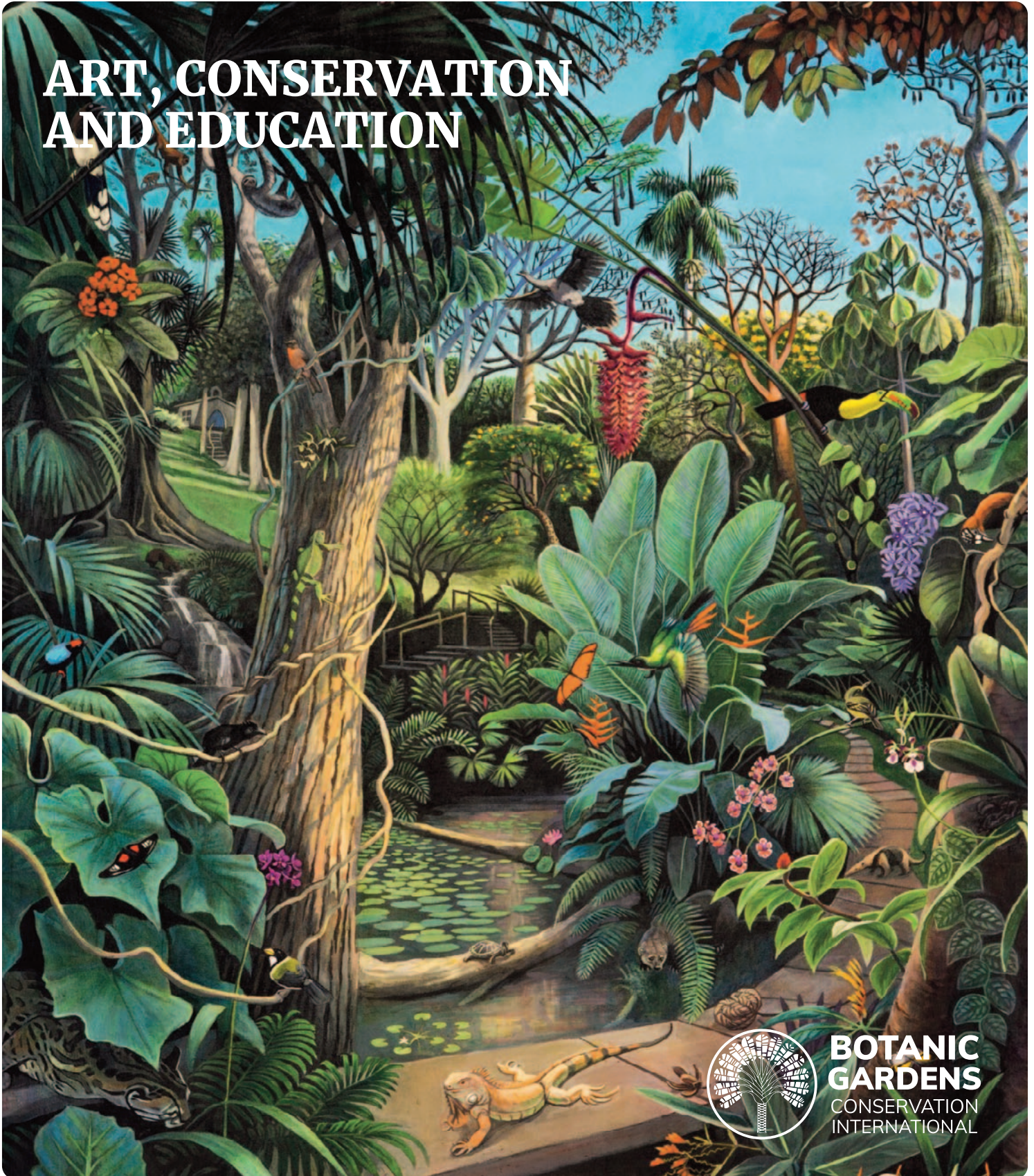


ROOTS

BOTANIC GARDENS
CONSERVATION
INTERNATIONAL
EDUCATIONAL REVIEW

VOLUME 22, NUMBER 1
MAY 2025

ART, CONSERVATION AND EDUCATION



**BOTANIC
GARDENS**
CONSERVATION
INTERNATIONAL

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Cover image: Deirdre Hyde's portrayal of the dry tropical forest during rainy season (Maria Paula Contreras)

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FIRST WORD

ART, CONSERVATION AND EDUCATION

Helen Miller
Head of Education
and Vocational
Training



I remember the first time I experienced the Hive installation at the Royal Botanic Gardens, Kew. A striking installation in the heart of a wildflower meadow, it is a stunning piece of contemporary art that recreates life inside a beehive. The installation includes a soundscape composed of bee sounds and music, and a series of lights that change depending upon the movement of the bees in the garden. Created by UK based artist Wolfgang Buttress it is a really impactful piece that delivers both as a piece of art and a tool to communicate about the important role of bees. Watching an ever-changing carousel of visitors exploring and experiencing the installation is one of my favourite things to do whenever I visit the garden. Be those a handful of adults quietly contemplating the piece or a herd of school children running around in an excited manner, it is fascinating to watch the way in which we interact with art and how this can be used to drive our conservation messages.

Art is a powerful tool that many gardens use to engage their visitors with their collections and activities, whether that be through artist in residence exhibitions, hands on practical sessions or large-scale art installations. And the great thing about art as a tool is that there are ways to incorporate it regardless of the size of the garden or the scale of the budget. With that in mind, this issue focuses on art and its role in delivering education and conservation messages and includes a variety of articles from across our membership.

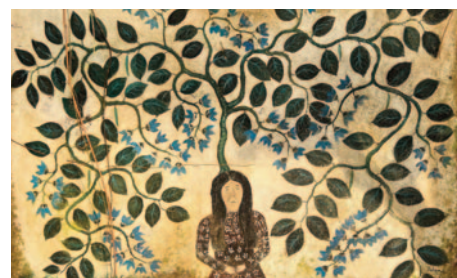
The Embroidered Library is a collaborative project in Ushuaia, that involved a diverse group of women creating a botanical embroidery collection inspired by the native species of the local botanical garden, read more on page 5.

At Bristol Botanic Garden, the garden and the Friends of the Botanic Garden, describe a recent art installation in the garden that was developed to raise awareness of the dangers of wildfires, read more on page 8.

Denver Botanic Gardens' Freyer – Newman Center for Science, Art & Education describe their experience of hosting gallery exhibitions, artist in residence programs, lectures, and symposia on page 10.

The Eden Project has been integrating art with interpretation using plants and the stories they can tell to reconnect people with nature, read more on page 14.

We also have a series of articles that explore the use of artist in residence programmes at botanic gardens. This includes Malaysia's Rimbun Dahan on page 18 and Colombia's Cartagena Botanical Garden on page 21.



Francisco Montes Shuna and Yolanda Panduro Baneo, *Spirits of the Rainforest* (2001) (Steve Tanner)



Anna Kaye, *Glimmers*, charcoal, 2024. (Anna Kaye)



Visitors enjoying student community art (Virginia Harold)

On page 25 you can read about the ABCDE project, a collaboration between organisations in Ireland, Iceland, Lithuania and Iceland that explored new ways of delivering important environmental messages by creating a dialogue between artists, scientists, and teachers.

On page 28, learn about a collaborative project in Bolivia that used puppets, comics and animated videos to raise awareness about the importance of an endemic Bolivian tree species.

The BGCI education team shares two projects in which an art competition for students was part of their activities on page 32.

Finally, we include a few articles that provide a summary of art activities that botanic gardens have been using. Firstly, read about the diverse artistic musical expressions developed over more than 30 years at the Botanical Garden of the Institute of Biology in Mexico on page 35. And finally on page 38 some examples from The Sachs Museum at the Missouri Botanical Garden on some of their interdisciplinary projects.

We hope you enjoy reading this issue and it provides some examples and ideas that you can use in your own gardens!



Fern 3 firescape (Lucy Davies)



Biofilia museum at the Cartagena Botanical Garden (Mariana Sánchez)

THE EMBROIDERED LIBRARY AT USHUAIA'S BOTANICAL GARDEN



The Embroidered Library is a collaborative project in Ushuaia, where a diverse group of women created a botanical embroidery collection inspired by the native species of the local botanical garden. Using needle painting, they produced detailed representations of flora, blending art with science. The project, linked to the Forest Library initiative, includes a traveling exhibition displayed in various botanical gardens in Argentina, Brazil, and Spain. The women, who formed a supportive community, learned together, enhancing their skills and deepening their appreciation for the region's fragile ecosystem. The project aims to raise global awareness about subantarctic forests.

The Embroidered Library: A collaborative artistic project

The Embroidered Library is a collaborative creation experience carried out by a group of women from the Ushuaia community, brought together to create the first collection of botanical embroidery from the garden.

The Forest Library - A collaborative and integral project

The Forest Library project was the winner of the Julio Verne competition by the Williams Foundation, which provided the funding for its realization. This project involves the compilation of information about the native species of the forest in the Ushuaia Botanical Garden (JBU) into a digital library. To present the information, we thought it would be interesting to add an artistic component. Thus, the idea of creating a collection of embroidered representations of a selection of species listed in the JBU floristic report emerged.

Above: A sunny spot in the *Nothofagus* forest (Dalia Figini)

"Participating in the Embroidered Library was an enriching experience that allowed me to learn more about the Fuegian flora and improve my embroidery skills."

Eloísa G Irós

Our goal is for these embroideries to take the subantarctic forest to many parts of the world, raising awareness about the diversity that is both resilient and fragile.



The group of embroiderers was composed of teachers, scientists, housewives, retirees, biologists, and women from various other professions and consisted of Alicia Gallardo, Beatriz Navarro, Carolina Camilión, Concepción P. Baldiviezo, Elina Orozco, Eloísa G. Irós, Estela Caipillán, Isis del Mar, Laura Omielczuk, Liliana Sagulo, Lola Boffo, Macarena Demattia, Nancy Díaz, Rosana Gómez, Silvina Romano and Verónica Vezzozi. It is fascinating how such a diverse group was able to work collaboratively, achieving a result of great quality.

The technique used is called needle painting, a realistic style that requires precision and care. The designs are adaptations of botanical drawings, some of which date back to the 18th or 19th century, and are illustrations by European travellers who ventured into the southern seas and explored the flora of the new continent. More recent botanical illustrations were also used.

The path to appreciating nature through textile art

To introduce the participants to the work ahead, we invited them to walk through the environment where these species thrive, by taking a tour along the interpretative trail of the JBU, where they could observe the species, many of them in bloom, along with their colours and shapes. Later, at the tea house, we invited them to choose the species they wanted to embroider.

Some embroiderers accompany the exhibit
(Isis de Mar)



Embroidering *Stellaria media* (Isis de Mar)



Far Left: *Gunnera magellanica* (Isis de Mar)
Left: *Gavilea australis* (Isis de Mar)

For more than a year, the group met twice a month at the JBU tea house to embroider together and share the progress of their work. This allowed the embroiderers to get to know each other and collaborate, asking questions and offering solutions to any doubts that arose. A community of learning was formed, which also generated bonds of friendships.

Traveling exhibition

To display the embroideries, we made frames from wood of the *Nothofagus pumilio* tree (Lenga), abundant in the Fuegian forest. The frames, mounted on easels, allowed the exhibition to be transported for display.

The Embroidered Library is a traveling exhibition that has been displayed in botanical gardens across Argentina: the Carlos Thays Botanical Garden in Buenos Aires, the Córdoba Botanical Garden, and the Bosque Patagonia Native Plants Garden in Río Negro. It was also exhibited at the Rio de Janeiro Botanical Garden and in private reserves in Spain and Argentina. Our goal is for these embroideries to take the subantarctic forest to many parts of the world, raising awareness about the diversity that is both resilient and fragile.



Embothrium coccineum (Isis de Mar)



Participants walking the trail and recognizing native species (Estela Caipillán)

"We formed a network of threads with our hands, creating a natural showcase together, sharing our Fuegian botany. It was a pleasure to be part of it."

Laura Omielczuk

"It was a very rewarding experience. Being part of such an original project and sharing it with wonderful people in a beautiful setting—what more could I ask for?"

