

Wilderness Journal

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Rarely are you able to engage with an artist's work on quite the same level that you can with Caroline Rothwell's latest, her Infinite Herbarium. With it you can open a [webapp](#) and take two pictures of plants with your phone to create a flowing botanical form, a unique 'morph'. The Sydney-based artist partnered with Google Creative Lab to deliver a fascinating exploration of nature and data. It's a confluence of the tech giant's deep-learning technology and the artist's obsession with botanical archives, on display at The Royal Botanic Garden Sydney, the Museum of Contemporary Art Australia, and the Hazelhurst Regional Gallery and Arts Centre.



Herbarium Morph, courtesy Caroline Rothwell's Infinite Herbarium created in collaboration with Google Creative Lab, ©the artist.



Artist Caroline Rothwell photographed for Wilderness Journal by Andrew Cowen. @cowenandrew

While natural forms are a recurring theme in your work, it appears to have taken on a purely botanical theme of late with the Infinite Herbarium and the Horizon body of work on display at the Hazelhurst Regional Gallery and Arts Centre. Is there a reason you have been zeroing in on plant forms?

My latest two bodies of work, Infinite Herbarium and Horizon, have both grown from looking at archives and datasets. I often deep dive into museum collections or datasets to feed the work. I'm interested in an art-science dialogue and thinking about how historical manoeuvres inform our present, so the work is about us as much as plants. A lot of my family have scientific backgrounds so it's natural for me to communicate my ideas, my interest in science, through a visual medium.



Caroline Rothwell, Infinite Herbarium (still), 2021, installation view, The National 2021: New Australian Art, Museum of Contemporary Art Australia, Sydney, single-channel digital video made in collaboration with Google Creative Lab, high definition, colour, sound. Image courtesy Museum of Contemporary Art Australia ©the artist, photograph: Jacquie Manning

With Infinite Herbarium, I've been looking at botanical archive material that is now digitised. I used to go into museum collections, hunt through drawers and open cupboards, look at herbarium sheets, but now so much of it is online that I find myself in this rabbit hole of digitised archive. I find it endlessly fascinating and I was asking myself, how can I draw that out? How can I bring this archive to the fore for others to rummage through.

Our understanding of plant life, particularly of how fundamental it is for our existence, is vital with the environmental catastrophe we find ourselves in. We take our 'ecosystem services' for granted. We can't exist without plants. So I'm interested in plants existentially as well as in their formal and mathematical shape. I seem to be interested in them in relation to everything we do at present!

The digitised archive is visual, non tactile and becomes structural. What has been archived gets repeated, and what's left out, potentially forgotten. I'm interested in areas that haven't had our attention. We're not necessarily emotionally engaged with a lot of the foundational elements of the natural world—whether insects or fungi, tiny interconnected stories—because they're not big, blistering blooms or fluffy mammals. So I'm also interested in the archive in terms of what's left out and what's to come, as much as what's in it.



The work *Plant Library* reveals the early stages of what would become *Infinite Herbarium*.
Caroline Rothwell, *Plant Library* (still), 2021, installation view, Horizon, Hazelhurst Regional Art Gallery, single-channel digital video made in collaboration with Google Creative Lab. Image courtesy Hazelhurst Regional Gallery ©the artist, photograph: Silversalt Photography

You seem connected with the natural world, you're so fascinated by it. Is there anything in your experience that made you so curious about nature and plants?

I was probably a bit of a loner growing up and my way of exploring the world was to go out in nature and be in it. I stop, feel and sniff things! People who walk with me go mad because I'm always stalling. But it's always been my way of trying to understand the world around me.

It's the same when I move countries, like when I lived in New Zealand—my way of trying to learn about place is to walk through it. Culturally you're often at a loss but in terms of the natural environment, I could join others, buy a book and learn a lot about the ecosystems that I was walking through.

Although in Australia it's different, it seems every few kilometres there is a unique extraordinary ecosystem and it's not possible to learn in the same way. You can't just 'learn' about eucalypts, say, because there are around 900 of them, often with a unique biodiversity story. I've resolved to be in a state of constant learning.



Herbarium Morph, courtesy Caroline Rothwell's Infinite Herbarium created in collaboration with Google Creative Lab, ©the artist.

For Infinite Herbarium you collaborated with Google. What was it like working with the tech giant and how did it help you bring your work to life?

Working with Google Creative Lab has been an extraordinary experience. There are three Google Creative Labs: in London, New York and Sydney. I think that's right; I should Google that! Initially, I was thinking about this data that I was deep diving into. I'd been doing some research with Kew Gardens and again, it was this question of how I can bring this data to life? I'm used to working with it sculpturally, but I also wanted to bring it to life in the digital realm, because that's the realm it exists in.

I was also thinking about generation, regeneration and trying to build connection. And so I wanted to make something that would give the participant information, a way to connect with the botany around you, but then also to create an artwork in response. So, I took the idea to the team leader at Google Creative Lab. They're this interesting cohort looking at tech in relation to art, theatre and the creative world. They got it really quickly and were open to me being dogged about how it evolved and never tried to push me in any direction.

