that is cyclical and never ending, never finished, together with the interaction of humanity within that natural system, that is at the heart of this place. Who needs 'natural capital accounting'? Intuitively the urban forest defines a currency of value that is real and meaningful.

We meander through a cluster of twisted hawthorns, around the huge billboard structure soon to be retrofitted with bat boxes and put our backs to the skyline of corporate London, then dive back into the coolth of the woodland away from the fence line. The diversity of nature, deep texture and dappled light allows for a freedom of mind. We discuss the democratisation of land, and how the artist can capture and communicate its magnetism and intriguing complexity.

This is an extract from:
Conversations on Urban Forestry

Published by Landscape Learn
<https://www.landscapelearn.com/library>

'Conversations on Urban Forestry is an inspiration. It explores the human connection with trees in cities, where the majority of the world's people now live, offering valuable insights into urban health and well-being. The writing is elegant, and the production is truly artful. A sense of wholeness and reverence pervades the book. And it offers more than a conventional reading experience; it's also a tactile experience. The paper itself feels so good to hold, that as I read the book, I felt connected to the trees that provided it.'

Dr Howard Frumkin

Senior vice president at Trust for Public Land

BOOK REVIEWS

Sustainable Interior Design

Chloe Bullock

Published by
RIBA Publishing, 2024

This book should be on every interior designers' bookshelf, not just to be picked up to be inspired by all the stunning designs included in the book (which you will be!), but also as a handbook and reminder of how we CAN and ARE designing better all around the word. The book opens with a multicoloured illustration of the impact plastic and toxins from our built environment are having on the health of our planet. Chloe sets the scene explaining how pollution is now in our Atmosphere, our Earth, and in the Oceans and Waterways. Highlighting the hard facts such as how Rainwater in the Tibetan Plateau and Antarctica has been found to contain "forever chemicals", that plastic is now found in human lungs and blood, gannets are found with flame retardant in their guts and a global average of 69% of the planet's wildlife population has been wiped out since 1970.

Earth Overshoot Day is monitored globally and signifies the point un a year where we are using more resources that the Earth can regenerate. Chloe mentions this in her article earlier in this Edition of the Journal of Biophilic Design. "The ecological footprint is clear evidence of our global resource consumption rates."

Her book addresses, as designers, just how we can make a difference and inspires a call to action for all sides of the Design Industry: from clients and designers to manufacturers and supply chains. She says: "*Interior designers are very much part of a marketing machine, promoting consumption whether we like it or not, and we have a great opportunity to demand transparency, evaluate what is being used and involve clients in more informed decision making.*"

I really love the book, and how each section takes us on journey, starting with reuse. Chloe moves on to circular economy, sharing



economy, regenerative design, vegan design, people and place. Chapter 8 has a focus on Biophilic Design where there are three beautiful case studies. Chloe explore how designers are using biophilic design to mitigate their design impact on the planet. Featured is Oliver Heath Design and his team of spatial designers and researchers for a drop-in wellbeing centre in bustling Belgravia London. Also showcased is Sharma Springs, a green school in Bali, designed by Bamboo Designer Elora Hardy. The school has a nature led curriculum promoting sustainable living and nurturing future change makers. There's also a home apartment in Brazil designed by Estudio Guto Requena, where timber is celebrated alongside lots of natural light and planting.

The book concludes by looking at healthy buildings, the climate and biodiversity emergency, and how to run an ethical business. I thoroughly recommend any designer, any supplier, in fact anyone working in any aspect of the design industry to pick up a copy.

As it says on the back of the book. "We can't leave it to others to act: we all can, and need, to do more."

Reviewed by our editor,
Dr Vanessa Champion

Civic Purpose: Urban Design in Private Practice

Johnson Fain

Published by
ORO Editions, 2024

Crammed full of case studies, visuals, maps, plans this is another beautifully designed and printed book from ORO Editions. Divided into 4 sections: City, Culture, Knowledge and Region, the book explores global urban design projects by Jonathan Fain. All the projects listed have biophilic design and green infrastructure woven into the fabric of the urban design. And the projects range from Honolulu, Seattle, right across to Washington DC, Barbados, London, Paris, Rome, Doha, Mumbai, Bangkok, Beijing, the Gold Coast, and many more in between.

Johnson Fain are urban design and planning practitioners who engage both public and private clients on projects of significant scale. There are many projects that inspire. One of them which stands out is the First Americans Museum, built in Oklahoma City. The Design consists of intersecting circles representing the reconciliation of nature and man, of Native American and European cultures and histories. There is the courtyard of the wind, courtyard of nations, areas representing fire, earth, water and wind.