Alicia Gallardo

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TIPPING POINT

In common with many other small botanic gardens, the team at the University of Bristol Botanic Garden is constantly searching for ways to convey conservation messages in a memorable and immersive way. Last year, to augment their regular scientific and horticultural events, the University of Bristol Botanic Garden worked with the Friends of the Botanic Garden to commission a unique art installation. It was intended to raise awareness of the dangers of wildfires as, sadly, they become more common around the world.

The University of Bristol Botanic Garden curator, Nick Wray and Senior Botanical Horticulturist Andrew Winfield worked with renowned local artist Luke Jerram and BAFTA award winning composer Dan Jones to explore the possibilities of using light and sound to transform the normally serene and verdant areas of the garden into a hellish landscape that would portray the realities of the fear and loss that such fire events bring.

Fire has become a terrifying normality for many people around the world. This installation, named “Tipping Point” plunged visitors into the reality communities such as California face by creating a simulation of such a forest fire in the University of Bristol Botanic Garden.

The use of such a large art installation by a well-known artist caught the interest of local and national media and filled Instagram feeds far and wide with images from visitors. Luke Jerram is well known for his travelling installation “Museum of the Moon” which has been exhibited more than 300 times in 30 countries around the world.



Above: Fern 2 (Lucy Davies)

Top: Tipping Point panorama (Lucy Davies)



The soundscape used in the spectacle was delivered through speakers, creating the crackles of the fire and the flickering of the electric lights combined, while smoke drifted slowly across the paths, animal noises flitted through the garden and hidden voices recorded from those directly affected in Australia spoke out about their experiences of the devastation to their lives and described how they felt.

As visitors walked around smoke hung in the evening air; some visitors found it disorientating, with one visitor saying that despite knowing the garden well, it made them question their whereabouts. As the day turned to night, the installation became more dramatic, the oranges and yellows dancing off the silhouetted foliage and reflected in the water, with the smoke allowing everyone in an enclosed space to hear the harrowing stories.

On site to discuss the work they are doing to mitigate the climatic changes were representatives from the University's Cabot Institute for the Environment, Met Office scientists, researchers from across the University, and MSc students who gained experience applying their skills in science communication with members of the public. They talked about visitors being moved by the installation, of it being 'beautiful but scary at the same time', of wanting to change this threatening situation but feeling helpless to effect change. This is a common feeling that we all have when thinking of global issues, but as the Cabot Institute's Josie Maskell explains, **"as individuals we have much more power than we think, making changes to our pensions and bank accounts, reducing our energy usage, and eating less meat are a few ways we can all have a big impact."** These may seem like small things, but they are not; that feeling of problems being remote is a natural one, but these threats impact all of us and, wonderfully, this is also true of positive action.



Above: Cloud and fire (Lucy Davies)
Left: Aerial shot of garden



Evolutionary dell firescape (Lucy Davies)



Fern (Lucy Davies)

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Rondavel (Lucy Davies)

CULTIVATING CROSS-DISCIPLINARY INQUIRY: DENVER BOTANIC GARDENS

Denver Botanic Gardens harnesses the power of art and science to educate audiences about conservation and the environment through its Freyer – Newman Center for Science, Art & Education. Gallery exhibitions, artist in residence programs, lectures, and symposia are among the tools used to bring people together. At the core of these activities are energetic inquiry, respect for different perspectives, and the acknowledgement of the unique role gardens and museums play in creating environments that stimulate learning and curiosity.

Building for connections

Curiosity, questioning, and communication drive the fields of science, art, and education. As Denver Botanic Gardens designed its Freyer – Newman Center for Science, Art & Education (the Center), the building was not only conceived of as an important physical expansion to house herbaria, ecology labs, art galleries, classrooms, art collections, and a library, it was designed as a conceptual home. Bringing these disciplines together in the Center allows for greater integration— theoretically and literally. The result is many cross-disciplinary programs and experiences that engage audiences onsite and online, and a host of yet-to-be-realized opportunities. The physical space of the Center beckons curiosity. Classrooms for botanical illustration are adjacent to the library and herbaria, so students have access to botanical texts and specimens to further improve the accuracy of their works. Cooking and drawing classes are visible to passersby, as is the workroom for the herbaria, where staff scientists and volunteers process a field season's worth of specimens, connecting participant and the observer.

Above: Visitors to the Freyer – Newman Center are greeted by STUDIOKCA's Leaf sculpture featuring silhouettes of 251 plant specimens housed within the Kathryn Kalmbach Herbarium just inside the building (Scott Dressel-Martin)

"If the arts and the sciences sometimes rely on the same core cognitive toolbox, then this shared cognitive foundation may lead them to be mutually dependent in a number of contexts."
Nicolas J. Bullot, William P. Seeley, Stephen Davies



Engaging

The Gardens' Land Line artist in residence program partners artists with staff and collections resources to explore and highlight aspects of biodiversity and connections with humanity. Artist Amy K. Wendland uses a combination of humour, cultural history, and unusual materials to create narratives about our relationship with the environment. During her residency at the Gardens, she worked with deaccessioned herbarium sheets, transforming them into "herbaria viva"—plant specimens augmented with drawing or painting to tell the story of the plant and its landscape or history. The artworks challenge our understanding of humans and plants in the same landscape, driving home conservation needs and barriers to its success.

Art exhibitions in the Center's three galleries provide space for visitors to gather, converse, and consider new views on nature. *River's Voice: Textiles* by Alexandra Kehayoglou (2024) showcased hand-tufted carpets by the Argentinean artist, representing the Paraná Delta wetlands in South America—an ecosystem struggling in the face of climate change and other destabilizing human-induced pressures. The signature work in the exhibition, *Paraná de las Palmas River*, 2021, depicted unexploited land juxtaposed with land altered by fire, deforestation, large-scale farming of non-native plants, unchecked urbanization, and more. In a novel surprise, visitors were invited to walk on the carpet—to sit and connect with others while admiring the work and digesting the artist's message. Seeing the story from above and being able to sit within it deepened visitor connections to the work itself. Another fibre exhibit featuring work by Tali Weinberg called attention to relationships between human well-being and environmental health. Visitors could highlight interconnections shaping the fabric of their own life, such as water, home, family, illness, future, and more through an interactive experience. Beyond static installations, art exhibitions serve as springboards for public programs, including a regular "Intersections" lecture series. As one example, exhibiting artist Anna Kaye joined associate research scientist, Dr. Christina Alba, to discuss wildfire ecology in the Rocky Mountain West, bringing together an audience with varied backgrounds and experiences in the fields of art and conservation.



A gallery visitor contributes to an interactive experience in the 2024 exhibit, *Tali Weinberg: The Space Between Threads* (Scott Dressel-Martin)

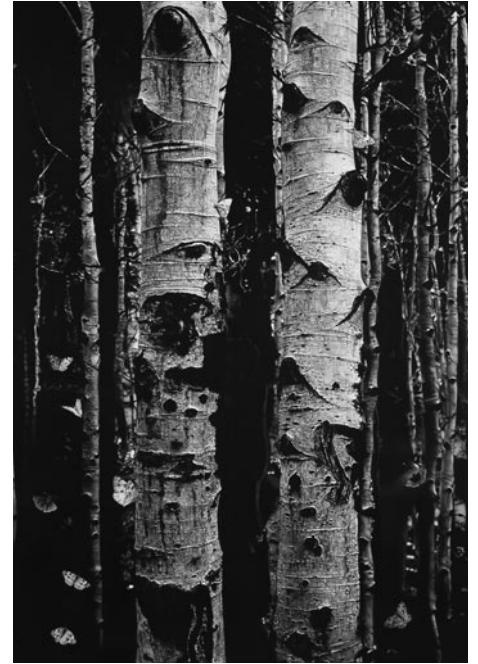
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Looking and questioning

Beyond a location to encounter the intersections of art and science, more importantly, the Center stands as a challenge and catalyst for Gardens staff and others to continually consider what could be missing from an observation. What are we overlooking if we lean on only our own understanding and tools to communicate the importance of conservation, biodiversity, and the natural world broadly? It is transformative experiences that drive further creativity and passion for the natural world. Once we see the beauty of nature and connect to it, we are even more driven to conserve and protect it.

It is important, too, for gardens and museums to understand how people learn, and that the social and emotional dynamics of participation in these curated spaces create uniquely memorable experiences. As Susan Magsamen and Ivy Ross highlight in their celebrated book, *Your Brain on Art: How the Arts Transform Us*, salient, memorable experiences and enriched environments provide unique opportunities, and the combination is powerful, fostering neuroplasticity in the brain (Magsamen and Ross, 2023, p. 182). “When the arts and aesthetics are integrated into education, work, and life, we strengthen our capacity to learn” (Magsamen and Ross, p. 137). Expanding our capacity to learn, meeting people where they are, and moving them towards greater understanding lie at the heart of the Gardens’ interpretive master plan. Exhibitions, classes, and events are designed to bring our audience on a journey to grow their understanding of art and the natural world.



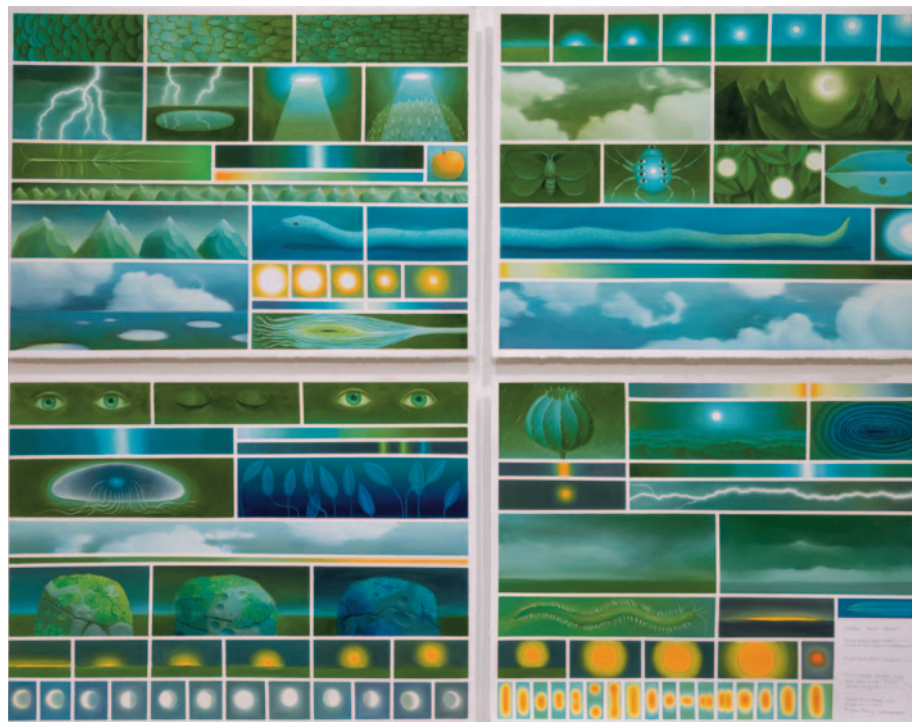
Above: Anna Kaye, *Dusky and checkered wings*, charcoal, 2020 (Anna Kaye)



Installation view of *River's Voice: Textiles* by Alexandra Kehayoglou featuring the hanging carpet *Paraná de las Palmas*, textile wool, 2021 (Scott Dressel-Martin)

On this journey, convening people for exploration and dialogue is central to the Gardens' work supporting conservation. Our inaugural Science-Art symposium brought together artists, scientists, educators, and life-long learners in a curated forum focused on the art in science and the science in art. Long-time collaborators Dr. Paul CaraDonna (Chicago Botanic Garden) and Mark Dorf (independent artist) co-presented and shared Dorf's film, *A New Nature*. They used the space to share images and ask each other simply, "What do you see?" Each then responded in turn, explaining what they observed (or felt), through the lens of an ecologist or a filmmaker. The conversation was impactful by highlighting how two people with different training and focal points can see so many differences and similarities in a single image. The conversation made participants view observations in a new way. Scientist participants shared that it opened their mind to different perspectives. A follow up conversation held with one of our scientific speakers revealed she was still thinking of the presentation and asking herself "what do you see?" several months after the symposium. Overall, the collaborative act of co-curating the symposium and the resulting presentations and discussions not only educated and inspired audience-members, it also instilled a new energy and excitement for possibilities among staff and presenters.

What more can we see together if we dedicate the space, time, and energy to co-investigation through art and science?