They were generous and provided me with a lot of expertise. I'm obviously not a machine-learning expert; I'm not an AI expert. We had a week of ideation during a 2020 lockdown, where I was on a Google Meet with at least 10 people across the planet, just talking through ideas. It's usually just me in my big leaky studio ideating on my own, whatever ideating is. I live in a very analogue world in my studio, where I'm fabricating things by hand. While I do use the digital world to sketch and to think, it's generally not a collaborative space.

Infinite Herbarium allows people to produce unique 'morphs' that take the form of animated gifs, by taking an image of two plants through a webapp. How much control did you have over the final look and feel for what Infinite Herbarium became?

One of the biggest decisions was which dataset to train the machine on. I was looking at vast collections, such as the Atlas of Living Australia, but we ended up using datasets from the open-source Biodiversity Heritage Library, as it has large collections of consistent and open access images. We chose botanical watercolour paintings from the late 1800s which were scientific but also had a hand-painted sensibility.

I was playing with the video piece right up until two or three weeks before installation. At one point I had the idea to have it almost like a forest scene filled with these mutating plants. But in the end it just felt right to actually present the 'morphs' as individual specimens; it felt more related to the herbarium specimens and in the

large scale projection (they're floor-to-ceiling), larger than human. I want them to feel like they're bigger than us, evolving, changing, fleshy.

I do use plants a lot, but the plants are really a way of me thinking about our relationship with the world. I've actually started creating works in response to my Infinite Herbarium archive of morphs and I'm now making three-dimensional forms of those. It's been an interesting journey and it really does feel like a meta art / science space.



Herbarium Morph, courtesy Caroline Rothwell's Infinite Herbarium created in collaboration with 7Google Creative Lab, ©the artist.

You often display in public spaces with sculpture—with Infinite Herbarium you take that a step further and work directly with the public to produce the morphs. Why was it important to engage people in this way?

The more we know about the natural world around us, the more connected we are, the more we understand how fundamental it is to us. So I've found that kids really enjoy this webapp. When you feed into it you have to have a plant in front of you, so

you actually have to go and look at something. The app classifies plants and gives you some information. You have to find two plants and take a photo of each to create the morph. One might be a Monstera and you learn it's from South America. And maybe there's a Kentia palm that you just assumed is from South America, but is actually endemic to Lord Howe Island. Perhaps just those little bits of information can take people on a journey.

Anything that can hook somebody into thinking about the natural world around them, thinking about archive, thinking about art—that is what I hope that people get out of it: connection and understanding. I think that's why The Royal Botanical Garden Sydney were so interested in exhibiting Infinite Herbarium. They're really at the pointy end of seeing what's happening in our natural world and so see anything that can create a connection with their audience as important. They've got this extraordinary slogan, 'No Plants No Future', which is bang on.



Caroline Rothwell, *Infinite Herbarium* (still), 2021, installation view, *The National 2021: New Australian Art*, Museum of Contemporary Art Australia, single-channel digital video made in collaboration with Google Creative Lab, high definition, colour, sound. Image courtesy MCA Australia ©the artist, photograph: Jacquie Manning

The plant morphs that participants create seem like they could exist, like they are entirely natural. And yet they are artificial. What do these forms tell us about plant life and nature?

With Infinite Herbarium one of the interesting things for me was that the ‘morphs’ feel like they could exist. I’m trying to point out the infinite possibilities of what could else be in the archive. We just need to keep a sense of curiosity, a sense of openness and learning.

I think it goes to that sense that nothing in the natural world should be surprising because it's all so extraordinary. Two hundred years ago, the European colonising force believed that the platypus was made up, they just couldn't believe that these extraordinary creatures could exist. I'm endlessly interested in that idea of a lack of understanding and what the ripple effects of that disconnect are.

These enormous specimens, as I present them in Infinite Herbarium, do look familiar, but they're not from our hand; they evolved from botanical paintings that are then synthesised by a machine. So the whole way through they're just a projection of us. And I'm always interested in thinking about what our projections on the natural world end up meaning for it, because it appears to be just so random whether we decide to protect an area or bulldoze it.

The morphs have a fluid-like motion as the hybrid digital creations flow from one form to another—is that how you see evolution—as something constantly changing?

I really wanted there to be a parallel between the work and thinking about the flux and unpredictability of living systems. On a more pragmatic level, I did actually want people to have a little gift, not just a gif, but a gift from this experience.

I'm interested in systems and this is what the machine does to generate the morphs; it creates a system. This world we live in is a fully operating system, and as we are discovering, we can't mess with that system too much. In the end, all I really want is for us to create a connection with nature and protect and actually care for what is already there, not necessarily what's to come. Evolution is extraordinary at adaptation, but there's no way that anything can adapt and evolve at the speed that we're changing the planet.

[Wilderness Journal](#), Issue #011

Catch Infinite Herbarium at the [Museum of Contemporary Art Australia](#) until 31 August, running concurrently at [The Royal Botanic Garden Sydney](#) (lockdown restrictions permitting). It is also showing as part of Rothwell's Horizon show at the [Hazelhurst Regional Gallery and Arts Centre](#) and in Melbourne at Tolarno Galleries as part of Rothwell's exhibition, Bloom Lab.

And you can also create your own morphs using the [Infinite Herbarium webapp](#).