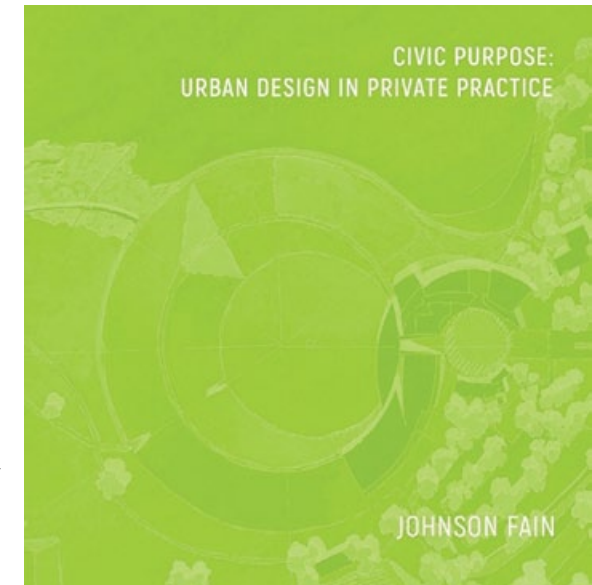
Other projects include the Disney ABC Studios USA, which preserves the natural setting of Golden Oak Ranch and Piastre Rita Canyon by locating the studio with its sound stages on a 56 acre site which preserves 90%

of the Ranches Natural Area for outdoor shooting.

AMGEN in a Thousand Oaks, California USA. Is one of the world's largest biotechnology companies. For this project, the master plan. Was seen by management as a vehicle for creating gathering places for informal, collegial meetings. While providing for creative product development. A large central green was located at the cross axis for all company meetings. The quality of the campus environment has been a powerful tool for the company's successful recruitment and retention of a qualified workforce.

Knowledge City in Houston, Texas, USA, was designed to be an environmental lesson in the virtues of well-planned urban living. Houston's weak regional planning policies allowed growth to sweep across the prairies and into floodplains. There is a mix of collaboration spaces, housing, retail, recreational amenities. 70% of the site lies on the floodplain with the Brazos River. The clever Urban Design made use of the uplands as well as in the lower floodplain area where islands are connected by bridges for vehicles and pedestrian walkways and bike lanes, and agricultural use continues in the residual open areas. "The whole of the city is a large scale living demonstration of environmental principles and urban resilience."

There are many many examples to explore in this fantastic book, and where we can learn from history too. This includes one



of the examples from China. In Beijing, drawing from historic Chinese city planning (and there is a visual for this in the book), a master plan was devised for the central business district which covers 150 million square feet. The site was divided into 4 distinct districts, each centred around a prominent public park. The plan draws from historic organising principles that contribute to Beijing's distinct identity: "linked by canals, a strong plan geometry with axial views, large super block development areas with three block walking streets, distinct gateway entrances, sun access that helps to provide heat for housing units during cold weather, and thematic open space."

If you are looking for inspiration for an urban planning project, or want to see examples of how purpose, culture and knowledge all come together in the hands of designers, then this book is for you.

Reviewed by our editor,
Dr Vanessa Champion

FINAL WORD

Dr Vanessa Champion
Editor

I hope you enjoyed this issue. As I mentioned in the introduction, we continue this conversation in every single issue of the Journal of Biophilic Design. If you have case studies, or are working with designers or architects who are using Biophilic Design to improve the environment for the health and wellbeing of people, and also consciously designing with our planet in mind, do get in touch.

Our Biophilic Design Conference at the Barbican in London on 12 November 2024, will be a wonderful place to come together to celebrate better design. Exploring case studies, new research, new products, great design, looking across workplace, healthcare, education, cities and everything in between. We will be exploring sensory design, the patterns of Biophilic Design, and also help empower everyone to have the conversations we need to have about prosperity and the economic benefits.

I'd like to end on what Interior Designer Chloe Bullock (who has an article in this issue too) said in a recent conversation on the Journal of Biophilic Design podcast. As you probably know, I ask everyone at the end of each podcast if they could paint the world with a magic brush of biophilia what would it look like? Every response is an inspiration, and it's even fun to replay and fast forward to hear all the responses on every podcast; it's a catalogue of inspiration! In this one Chloe said this:

"I suppose it goes back to what I said at the beginning, just deeply recognizing that we are nature. It provides most things for us; we literally owe our survival to it. You have just got to factor nature into the whole equation of everything we do, and be conscious and compassionate as much as you can. If we don't do something now, we're going to be doing a lot later, and it's better to act now."

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