Amy K. Wendland, *Parched (Salix exigua)*, colored pencil and ink, 2022. Collection Denver Botanic Gardens (Amy K. Wendland)

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Denver Botanic Gardens

Left: Ash Eliza Williams, *Dreams of an Orange Fruit Dove*, oil paint, 2023 (Scott Dressel-Martin)



EDEN PROJECT: UNITING ART, CONSERVATION, AND INSPIRING ENVIRONMENTAL STEWARDSHIP

Ingela Ihrman - First Came the Landscape (2022) (Marco Kessler)

The Eden Project integrates art with interpretation using plants and the stories they can tell to reconnect people with nature and inspire positive environmental action. Its biocultural plant collection reveals the interconnectedness between humans, plants, and ecosystems, emphasizing the importance of cultural and ecological sustainability. Through curated, thought-provoking artworks such as Jenny Kendler's *Birds Watching* and Tim Shaw's *The Rites of Dionysus*, Eden promotes understanding of natural processes and encourages visitors to reconsider their relationship with the natural world. Art and beauty play a central role in the project, engaging visitors emotionally and intellectually.



'The garden reconciles human art and wild nature, hard work and deep pleasure, spiritual practice and the material world. It is a magical place because it is not divided' (Moore, T. 1996)

Art and education have always been a fundamental part of the Eden Project and are the main ways that the plant collection have been interpreted. The Eden Project's plant collection is a biocultural one. It was decided at the inception of the project that our aim would be to connect people with nature, to demonstrate that we are a part of nature - not apart from nature.

Typically, a botanical garden will offer the safety net of security for plants via ex situ conservation. At the Eden Project we also wanted to preserve the stories and traditions of productive plants and their uses, whether that be medicinal or ritualistic. By orientating the plant collection in this direction, the aim was that we would be able to inherently show people our interconnectedness with nature, how much we rely on plants and soil for resources - or cultural expression - and how our successful evolution as a species is dependent on plants and therefore the planet. In order to build empathy with and for these resources, we need to demonstrate an inherent duty of care.

An initial decision was also made not to appear like a traditional botanic garden, to strike out at the perception of what a garden was or could be, and to offer interpretation as a revolt against the burden of being restricted by what was seen as an elitist formality in traditional botanic gardens. It was via diverse artistic expressions, such as storytelling and music, utilising traditional and non-traditional art forms from painting to performance, that spoke to - and connected people with - emotions and feelings, both the romance and the tragedy.

Our relationship with artists was embedded from the beginning, with early commissions by artists including Chris Drury and Tim Shaw, as well as having a resident in-house artist in John Dyer from 2000-2001.

A continuum of engagement with artists has progressed throughout the development of the project and this has led to a long legacy and ongoing development of artistic interventions, always within the context of the connections people have with nature and the environment.

Visitors will encounter artworks throughout the Eden Project regardless of whether your visit takes place in the Rainforest Biome or the 200-acre Outer Estate, such as 'Spirits of the Rainforest' (2001) - painted murals by Peruvian vegetalista (shamanic herbalist) Don Francisco Montes Shuna and artist Yolanda Panduro Baneo. To the Capanahua people, who are indigenous to Peru, plants, animals and even inanimate objects possess a spirit or animism, and these paintings explore a spiritual connection between plants and humanity.

Jenny Kendler - Birds Watching II (2018-19) (Steve Tanner)

It was via diverse artistic expressions, such as storytelling and music, utilising traditional and non-traditional art forms from painting to performance, that spoke to - and connected people with - emotions and feelings, both the romance and the tragedy.



Tim Shaw - Rites of Dionysus (2000-2004) (Eden Project)



Francisco Montes Shuna and Yolanda Panduro Baneo, Spirits of the Rainforest (2001) (Steve Tanner)



'Seed' (2007) by artist Peter Randall-Page was commissioned for the Core building and is carved from a single 167-tonne piece of Cornish granite. Based on the geometric principles underlying plant growth – as is the architectural design of the Core building – the pattern on the sculpture's surface relates to the Fibonacci sequence – or golden proportion – that can be found in pinecones and sunflower heads, amongst many other botanical examples.

Tim Shaw's 'The Rites of Dionysus' (2000-2004) are sculptures made from beaten copper that depict the myth of Dionysus, Greek god of the vines, and his followers, the Maenads, who dance and writhe through the vines beating drums and sounding trumpets. The Dionysian myths are amongst the oldest stories linking mankind with nature and they serve as an insight into ancient civilisations, articulating truths of human nature that resonate with veracity to this day.

As one of the horticultural team managers, it is part of my role to "help to plan and oversee Eden's exhibits and projects, keeping in mind their environmental goals, ethical values, and educational mission." So how do we enhance a plant collection and use art to educate and promote conservation? In collaboration with the art curation team, we seek to add exhibits and artworks that will help to provoke different layers of discussion around ecology, sustainability, material culture and our (human) place in the world.

Ingela Ihrman's work 'First Came the Landscape' created in 2022 is a giant skeleton made from the limbs and branches of a beech tree. The figure reflects the delicate cycle of life – a system of death and rebirth as things move from one form to another. It has remained in its location for more than three years and will continue to do so whilst the pieces of wood – the pelvis, spine, femur, humerus and skull - naturally break down, returning back to the ground and benefiting the surrounding ecology of the earth.

Tim Shaw - Rites of Dionysus (2002-2004) (Eden Project)

Created with the artist and using the skills of Eden's experienced horticulturalists to help carve and shape the figure's form, it lies surrounded by trees including oaks, cherries and Sequoia.



Francisco Montes Shuna and Yolanda Panduro Baneo, Spirits of the Rainforest (2001) (Steve Tanner)

Created with the artist and using the skills of Eden's experienced horticulturalists to help carve and shape the figure's form, it lies surrounded by trees including oaks, cherries and sequoia. When I bring visitors to this location, this lone figure allows us to interpret what the visitor sees – the importance of dead wood habitats, how we incorporate and create them via veteranisation techniques or creating vertical dead wood piles. Through the artwork we can weave a story that considers the recycling of wood, and the importance of decay in woodland and forests systems, how we provide habitat for invertebrates to perform a lifecycle that may include years as larvae, as well as the strategies of fungi that evolved to capitalise during different stages of decay. For some visitors, confronting these themes in front of the figure offers an accessible pathway into understanding these profound and enduring relationships. The Guardian newspaper described *First Came the Landscape* as "...a meditation on fragility that's at once playful and profound." (Ashish Ghadiali, 23 Feb 2023)

Iman Dattoo is one artist that provided a particularly fresh and innovative way of looking at the natural world. Iman's artist residency, supported by the University of Exeter and Eden Project (summer 2023), enabled her to partake in collaborative conversations with team members from both organisations. These exchanges were recorded and allowed Iman to seek and find insights that crossed the disciplines of art and science, exploring the realms of human and non-human agency in the soil biome.

In May 2024 Iman presented 'Movement is Natural' at Gray's Wharf Gallery, Penryn, Cornwall. The artist displayed moving image work, watercolours, transcripts and ceramic sculptures. The arresting works allowed visitors to reconsider the way in which we view soils. Especially interesting when considering the regeneration of the china clay pit that Eden has regenerated involving 83,000 tons of manmade soil. The viewer was challenged to consider what exists beneath our feet from a more-than-human viewpoint and confront that legacy.

Having taken part in a conversation with Iman – that became part of *Movement is Natural* - I found it an intriguing and inspiring encounter that offered an opportunity to consider these practices in novel ways, challenging me to step beyond my normal work considerations and allowing me to consider my horticultural practice in an artistic way - offering me new opportunities for learning.

A visit to the Eden Project will assault one's senses and intellect in multiple ways. Some of the permanent artworks can be previewed here: <https://www.edenproject.com/visit/things-to-do/art-guide-and-map>



Don Francisco Montes Shuna and Yolanda Panduro Baneo, *Spirits of the Rainforest*, 2001 (Phillip Young)

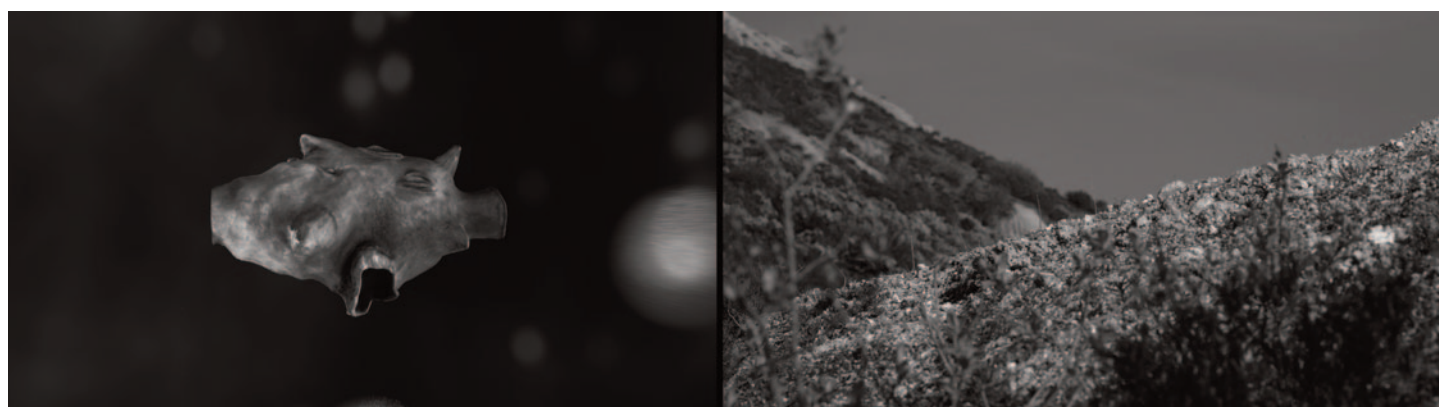
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Movement is Natural Film Still (Iman Dattoo)

ARTISTS MAKE RELUCTANT ACTIVISTS



Rimbun Dahan, outside Kuala Lumpur, Malaysia, has been running an artists' residency program for over 30 years, and hundreds of artists have immersed themselves in our 14-acre indigenous Southeast Asian garden. However, relatively few of our artists adopt an explicitly environmentalist stance. Usually, botanical influences are reflected in choice of material and remain thematic or metaphorical. This article offers two recent examples of resident artists engaging with the garden, with varying results for environmental action and awareness. It examines why artists may hesitate to adopt an activist stance, and why contemporary art in general is an imprecise tool for addressing environmental challenges.

The residency at Rimbun Dahan is primarily intended for artists to have the time and space to engage in their artistic practice, however they choose. As arts residency managers, we adopt a hands-off approach; we do not require resident artists to engage with the native garden or to create work with environmental messages.

However, many of the artists who are attracted to Rimbun Dahan have artistic practices that relate to the natural world. Some collect organic materials from the garden, including foliage and roots for natural dyes, fallen branches for installations, and earth pigments for painting. For others, the interest is more thematic or visual: the tropical landscape provides a background against which other social issues and formal interests are juxtaposed.

Thai visual artist Naraphat Sakarthornsap was in residence at Rimbun Dahan in 2024. He uses fresh flowers as his primary material, presented as installations or in photographs. His work explores many topics, including gender and sexuality, issues in Thai politics, and nostalgia for childhood and countryside.

Researching weed species, for the creation of the artwork *Passport Photo for the Outsider* (Naraphat Sakarthornsap)

Many of the artists who are attracted to Rimbun Dahan have artistic practices that relate to the natural world. Some collect organic materials from the garden; for others, the interest is more thematic or visual.

His residency at Rimbun Dahan reminded him of his pastoral childhood and sharpened his attention to the environmental degradation in his homeland. “Nowadays, there are no more butterflies, no more ladybugs, no more fireflies around my house. Even the Zinnia bushes – they’ve all disappeared,” he writes. “Future generations have completely lost the opportunity to have memories connected to nature like mine.”

Previously, Naraphat had created works which highlighted the issue of air pollution in Thailand, but his work at Rimbun Dahan did not relate directly to environmental concerns. It involved close-up photographs of various weed specimens, presented in the guise of passport photos. He intended to highlight how people holding certain passports are considered undesirable in the context of international migration, while other people, by place of birth, have greater freedom of movement. As in many other artworks created at Rimbun Dahan, the natural world was rendered as a metaphor to depict human struggles.

While Naraphat hesitates to call himself an environmentalist, he is aware of the environmental costs of his own arts practice. He has shifted from using air-flown flowers to those from local flower farms, to support local industries and to reduce carbon costs. He shares that “an important goal is in creating conditions for living that minimize the destruction of the world,” but his concerns are not specifically environmental. His overall message might be summed up as “be gentle to others and yourself” (Alana, 2021).

By contrast, Malaysian artist Syarifah Nadhirah adopts a more environmentalist stance. She acknowledges her residency at Rimbun Dahan as one of a host of experiences in 2019 that planted the seeds of her current work: understanding how ecological research can blend with art. During the residency, she got to know other local artists depicting flora and storytelling around nature and the environment. In addition to exploring Rimbun Dahan’s living botanical collection, she also immersed herself in the residency’s botanical library and experimented with printmaking. In the same year, she went on foraging trips with indigenous leaders, connected with ecological researchers, and joined a climate-themed exhibition, which led her to frame her work around an ecological focus.

These epiphanies culminated in the publication of the book *Recalling Forgotten Tastes: Of Illustrated Edible Plants, Food and Memories*, a collection of illustrations of edible plants, centred on environmental knowledge and traditional culinary practices by Orang Asli indigenous communities in Peninsular Malaysia. The book has been a surprise hit; it is now in its fourth printing and being translated into Mandarin. Teachers of nature and ecology assign it in class, and cosmetics brand Aesop featured it in their free book giveaway in 2023.

Initially Nadhirah was reluctant to release a book, but she was eventually convinced that it was her collective responsibility, “To provide education for all, knowledge for all; you have to share it around.” Despite the success of the book and the value of the awareness it has raised around Indigenous people and their cultural dependence on native plants, Nadhirah says, “I don’t 100% see myself as an environmental activist.” Instead, she views herself as committed to interrogating, expanding and decolonising knowledge.

Recently, Nadhirah has leant further into her trajectory towards environmental work. She is now Creative Director of the Forest Learning Centre at the Perdana Botanical Gardens in Kuala Lumpur, which focuses on educating the public about Malaysia’s natural heritage. As well as building narratives around conservation work with Orang Asli communities, the Forest Learning Centre will also provide a hub for other artists collaborating on ecological themes and will host Nadhirah’s next solo exhibition.



Naraphat Sakarthornsap in the garden at Rimbun Dahan during his residency (Naraphat Sakarthornsap)



Capturing photos of weeds, for the artwork *Passport Photo for the Outsider* (Naraphat Sakarthornsap)

Despite the success of the book and the value of the awareness it has raised, Nadhirah says, “I don’t 100% see myself as an environmental activist.”

Instead of viewing artists as potential environmental activists, it might be more useful to see them as the 21st century’s version of natural philosophers.



Nadhirah believes that Malaysian artists may be reluctant to enter the field of environmental activism because they feel they do not know enough, and risk putting themselves in a vulnerable position. In Malaysia, as in many developing nations, thorny environmental degradation issues are linked to major industries supported by the government. Many artists do not want to be responsible for having their facts in order, when they go up against government interests or face corporate legal action. “People don’t want their work to be seen as political”, she says, for fear of being censored, especially when local arts supporters may be linked to extractive industries. And yet, she says, “For me, it’s a responsibility I carry, as an artist, to at least question things,” while acknowledging she has to be very precise about the knowledge that she is presenting.

Nadhirah pinpoints a critical conflict between the works of an artist and the demands of environmental activism. Artists are not scientists. Because their creative process is not governed by the strict criteria of science, they hesitate to place themselves in positions of certainty and advocacy. They prefer to raise questions, to direct our attention to underappreciated topics, or to reframe our understanding of the world. The straightforward relationship between activist propaganda which leads to political or environmental action is often antithetical to the ambiguity many artists crave. Most art which artists consider successful provides a certain amount of interpretive space for the viewer to reach their own conclusions.

Thai artistic curator Nim Niyomsim (2024) suggests that, instead of viewing artists as potential environmental activists, it might be more useful to see them as the 21st century’s version of natural philosophers: non-scientist inquirers whose curiosities range widely across disciplines. “They can look into anything that fascinates or affects them. But instead of inquiring through a scientific method, they do it via the artistic process and represent the result as works of art.” And a certain openness and flexibility of interpretation is necessary for the resulting art, because “the control of narratives and thoughts results in stagnation and recession.”

However, we at Rimbun Dahan agree with Niyomsim that artworks engaging with the natural world can create a certain degree of environmental change, but the link is amorphous, and the impact is difficult to monitor and evaluate. Nevertheless, Niyomsim writes, “I hope, by seeing the grand scale of an issue, with its cause and effects, through the well-thought-out artistic and research process, that good judgment, outlook, and action will automatically follow from both the artists and the audiences.”



Above: Syarifah Nadhirah at Royal Botanic Garden Edinburgh, during the Plants on Paper workshop in October 2024 (Syarifah Nadhirah)

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Left: An example of Syarifah Nadhirah’s botanical illustrations, before her residency at Rimbun Dahan: Kantan, 2018, watercolor on paper (Syarifah Nadhirah)
Top left: The cover of Syarifah Nadhirah’s book *Recalling Forgotten Tastes*, which she produced after her residency at Rimbun Dahan (Syarifah Nadhirah)



DIALOGUES FOR CHANGE: CARTAGENA BOTANICAL GARDEN, HUB FOR ART AND CONSERVATION

The Cartagena Botanical Garden integrates art and nature to foster deep connections with biodiversity. Our Art in Residence program invites artists to interpret and amplify conservation messages, while Biofilia, a national alliance of eight institutions, explores innovative ways to engage communities and promote the social appropriation of scientific knowledge. By merging science and creativity, we enhance environmental education, raise awareness of conservation challenges, and inspire action. This article will showcase how botanical gardens leverage art to transform learning experiences, address ecological issues, and ignite a sense of stewardship through immersive, interdisciplinary approaches, including workshops and a museographic exhibitions.

Introduction

The arts seek to push the boundaries of our comprehension beyond what can be grasped in words (Middelton & Breed, 2010). Therefore, interdisciplinary approaches to better understand the questions surrounding conservation, biodiversity and environmental change are now including more diverse forms of knowledge. Forms that have been historically lagging behind by the west-colonial framework of Enlightened rationality in which science has developed (Trisos et al., 2021). For instance, in Latin America, there has been a growth in science-art projects that establish critical dialogues between western science and indigenous environmental thoughts, aiming to reconnect scientific knowledge that has been disembodied from its cultural, social, spiritual and ethical spheres (Page, 2021).

Above: Jackie's mural painted on the herbarium wall (Ana Maria Oliva)

Cartagena Botanical Garden is a hub for conservation efforts, encouraging new ways of understanding and appreciating the natural world through education.



Sensory mapping workshop, exploring sensations and emotions evoked by the garden (Mariana Sánchez)

“In Latin America, there has been a growth in science–art projects that establish critical dialogues between western science and indigenous environmental thought, aiming to reconnect scientific knowledge that has been disembodied from its cultural, social, spiritual and ethical spheres.”

Joanna Page, 2021

In Colombia, spaces such as the Cartagena Botanical Garden “Guillermo Piñeres” are incredibly valuable, as they are living laboratories where experiential learning practices through the arts and creativity are fostered. This botanical garden holds a diverse living collection of more than 346 plant species, including both native and exotic individuals. Among the native species are several important plants that are endangered and endemic to Colombia’s Caribbean region. Additionally, it protects a relic of seasonally dry tropical forest, one of the most vulnerable ecosystems in the world. Thus, through artistic residencies, museographical exhibitions, and participatory approaches with local communities and visitors, the Cartagena Botanical Garden is a hub for conservation efforts, encouraging new ways of understanding and appreciating the natural world through education.

Art as a gateway to ecological awareness: Reflections from two artists in residence

Free from daily worries, within the bounds of the natural yet secure space of the Cartagena Botanical Garden, Deirdre Hyde —an English artist with 45 years of experience working with Costa Rica’s national parks— allowed herself to face the discomfort of what she described as the “green wall”. This term was unveiled during her three-month artistic residency and refers to the abundance and diversity of the Tropical Dry Forest ecosystem thriving within the Garden. Likewise, “A forest within a forest” became the inspiration for Jaqueline Char, a local artist and neighbor of the garden to create a mural within its grounds.



The Work of Juan Arias at the Cartagena Botanical Garden (Maria Paula Contreras)

Creativity —as the act of play, of observing the landscape, translating it onto paper with a pencil, drawing for the sake of pure expression—can spark the epiphany of sensibility needed to conserve this ecosystem.

Artist Jaqueline Char and the freshly painted mural (Maria Paula Contreras)



Deirdre's portrayal of a corner of the Cartagena Botanical Garden (Maria Paula Contreras)

"Ecology captured in an immortal painting."

Deirdre Hyde

In the Botanical Garden, Deirdre encountered the opportunity to play and connect in order to translate the essence of the ecosystem through a series of scientific paintings. In these pieces, the spectator can clearly perceive the intricate web of life, the dynamic exchange of energy and the vast multiplicity of forms within an ecosystem, a vivid portrayal of what we recognize as biodiversity. Ecology captured in an immortal painting.

For her part, Jaqueline's collective artwork — created by different garden crew hands — was developed over the course of a month during the peak of the pandemic. There were no visitors, only the colors, sounds and sensations of the dense Tropical Dry Forest. Jaqueline describes her works, particularly this mural, as a means of raising awareness—an invitation to discover, to learn how to observe, to awaken consciousness. Beyond conservation of the ecosystem itself, her intention is to foster the possibility of truly seeing and feeling it. This is why, in Jaqueline's words, "(...) the role of a botanical garden, and that of an artist, is to restore calm and bring up processes of contemplation and recognition of the territory". Key aspects for conservation efforts.



Birdwatching with bird-keepers at the botanical garden (Maria Paula Contreras)



Deirdre's portrayal of the Cartagena Botanical Garden (Maria Paula Contreras)

Mediation at Biofilia, exploring the sounds of our ecosystems (Ana Maria Oliva)

Conservation as a collective commitment

Conservation is not only a responsibility of biologists and researchers but of the community as a whole. Research centers, as spaces for education and participation, should create bridges between scientific knowledge and local, popular knowledge to address regional challenges, allowing conservation to become a shared commitment. Aware of the issue of bird captivity persisting in the Colombian Caribbean, photographer Juan Arias proposed a symbolic gesture using Cartagena Botanical Garden as the scenario: exchanging empty birdcages for binoculars. Through his project “The language of birds”, Arias sought to exchange possession for observation, inviting bird-keeping enthusiasts to interact with birds in their real habitat, and promoting bird-watching as a practice of conservation and enjoyment.

Furthermore, we currently serve as the Caribbean center of the Biofilia alliance project, whose core belief wants people “to imagine that it's possible to transform our relationship with nature”. In this project, we lead two key initiatives: first, the mediation of a museum space, where we engage visitors in dialogues about the conservation of the Tropical Dry Forest; second, the development of workshops focused specifically on environmental education

Final thoughts: Feel to protect

We conserve what we know; fostering processes of knowledge exchange is a fundamental keystone for preserving an ecosystem as threatened and degraded as the Tropical Dry Forest. Creating meaningful experiences that enhance curiosity and sensibility brings people closer to what once seemed distant or lost. However, the gradual pace of territorial social appropriation, along with the integration of new technological tools, remains a key challenge when compared to the precipitous loss of the forest. Nevertheless, we are convinced that transforming our relationship with the Colombian Caribbean biodiversity is possible. Creativity —as the act of play, of observing the landscape, translating it onto paper with a pencil, drawing for the sake of pure expression—can spark the epiphany of sensibility needed to conserve this ecosystem. Not only through technical, traditional scientific knowledge, but also through the gut, instincts, and raw emotion.



“(...) the role of a botanical garden, and that of an artist, is to restore calm and bring up processes of contemplation and recognition of the territory” we currently serve as the Caribbean center of the Biofilia alliance project, whose core belief wants people “to imagine that it's possible to transform our relationship with nature”
Jaqueline Char

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‘Guillermo Piñeres’,
Cartagena,
Colombia

Artist Deirdre Hyde quietly portrays the garden (Maria Paula Contreras)

A group of approximately 15 people are lying on their backs on flattened cardboard boxes in a forest. They are arranged in a loose circle around a large tree trunk. The people are wearing casual clothing, including jackets, sweaters, and jeans. The forest floor is covered in brown leaves and pine needles. In the background, there are more trees and a path.

ARTISTS AND BOTANIC GARDENS CREATING AND DEVELOPING EDUCATIONAL INNOVATION – ABCDE

An international collaborative project, sponsored by Erasmus+ was developed between three Botanic Gardens in three separate countries over a three-year period. The purpose of the project was to integrate experiential learning, participatory pedagogy and develop educational resources based in the botanic gardens fusing art and science and exploring ways to deliver and explain three central themes; the importance of biodiversity, soil and water in our lives.

ABCDE is an international collaborative project, between the education departments of the National Botanic Gardens of Ireland, Reykjavik Botanic Gardens, Iceland, Vilnius University Botanical Garden, Lithuania and Iceland University of the Arts, the Department of Education and Youth at Reykjavik Municipality. The programme is sponsored by Erasmus+ and was developed over a three-year period.

This innovative programme explored new ways of delivering our important environmental messages within a botanic garden setting by creating a dialogue between artists, scientists, and teachers, with the potential of creating settings for experiential learning and participatory pedagogy for in-service in art and natural science for teachers, developing resources that can be accessed and delivered in the classroom, school garden or the botanic garden based on the UN Sustainable Development Goals and providing teachers with tools to increase student engagement and interest in natural sciences and sustainability.

Above: Teachers workshop in the National Botanic Gardens of Ireland

This innovative programme explored new ways of delivering our important environmental messages within a botanic garden setting by creating dialogue between artists, scientists and teachers.



Left: Teachers from Lithuania exploring interdependence through art at Glasnevin, Dublin

How the project worked

Initially the artists and scientists came together with the organising team and discussed ways to deliver innovative programmes fusing art and science. Each botanic garden selected their own team of scientists and artists, generally with a link to the gardens, to collaborate together to work on developing the ideas for the project. The more the scientists and the artists collaborated and worked together the more successful the end result was. Each botanic garden also invited a local school whose teachers then formed part of the core working group and participated in the project across the three countries.

The core participants in the workshops included the project manager from the Iceland University of the Arts, nine artists, nine scientists, three botanical garden specialists / educators and three teachers from each participating school (nine teachers in total). Weeklong workshops were held in each country and the teachers had the opportunity to travel and experience working with different artists and scientists in the three botanic gardens. The resulting nine activities that were developed during the workshops have now been published on the ABCDE website which is available for all to access.

Initially the plan was to develop a programme just for teachers, but we broadened the scope of this so that staff from the gardens and outdoor educators could participate and develop their skills and use the materials provided on the website for workshops as well. The schools were provided with a budget to participate in the workshops, providing finance to develop projects, cover their absence when away at workshops and teacher conferences, and their travel expenses in the three participating countries. Together they developed and tested the assignments, and later took the ideas and methods learned and adapted them for their pupils. The ideal of the project was that the teachers involved in the training would not just replicate the ideas developed in the project by the artists and the scientists but also that they would be stimulated to develop their own ideas based loosely around the themes.

Additionally, thirty local teachers and outdoor educators were invited to participate in each workshop, creating greater local and national level impact of the project resulting in more schools adopting and using the assignments created in the project. In each garden three themes were explored, and lessons were developed from each theme. Each country also hosted a teacher conference where the findings of the project were shared.



Teacher Course exploring soil (National Botanic Gardens of Ireland)



Teachers course in Vilnius, Lithuania exploring Biodiversity through land art

It is well documented that when children engage in nature from an early age, they develop a sense of connectedness to nature.



Incentive for participating in the programme

Vilnius is famous for its Land Art exhibitions, Reykjavik has much experience with exhibition and art workshops and we in Ireland have hosted an annual Sculpture in Context exhibition which is the largest outdoor exhibition of sculpture in Ireland for the last 25 years. We also host many other exhibitions, including botanical art, photography, fine art and workshops. We have been taking this to the next step by developing art workshops, which can be delivered by teachers and or botanic garden educators exploring environmentally important themes relevant to our ethos. Encouraging teachers to use the garden as an outdoor classroom and effective educational resource is always one of our aims, and by adding the nine separate activities to the project website, we have the opportunity to reach schools who cannot travel to the gardens either from financial or distance reasons, meaning they can access the work in their own classroom or school grounds.

It is well documented that when children engage in nature from an early age, they develop a connectedness to nature. We appreciate that active learning through creative means is a worthwhile and productive way to deliver the important environmental lessons that we want to convey through our work in the gardens and we wanted to explore this in a fresh innovative way. Taking part in the programme provided the opportunity for botanic garden educators to visit and collaborate with gardens from different countries, exploring ways of communicating scientific principles through Art.

In the workshops, approximately 50 teachers from the three countries have been involved directly in the development of the education resources and via the conference events, at least 300 more educational professionals have benefited from the findings of the project. In each country an 'Explainer' Teacher Conference was held where a further 100 teachers learned about the project and explored the ethos of the outdoor garden and the value of fusing art through science. The overall findings of the workshops were presented at a final International Teacher Conference in Dublin in October 2023 at the National Botanic Gardens, where the teachers representing the three countries presented how they used the experience to develop workshops and educational experiences for their students.

In the long term, the project website and future promotion of the project on a European level will increase the wider impact of the project and potentially lead to further Erasmus+ projects. This will serve to evaluate the success of the resources created by the project, increase the viability of the project and its results, and further develop the field of primary school education when it comes to teaching natural sciences through creativity and the arts.

The website is published in English, Icelandic, Irish and Lithuanian.
www.Abcde.reykjavik.is

Left: Teacher Conference



Irish artist Leanne Mullen leading a workshop exploring water in Reykjavik



Creative play exploring carnivorous plants

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ART AND CONSERVATION: GIVING VOICE TO BOLIVIA'S ENDEMIC CINCHONA



The project “Recovery of *Cinchona anderssonii*, a tree endemic to Bolivia in danger of extinction” has integrated art as a powerful educational tool. Through puppets, comics, and animated videos, we created visual and narrative materials to raise awareness among children and young people about the importance of this plant. These resources have been used in both rural communities and urban schools, creating an emotional bond with nature from an early age. The experience demonstrates the value of art in inspiring conservation action and offers a replicable model for other initiatives.

Creative conservation: When science meets emotion

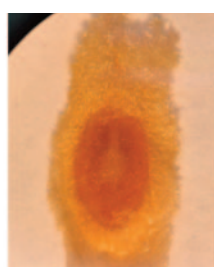
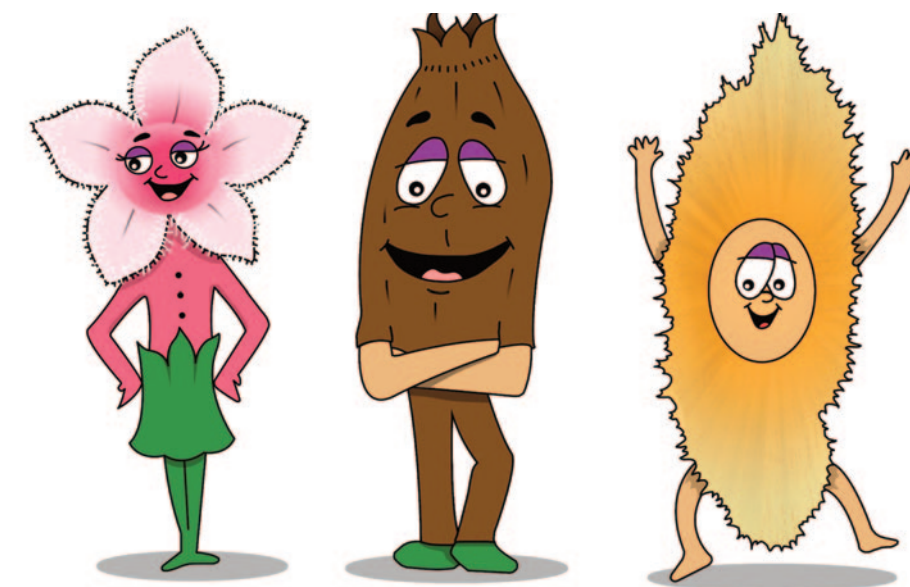
The conservation of *Cinchona anderssonii* (Maldonado et al., 2017), a species historically known for its production of quinine, has gone beyond traditional scientific methods. In the face of widespread unawareness of its ecological and cultural value, we developed an innovative educational strategy using art to connect people with biodiversity. As part of the project, we created artistic materials—including puppets, comics, and animated videos—designed to raise awareness among children and young people about the situation of this species, which is endemic to the Bolivian Andes.

The puppets, representing flowers, fruits, and key parts of the plant, allowed us to explain its morphology and ecology in a playful and accessible way. This approach was particularly effective with young children, who developed empathy for living beings by interacting with characters that “speak” to them (Cheng and Monroe, 2012).

Above: A member of the Ciencia Molotov team engages students with puppets representing *Cinchona anderssonii* during a workshop in La Paz. Through creative storytelling, students connected emotionally with the species and learned about its conservation (Carla Maldonado)

Art gives plants a voice, awakening empathy and action among the young.

Art doesn't just communicate—it transforms how we see and protect nature.



Puppet performances were adapted to the local context, incorporating regional languages and cultural references that helped the children see themselves as part of the conservation story. These performances were often followed by drawing or storytelling activities where children imagined their own ways to help the plant survive. In some schools, children created their own characters or developed short plays inspired by *Cinchona*, showcasing how art could stimulate not only learning, but also creativity and ownership of the conservation message.

In parallel, the illustrated comic *Guardianes de la Quina* told the story of a group of children working with scientists to protect this unique species. Originally drawn by an artist, the comic was later digitized and adapted for educational use. Its visual storytelling proved to be a powerful tool for engaging children and supporting information retention, both in rural communities and urban schools in La Paz (Freyre Castro, 2023). The comic creatively illustrates the full academic and scientific process of the morphology and ecology of *Cinchona anderssonii*, blending it with art to engage all audiences—especially children. The comic was distributed in printed format and as a digital PDF, which allowed for broader access across schools and community centers, including those with limited internet connectivity. The story was also adapted into a short performance piece by schoolchildren in two different regions, further reinforcing the message of collective action and ecological responsibility.



Left: Characters representing the flower, fruit, and seed of *Cinchona anderssonii*, originally illustrated by artist Carlos Maldonado and digitally rendered by Daniel Gómez. Below each character, the real plant structures that inspired the designs (Carla Maldonado)



Students, teachers, and community members from Corani Pampa pose with their educational materials after participating in a conservation workshop on *Cinchona anderssonii*. The activity concluded with the symbolic planting of tree seedlings in the nearby forest (Carla Maldonado)



A student from the Corani Pampa school reads the comic book *Guardianes de la Quina*, developed as part of the *Cinchona anderssonii* conservation project. The comic helps students connect emotionally with the species and understand the importance of its protection (Carla Maldonado)

Left: Students engage with conservation materials about *Cinchona anderssonii* at an educational stand (Carla Maldonado)



Left: A young boy plants a seedling of *Cinchona anderssonii*, guided by educators during a reforestation activity in Corani Pampa. He holds one of the project's puppets representing the fruit of the species, connecting play with purpose in this conservation effort (Carla Maldonado)

Our animated videos, available online (<https://vimeo.com/922482213> and <https://vimeo.com/922486981>), share the plant's story, including its life cycle, threats, and conservation efforts. These short, emotionally engaging videos have been widely shared on social media and used as teaching aids in classrooms. Their aesthetic appeal and clear messaging helped teachers integrate them easily into environmental education programs (Liefländer et al., 2013). Teachers highlighted that the videos helped spark curiosity, especially among students who otherwise showed little interest in botanical topics.

We also facilitated workshops with teachers, offering guidance on how to use the comic and videos within the curriculum. These workshops emphasized inquiry-based learning and creative expression as key tools for environmental education. Teachers responded positively, noting that the materials helped spark classroom discussions about biodiversity and the role of young people in protecting endangered species. In follow-up sessions, several educators reported an increased interest in plants and environmental topics among their students, with some even initiating small planting or observation projects inspired by the campaign.



Urban school students watch an animated video featuring puppet characters that represent parts of *Cinchona anderssonii*. The video is part of a multimedia strategy to promote conservation through emotional storytelling and engaging visuals (Carla Maldonado)



The creative team behind the educational materials for the *Cinchona anderssonii* conservation project. They designed and produced educational materials, including comics and videos, to promote conservation through engaging storytelling (Carla Maldonado)

Left: Children explore *Cinchona anderssonii* through handmade puppets representing its flower, fruit, and seed during a conservation workshop (Carla Maldonado)



Left: Children and educators hold *Cinchona anderssonii* seedlings and puppet characters representing the plant's reproductive parts. This playful yet meaningful approach fostered emotional connection and awareness during the conservation workshop (Daniel Gomez)

Building connections: Urban outreach and interdisciplinary collaboration

One of the major strengths of our approach lies in its adaptability. Although *Cinchona anderssonii* is native to remote forest habitats, our materials were designed for use with diverse audiences—including children in urban areas who may never see a cloud forest. This broader outreach is crucial. Emotional connections with nature are not limited to direct experiences; they can be cultivated through meaningful storytelling and visual engagement (Cheng and Monroe, 2012). By bringing *Cinchona anderssonii* into the classroom through art, we offered students a way to imagine and care for ecosystems beyond their immediate surroundings.

An additional factor in the project's success was its interdisciplinary nature. We partnered with Ciencia Molotov, a youth collective focused on science communication, to co-create the narrative and media. Their experience in crafting accessible, compelling messages significantly enhanced our ability to connect with a younger audience. This collaboration illustrates the importance of combining scientific research with creative communication to reach and inspire broader segments of society. The team also contributed to public events, where live puppet shows and comic exhibitions reached larger audiences, reinforcing the conservation message beyond the classroom.

Art as a transformative force for conservation

There is growing recognition that art plays a unique role in environmental education. Young people tend to be more receptive to environmental messages than adults (Buttel, 1979), and artistic media provide a channel for emotional engagement. When children are encouraged to explore conservation topics through drawing, storytelling, and performance, their curiosity and retention of information increases (Freyre Castro, 2023).

Our experience with *Cinchona anderssonii* confirms that art doesn't just communicate—it transforms. In addition, it helps convey scientific content clearly and accessibly, strengthening the democratization of science. It changes how people see threatened species, strengthens the link between communities and their local environments, and inspires collective action to protect biodiversity. The project's success has encouraged us to explore similar strategies for other endangered plants in Bolivia, positioning art not as an add-on but as a central component of our conservation toolkit. We hope this model will inspire others working in education and conservation to explore interdisciplinary, emotionally resonant approaches to protect the world's most vulnerable plant species.

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USING ART AS A CREATIVE STRATEGY TO ENGAGE STUDENTS



Far left:
We should protect and promote this rare langur species.
Duong Vy, grade 9,
Thach Hoa Secondary School.

Left:
How to protect the White-necked langur.
Mai Phuong Thuoy, grade 7
Thach Hoa Secondary School.

The education team of BGCI has just finalized two Darwin Capability and Capacity Funds projects with local partners in Vietnam and Malawi. A key feature of the education and public engagement part of the project has been the collaboration with local schools and organised student artwork competitions – an effective way to boost engagement and raise awareness about biodiversity.

BGCI is involved in several initiatives funded by the Darwin Capability and Capacity Fund. In many of these, our education team plays a vital role. In 2022 we launched the project *People, primates, plants: Co-managing biodiversity and improving livelihoods in Vietnam* in cooperation with ICRAF (the International Centre for Research in Agroforestry) and the local NGO CEGORN (Centre for Highland Natural Resources Governance). The project focuses on the relationship between biodiversity conservation and local livelihoods. It promotes co-management of forests by local people and supports the development of market-oriented agroforestry practices. These efforts help improve local livelihoods and promote restoration of native tree species.

One of the goals of the education team was to increase awareness of the local community of the Ha Tinh or White-necked langur (*Trachypithecus hatinhensis*), a primate living in the limestone mountains of Quang Binh province where agricultural fields are encroaching the mountains and continue to push into the langurs' habitat, making it ever more important that the local community and the langurs co-exist peacefully.

Both projects highlight the powerful role creativity can play in both education and conservation.





In May 2024, 780 students and 36 teachers of four secondary schools in the Tuyen Hoa District participated in the school programme organised to engage students and build awareness of local conservation issues. Each school hosted a photo exhibition, accompanied by a presentation of a member of the Volunteer Conservation Group (VCG)- a local team of volunteers that patrols the limestone mountains to monitor and prevent hunting activities.

Students participated in various activities, and ten students from each school were selected for a fieldtrip to observe the langurs in the wild. The teachers were very enthusiastic and asked for additional material to use in schools, which led to the development of a teacher toolkit. The programme culminated in an art competition held in January 2025 under the theme *Protect the White-necked Langur and Biodiversity in Quang Binh*. This gave students a creative platform to express what they had learned and share their vision for a sustainable future for the White-necked langur. The top 15 artworks were shared on the VCG's Facebook page, where the public voted for their top three favourites. A jury comprised of education representatives of all project partners elected winners as well. Six students received their prizes during the project's closing ceremony in March 2025. The online voting attracted significant engagement with around 6000 visitors voting and leaving comments on the Facebook page. CEGORN will remain in close contact with the schools to provide continued support after the projects ends. The teachers are trying to incorporate the White-necked langur and its habitat of the limestone mountain into the curriculum and will replace part of their existing ecology classes with activities of the toolkit.

More information about the project is available on our website (<https://www.bgci.org/our-work/projects-and-case-studies/people-primates-plants/>) and our partners developed a video.

In the same year, we also launched the project *Improving community sustainable natural resource management of Mount Mulanje* in Malawi. In a nutshell, the project focuses on creating sustainable livelihood opportunities from native plants and fungi from the Mount Mulanje Biosphere Reserve. These alternatives aim to reduce pressures on local ecosystems, which are currently threatened by firewood collection and charcoal production – common necessities in a region where many households rely on these resources for cooking. To address this, project partners developed public awareness actions using the [Behaviour Centred Design Approach](#) developed by Rare. The use of this method helped us identify the actions with the highest impact, while working within existing community networks and communication channels to ensure the messages would resonate.

As the project wanted to target a wide audience, a range of public engagement activities was organised including a guided nature walk, sponsoring the big sports event of the year and a two-year radio discussion programme.

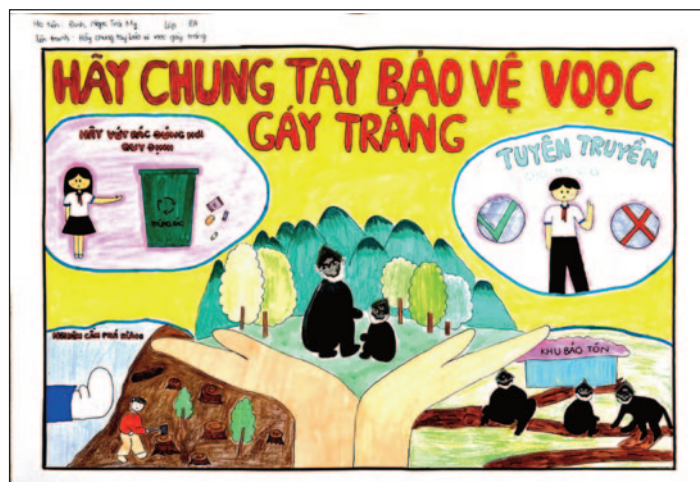
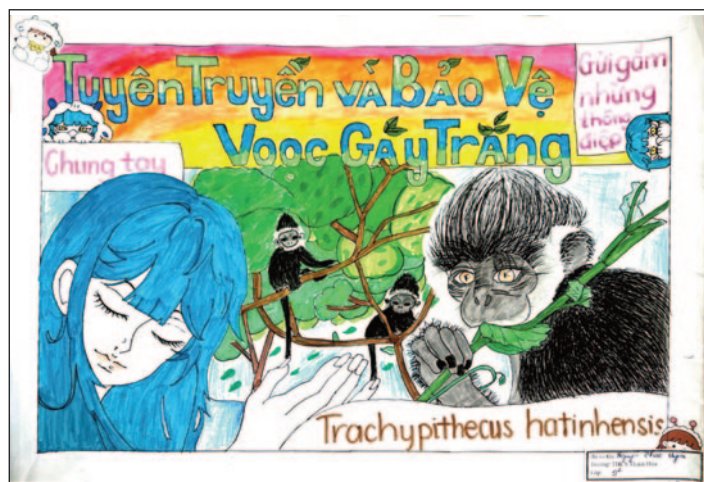
Price winners of the art competition in Mount Mulanje (Clement Sellenje)



Class about the White-necked langur and their habitat at a school in Tuyen Hoa district, Vietnam (Tuyet Truong)



Photo exhibition at schools in Tuyen Hoa district, Vietnam to show the local wildlife (Tuyet Truong)



One successful outcome of this approach was a small student-focused programme developed in collaboration with our partners MMCT (Mount Mulanje Conservation Trust), WeForest and WESM (Wildlife and Environmental Society of Malawi). WESM organised an environmental education programme for wildlife clubs in 10 schools (six primary and four secondary) in the Chambe school zone around Mount Mulanje. The programme included an informative session about the conservation of Miombo woodland, followed by an art and essay competition themed *My Miombo*. Miombo woodland is a vast dryland forest ecosystem found in central and southern Africa, dominated by *Brachystegia*. The competition was judged by a panel consisting of teachers and a WESM representative, and award ceremonies were held at the participating schools. The activities had to be kept simple as both schools and students have limited resources..

To dive deeper into the project and the Mount Mulanje region check-out this blog from the project leader (<https://www.bgci.org/news-events/mount-mulanje-on-fire/>) and the news article on Mongabay <https://news.mongabay.com/2025/02/reforesting-malawis-island-in-the-sky-to-save-its-vanishing-woodlands/>.

Both projects highlight the powerful role creativity can play in education and conservation. By engaging students through art, we raised their awareness and gave students the opportunity for self-expression, creativity and critical thinking. We hope we inspired a new generation to take ownership of their environment and have fostered a deeper understanding of nature and empowered local communities to protect it.

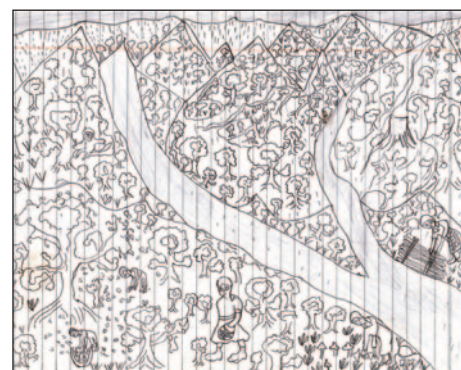


Above left: *Join hands to protect the langur* – Nguyen Thao Uyen, grade 9 Thach Hoa Secondary School.

Above right: *Join hands to protect the White-necked langur* –

Dinh Ngoc Tra My, grade 8 Thach Hoa Secondary School

Artwork competitions – an effective way to boost engagement and raise awareness about biodiversity



Above and left: Winning artworks *My Miombo* (Clement Sellenje)

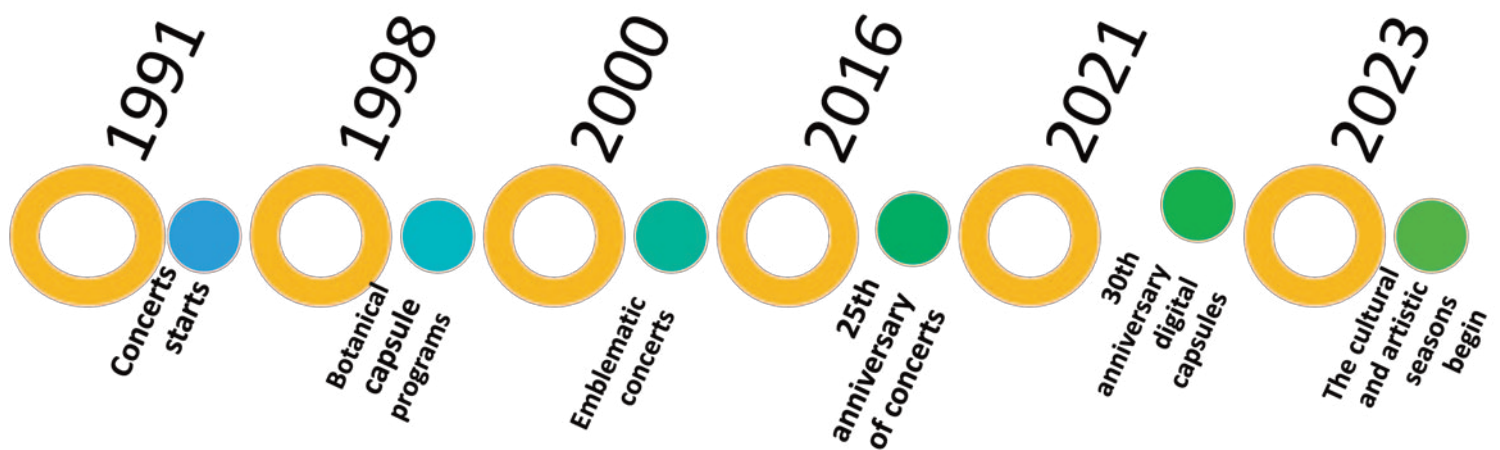
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BIODIVERSITY WITH ART: EXPERIENCES FROM THE BOTANICAL GARDEN, INSTITUTE OF BIOLOGY



This article presents a summary of the diverse artistic expressions developed over more than 30 years at the Botanical Garden of the Institute of Biology. Several examples are highlighted that involve understanding the plant diversity found in the Botanical Garden's living collections and other biological collections housed at the Institute of Biology. The presentations include the artistic expressions offered, as well as the challenges overcome in their implementation.

Mexico is home to 68 Indigenous communities, reflecting its remarkable cultural diversity. It also has an impressive biological diversity (more than 21,000 species of vascular plants), with a high level of domestication of plants and animals. This makes it a major center of domestication worldwide (CONABIO, 2023; Villaseñor & Ortiz, 2014).

As a consequence, Mexico is the birthplace of beautiful artistic traditions framed by the expression "Biocultural Mexico", where "botanical gardens are fundamental spaces for integrating aesthetic or recreational activities" (Hernández et al., 1994), along with relevant scientific information.

The Botanical Garden of the Institute of Biology, National Autonomous University of Mexico (IBUNAM), is a living museum with nearly 1,900 species organized into 14 living collections, where non-formal education is integrated through various activities such as workshops, guided tours, demonstrations, exhibitions, and more. A new educational challenge was to attract more audiences through artistic expressions such as music. In 1991, we embarked on a venture to showcase musical activities at the Botanical Garden in synergy with the General Directorate of Music (formerly the Directorate of Musical Activities) of the National Autonomous University of Mexico (UNAM), which was looking for new venues for classical music and, in our case, to use the facilities to promote the importance of Mexican flora. And what a great team we developed!



Top: Timeline (Luz M. Rangel and Carmen C. Hernández)

Above: Spring Cultural Season 2025. Music and Dance (Design: Diana Almaguer & Julio C. Montero)



Far left: 25th anniversary of concerts (Design: Diana Almaguer and Julio C. Montero)



How were the concerts organized at the Botanical Garden?

We held two seasons of open-air concerts, in spring (Saturdays in March) and in fall (Saturdays in October). They began in the visitor rest house, but were later held in a more appropriate space, a small square. The programs were simple in terms of information and design but are currently being developed by the IBUNAM Design department.

Musical growth and diversification

During the first three decades, wind, string, and brass ensembles, jazz, big bands, and even a bagpipe band performed. The Botanical Garden witnessed an exceptionally diverse sound, enriched by baritones, sopranos, tenors, and choral groups, where traditional Mexican music was prevalent.

Signature concerts

During the fall 2000 season, concerts were dedicated to the founders of the Botanical Garden. Among the highlights was the Voce in Tempore Choral Ensemble in honor of Dr. Helia Bravo Hollis, a scientist, visionary, and cactus specialist, who was present at almost 100 years old! For the 25th anniversary of the concert seasons, recognition was given to members of the most frequent audiences, and the Wind Philharmonic of the Cuauhtémoc Delegation, Mexico City, performed the concert. In 2010, the International Year of Biodiversity, the San Patricio Battalion Bagpipe Band performed, with a record attendance of more than 800 people!

Challenging times: The COVID-19 pandemic and online concerts

Until March 2020, the concert seasons were held in person, but in the fall of 2020, the pandemic-related lockdown meant that these events could no longer take place. For the spring of 2021, the year marking the 30th anniversary of the concerts, an online series was organized with the support of the General Directorate of Music, featuring trio and quartet recitals from symphonic cycles and performances by the UNAM Philharmonic Orchestra (see <https://youtu.be/Ps9qVN0tr5o>). For the fall 2021 season, the Botanical Garden's Outreach and Education team and guest performers prepared four capsules on the history of the concerts, entitled "Longings: Music and nature at the Botanical Garden: 30 years of concerts." These were:

Episode 1: [The First Seeds](#)

Episode 2: [Taking Root](#)

Episode 3: [Between Branches and Leaves](#)

Episode 4: [Time to Bloom](#)



March 2025 programme (Design: Diana Almaguer and Julio C. Montero)

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New challenges: Cultural seasons of music, dance, and theater

After more than three decades of concerts, some changes to the program were needed, so the artistic strategy was expanded to include cultural seasons of music, dance, and theater. For the spring 2023 season, educational demonstrations focused on biodiversity were incorporated, so the public could enjoy artistic experiences and gain an interest in native Mexican plants and animals represented in the biological collections of the Botanical Garden and IBUNAM, with information provided by their curators. Uniting art, environmental education, and science is our new challenge in scientific outreach, to promote scientific vocations among our children and young people.

Education and art (music, dance, and theater)

We had the opportunity to expand our artistic activities and connect them with our educational activities that were focused primarily on the knowledge and conservation of Mexican flora. Some examples of activities carried out include:

- Using the living plant collections, our main educational tool
- Including informational capsules on the Botanical Garden's collections and related topics in the programs
- Conducting demonstrations of the Botanical Garden's many projects
- Conducting themed guided tours
- Conducting demonstrations on responsible consumption, biodiversity awareness, sustainable use, and fair trade, which are promoted in the Botanical Garden's Tigridia Store
- Connecting the Botanical Garden's educational activities with the public (exhibitions, lectures, etc.)

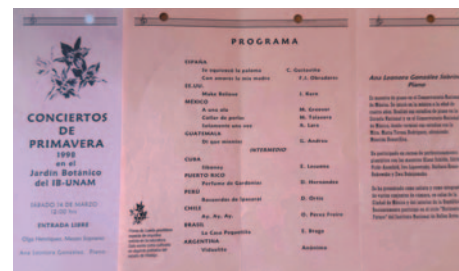
Important considerations

If your Botanical Garden is interested in engaging with artistic activities, here are some tips summarizing our experiences. Consider:

- Concerts with engaging musical themes
- Programs with brief biological information
- Musical instruments that won't go out of tune outdoors
- Shaded spaces
- Seating for people, use green areas that won't interfere with living collections, or use chairs
- Nearby space for educational demonstrations
- Use titles of tunes or other biodiversity-related artistic expressions to provide scientific information
- Link with educational activities held by your Botanical Garden, e.g., visiting exhibitions, guided tours, etc.

Conclusion

With a history of more than three decades of concerts and other artistic events, it is clear that the combination of culture, art, and science is an effective strategy for disseminating biological knowledge, fostering interest in Mexican flora, and highlighting the importance of the arts. The biocultural evolution of the seasons, with the incorporation of dance and theater since 2023, has become an innovative strategy for scientific education and dissemination. The COVID-19 pandemic has boosted creativity and the use of digital platforms, expanding the reach of these events. The incorporation of educational demonstrations has sparked greater public interest, strengthening the Botanical Garden as a space for learning and raising awareness about the knowledge, use, and conservation of biodiversity, where art can be a fundamental ally in building a society more aware of and connected to its natural environment.



Botanical capsule programs, 1998
(Carmen C. Hernández)

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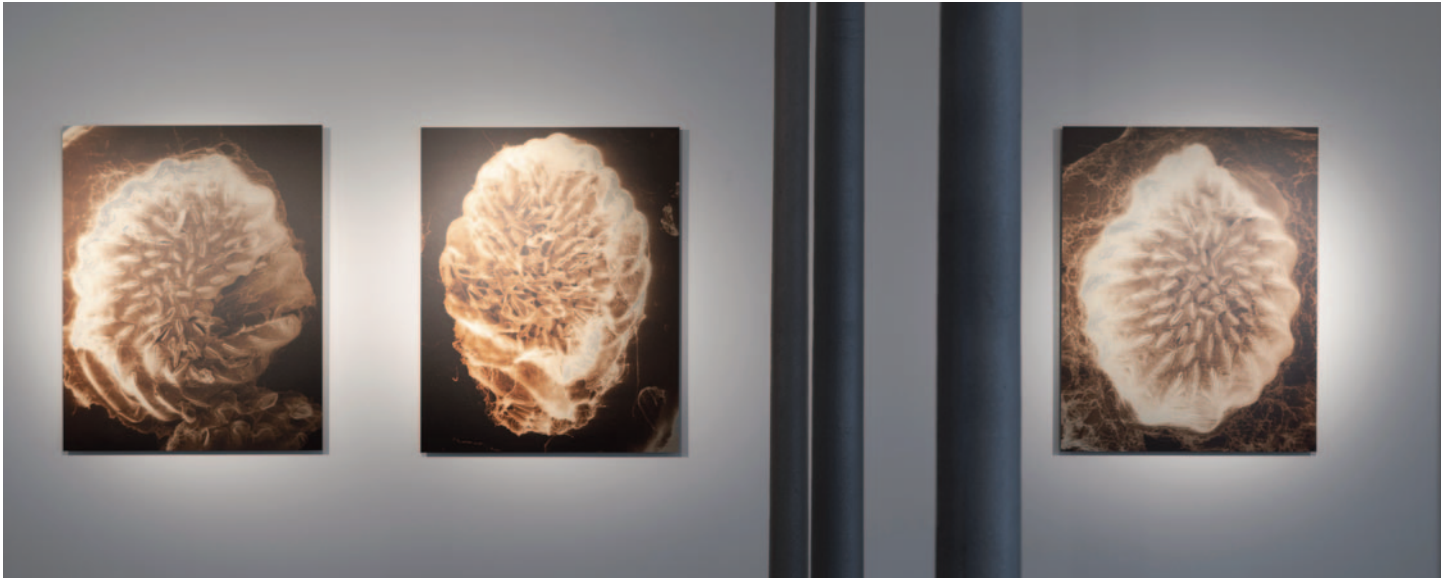
Botanical Garden at the Institute of
Biology, National Autonomous
University of Mexico



Stephen and Peter Sachs Museum main gallery (Virginia Harold)

EXPLORING PLANTS THROUGH INTERDISCIPLINARY EXHIBITIONS AT THE MISSOURI BOTANICAL GARDEN

The intersections between botany, history, and art offer fruitful opportunities to interpret and present meaningful content to the public about the necessity of plants at every level of human culture. These interdisciplinary explorations through museum exhibitions at a botanical garden illustrate the science within the plant, how its characteristics make it appealing for humans to use in creating any number of products, and how these relationships illuminate human reliance on the natural world to create our cultural experiences of cuisine, spirituality, and aesthetic endeavours. The Sachs Museum at the Missouri Botanical Garden offers some examples of these types of projects.



Interpreting the myriad ways humans use plants is the perfect goal for curating exhibitions focusing on the intersections of nature, material culture, history, and art. An interdisciplinary framework gives the opportunity to address the interrelationships between humans and the natural world in multi-layered exhibitions where material and object are linked closely together, rather than presented as separate and binary (Cameron, 2014). In exploring the plants and cultural materials at the core of a subject, process, or relationship, interdisciplinary exhibitions reveal the interconnectedness of the environment, material production, and the impacts of these choices for our society and our planet (Pleiger, 2020).

Since its reopening April 2018, the Missouri Botanical Garden's Stephen and Peter Sachs Museum is the Garden's premier exhibition space dedicated to the important stories of the interactions between plants and humans. Museum Curator Nezka Pfeifer curates the changing annual exhibitions at the Sachs Museum using botany and conservation as the foundation of the interdisciplinary installations, and interweaves history, material culture, and inclusive perspectives together with commissioning contemporary artists to create site-specific work. She uses Garden collections, such as Herbarium specimens and biocultural objects, to include relevant Garden science and research to highlight the wide-ranging projects and initiatives the Garden is involved with both locally in St. Louis, and around the world. This innovative approach offers the public a holistic opportunity to engage and understand the myriad layers of how much we use and rely on plants every day, and empower the public to understand how they play a role to protect them (Fitzgerald, Rose, and Waggoner, 2020).

Dornith Doherty's *Roundabout (Circuition)* installation featuring highly magnified electron microscope images of Grape phylloxera galls on metal, 2021. (Virginia Harold)

In exploring the plants and cultural materials at the core of a subject, process, or relationship, interdisciplinary exhibitions reveal the interconnectedness of the environment, material production, and the impacts of these choices for our society and our planet . Pleiger, 2020

Museum Curator Nezka Pfeifer curates the changing annual exhibitions at the Sachs Museum using botany and conservation as the foundation of the interdisciplinary installations, and interweaves history, material culture, and inclusive perspectives together with commissioning contemporary artists to create site-specific work.



View of cabinet display in *Kernels of Culture* highlighting the material culture objects made from corn cobs, insects intertwined with maize agriculture (pests and opportunistic pollen scavengers), food and drink culture, teosinte species, ancient American farming and maize processing tools, and Indigenous art objects made from maize fiber. 2024. (Virginia Harold)



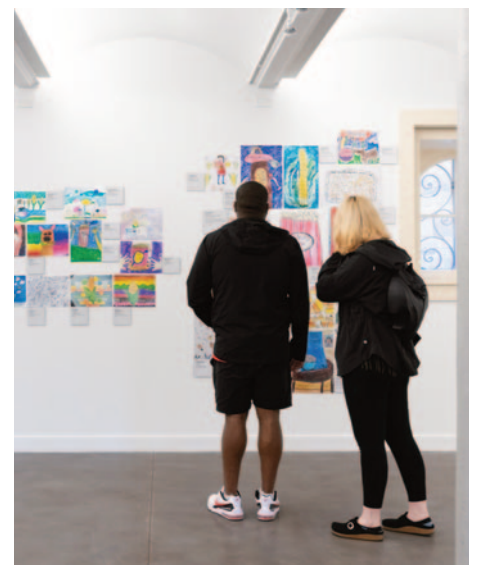
Gallery view of Megan Singleton's *Transposable Elements* installation including artist book, maize paper cob gene data visualization, and large format photographs of maize cobs. (Virginia Harold)

Pfeifer's 2021-2022 exhibition *The Grafting the Grape: American Grapevine Rootstock in Missouri and the World* explored the botany of significant grape species used in winemaking, grafting, and hybridization and included contemporary scientific research on this botanical relationship. Wine is a very popular subject in the United States, but it has a unique history in the state of Missouri, where a 19th-century viticultural innovation spearheaded by Missouri scientists saved the global wine industry through grafting native American grapevine rootstock to the European grapevines to circumvent an insect blight attacking the original vine roots. Dr. Allison Miller's current research on grafting and rootstock species was shared with three artists, who were then commissioned to explore this relationship between humans and grapevines. Dornith Doherty created photographs of the insect at the center of the epidemic (Grape phylloxera) and two short films exploring native grape phylogeny and rootstock imaging. Artist collaborators Lorraine Walsh and Lei Han focused their work on machine learning, data visualization, and climate change through the creation of digital images, drawings, and three short films, as well as a large sculpture of a stylized wine trellis highlighting the grape berry species and the grape rootstock species and the act of grafting.

Botanical Resonance: Plants and Sounds in the Garden (2022-2023) embraced how important plants are in the human soundscape in both natural landscapes and cultural expressions, and how these species are endangered globally due to overharvesting and climate change. Pfeifer explored how the plants of the Americas, Asia, Africa, and Madagascar were the target of colonial exploitation and harvesting, and used to create some of the most familiar sounds in music today; this includes stringed and woodwind instruments, as well as reeds used for flutes in Indigenous music traditions on these continents. Three artists were commissioned to make unique installations using and representing sound. German artist Annika Kappner created two auditory guided soundwalks (via QR codes) to provide a meditative exploration of plants and sounds in the Garden outside the Museum. Brooke Goldstein designed an immersive quilted room visualizing the ways plant families communicate with one another, in which half the gallery illustrated a manicured yard of grass that had just been cut as the grass was screaming (we usually experience this as the smell of cut grass) and the other half of the gallery featured a forest's underground root system network. Kevin Harris composed and built an electronically-synthesized immersive rain forest symphony as an offering to the botanical world that nourishes us every day. Many musical instruments were included in the exhibition, with a section on the Garden's Madagascar team who collected traditional plant-based Malagasy instruments to be presented in the exhibition, some of which were made with currently endangered plants by elder members of the communities. These unique handmade instruments were then added to the Garden's Biocultural Collection as important ethnobotanical material culture.

Ecological and papermaking artist Megan Singleton investigated the connections between the pioneering work of Barbara McClintock (Nobel prize winner for maize cytogenetics) and the colorful diversity of Hopi maize varieties (Turquoise and Purple) through photographs, sculpture, and gene data visualization. This work was all made using corn grown on the grounds of the Missouri Botanical Garden, the fibers of which were turned into corn paper, dyed several colors, molded into corn cobs, and installed to represent the genetic markers of the C1 gene responsible for the colors of maize kernels.

Gallery view of visitors enjoying the student community art focused on corn featured in *Kernels of Culture*. (Virginia Harold)



Most recently, *Kernels of Culture: Maize Around The World* (2024-2025) explored the complex botanical and cultural history of this globally important grass species. The exhibition centered on the narrative of the ancient Indigenous farmers in south central Mexico who domesticated the kernels of teosinte—the acknowledged wild grass ancestor to maize—to the contemporary Black and Indigenous farmers who grow historic corn varieties for their own communities today—including keeping and rematriating seeds to perpetuate the genetic diversity of maize. Student community artists interpreted their favorite ways to enjoy corn through 211 artworks from schoolchildren around the region, and two artists were commissioned to create interdisciplinary series focusing on the impact of maize on human and scientific culture. Multidisciplinary Venezuelan artist Waleska Font created the painting and poetry series *The Sacred Crop* exploring the spiritual significance of corn in pre-Columbian Latin America, identifying deities from Indigenous cultures who were key to the origin story of humans and maize. Ecological and papermaking artist Megan Singleton investigated the connections between the pioneering work of Barbara McClintock (Nobel prize winner for maize cytogenetics) and the colorful diversity of Hopi maize varieties (Turquoise and Purple) through photographs, sculpture, and gene data visualization. This work was all made using corn grown on the grounds of the Missouri Botanical Garden, the fibers of which were turned into corn paper, dyed several colors, molded into corn cobs, and installed to represent the genetic markers of the C1 gene responsible for the colors of maize kernels.

Curating exhibitions that lean into the intersecting connections between botany, history, and art expand the possibilities for interest, appeal, and interpretation for the public. For those audiences who may be intimidated by purely one type of disciplinary approach—art or science—these types of presentations open portals to consider information in a broader way and remove some of the barriers to understanding. Anecdotal feedback through conversations with the public, scientists, and educators highlighted the positive engagement and awe they felt learning more about these significant plants and our need as a society to protect and preserve them.

These interdisciplinary presentations illustrate that humans are inseparable from the natural materials they grow, use, eat, and drink. Detailed observations and research about the different plants used to make cultural objects, interrogating which humans make them, and which humans use them, provide meaningful opportunities to represent many human experiences and the integral part plants play in their landscapes. Representing how humans have used and exploited plant resources to innovate and create, unveils the relationships between humans and the natural world, and the impacts we live with today.

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A historic marovany, a box zither from Madagascar, is an integral part of the Malagasy musical tradition and exhibited in Botanical Resonance exhibition. Made from a species native to Madagascar, *Zanthoxylum tsihanimposa*, this species is threatened by habitat destruction, which is caused by fires, logging, wood harvesting and converting land for agricultural use, 2022. (Virginia Harold)



RESOURCES

American Society of Botanical Artists (ASBA) Interested in exploring your artistic side? Many botanic gardens offer certificate programs in botanical art, some of which are available online as well. The American Society of Botanical Artists (ASBA) provides a list of programs (https://www.asba-art.org/content.aspx?page_id=22&club_id=92618&module_id=522480).

Individual artists offer online courses, like Dianne Sutherland through her website Botanical Art Online (<https://www.botanicalart-online.com/>)

The Botanical Art Worldwide exhibition Would you like to see more inspiring botanical art? The Botanical Art Worldwide exhibition (<https://www.botanicalart-worldwide.info/>) has just taken place on May 18, 2025 -celebrated as the Day of Botanical Art. You can explore artwork from around the globe by clicking on participating countries, and check if there's an exhibition happening near you.

Botanical Art and Artists Visit <https://www.botanicalartandartists.com/> to stay up to date on news about botanical artists, education, exhibitions and more.

Expanding environmental awareness through the arts: Crafting with the environment - Fredriksen and Growth 2022 (<https://link.springer.com/book/10.1007/978-981-19-4855-8>).

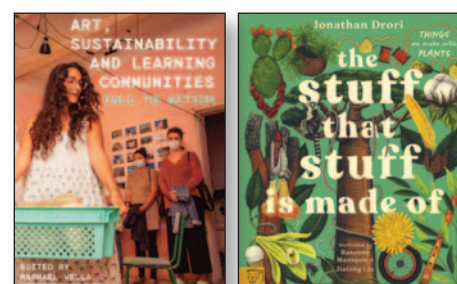
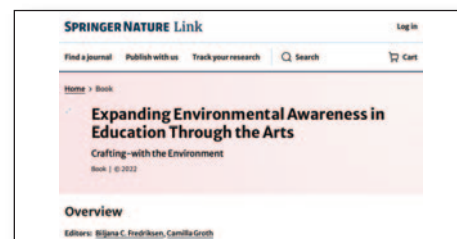
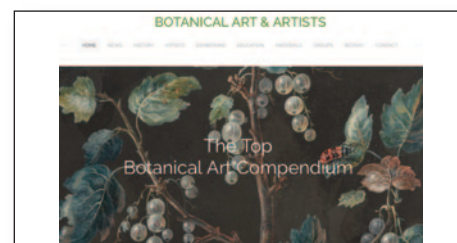
This is an interesting book for everyone who wants to know more about how to use art to increase environmental awareness. Some chapters are very practical and show examples of crafting with the environment, other are more theoretical and discuss the human-material relationship and how to implement these in education.

Art, sustainability and learning communities. Call to action - Vella & Pavlou 2024 (<https://www.amazon.com/Art-Sustainability-Learning-Communities-International/dp/178938897X>)

This book shows how art education can support active citizenship by looking into an artistic way of communication of ecological obligations and social issues. The book consists of three parts; part 1 is about the existing literature and how the disciplines interrelate, part 2 contains examples of learning communities and part 3 consists of different case studies and models of action of the work field.

The Stuff that Stuff is Made Of by John Drori (2025)

Discover the things we make with plants with best-selling author and science communicator Jonathan Drori, who reveals how botanical and human stories, historical and bang-up-to-date, are entwined in this one-of-a-kind family book. Profusely illustrated and gloriously international and multicultural, and with a constant theme of celebrating biodiversity *The Stuff that Stuff is Made Of* will be published by Magic Cat Publishing and distributed worldwide in English (with a special US edition) in September 2025, and in multiple language editions soon afterwards. Drori's previous books, *Around the World in 80 Trees* and *Around the World in 80 Plants* are bestsellers in many countries.





**BOTANIC
GARDENS**
CONSERVATION
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ROOTS

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CONTRIBUTE TO THE NEXT ISSUE OF ROOTS

The next issue of Roots is dedicated to the highlights and outcomes of the International Congress on Education in Botanic Gardens (ICEBG). Whether you attended or couldn't make it this year, this special edition will bring the Congress to you. Discover in-depth coverage of the most impactful presentations, insightful workshops, and innovative educational initiatives shared by experts from around the globe.

Did you give a workshop or presentation at the Congress and would you like to write an article? Please send a 100-word abstract to annelies.andringa-davis@bgci.org by August 15.



GLOBE

Are you working in the education or engagement team of a botanic garden? Join our Global Learning and Outreach Network for Botanic Educators (GLOBE) <https://www.linkedin.com/groups/14490570/> on LinkedIn which will be officially launched at the ICEBG Congress in June.

We created this network to encourage collaboration, exchange best practice, and inspire innovation in botanic garden education and public engagement. If you have a resource you'd like to share—such as a newly developed toolkit, an insightful article, an upcoming webinar, or a successful educational initiative from your garden, please feel free to post it here. Alternatively, you are welcome to join as a member to access a growing collection of contributions from others in the community. Please invite your network as well.



GLOBE