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BACKYARD BIODIVERSITY | MANAAKITANGA TE TAIAO

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Meg Brasell-Jones

This article has been written with contributions from Catriona MacLeod and Jenny Rock.

Design can and must be a way in which young people can participate in changing society.

Victor Papanek¹

It was as an undergraduate that I encountered the writings of designer and educator Victor Papanek. His persuasive philosophy encouraged me to use design, not to peddle “tawdry idiocies”,² but to create meaningful solutions for social and environmental good. And, although I am no longer young, this thinking continues to be the impetus behind my creative practice today.

Papanek (1995) identifies two fundamental changes in modern civilisation: humans have relocated indoors, and they now have the ability to catastrophically throw the natural world off balance. This designer's page presents visual communication design for an interdisciplinary project that responds to the challenge of encouraging people outside, to regenerate their immediate environments.

The mahi for this project aimed to generate a shared and enriched understanding of local (and national) 'backyard biodiversity'. At its core, the Backyard biodiversity | Manaakitanga te taiao project was collaborative and set out to foster connections, develop awareness and inspire positive action. My contribution was just one part of this joint effort that included scientists, artists, communities, individuals and their ecosystems. Commencing in 2022, the project continued into 2023 as a nine-day public exhibit for the New Zealand (International) Science Festival (NZISF). This interactive exhibit was designed around the theme of 'making backyards happy spaces for us and nature' and was hosted by the Golden Centre Mall in the centre of Ōtepoti Dunedin. As well as infographics and photography, there was an evolving programme of activities, which aimed to nurture participants' skills and agency, to engage with backyard biodiversity and its care.

The exhibition resources and activities were designed by our project team working in partnership with organisations and individuals with diverse expertise: New Zealand International Science Festival (science communication), Our Food Network (creating food-engaged communities), local gardeners (sharing their stories), Runaway Play (online games inspired by nature), WI-links (science communication), NZ Garden Bird Survey (citizen science), Luke Easterbrook-Clarke (interactive art installations), Ecosystems Photography (images and conversations to sustain Aotearoa), the Golden Centre Mall (community engagement) and the Photo Gallery (printing specialists). Exhibit set-up

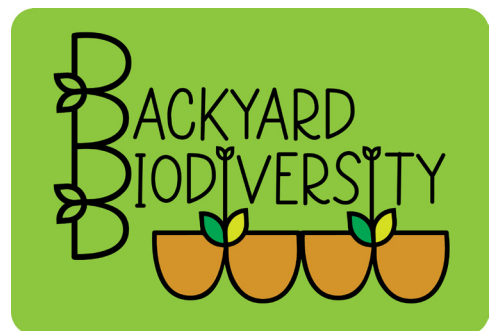


Figure 1. Meg Brasell-Jones, *Backyard Biodiversity* logo, 2023.



Figure 2. Collaborative ideation and design development space on Canva, 2023. Screenshot by Meg Brasell-Jones.



Figure 3. Meg Brasell-Jones, Icons for project values, 2022.

and implementation was also supported by a large team of volunteers mainly from these organisations but also young staff from Manaaki Whenua (Bobbie Rushton and Becky Parmenter) and high school student (Izzy Fyfe) who were inspired by the project concept.

My role in this collaborative project, as visual communication designer, was to develop a series of supportive graphics. The first stage of the design process was to share knowledge and ideas with fellow collaborators; Jenny Rock, social artist and educator, and Catriona MacLeod, researcher at Landcare Research. As well as face-to-face and online meetings, the group shared ideas, images and research on digital platforms, Trello and Canva (see Figure 2). A logo for the project was developed as an identifier for future steps, applications, and collateral related to the project (see Figure 1). A set of six values was agreed upon and an icons designed for each, to draw attention to the qualities that could be enhanced with backyard biodiversity (see Figure 3).

The second stage of the design process was to develop visuals of fauna and flora to represent native and common species of Aotearoa New Zealand. The brief for these images was to capture the unique characteristics of our natural environment, in a simple and vibrant manner. The first creature to emerge was the *pepe para riki*, a small endemic butterfly commonly found in coastal habitats. The backyard biodiversity family then grew to include a range of insects, birds, skinks, frogs, fungi, garden features and plants (see Figure 4). As the image catalogue of species grew, so did assets — to compliment scenes of thriving backyards. This included elements such as ponds, compost heaps, pest control devices and gardening equipment. The idea was to make a connection between the regeneration of available green spaces and the benefits to people and planet. Importantly, the design assets for this project, initially created to visually populate a flourishing backyard, became part of a library of images to apply across print and digital media. As a shared resource, these will be available to enhance further science communication and elicit engagement into the future.



Figure 4. Meg Brasell-Jones, A few of the digital illustrations for backyard fauna, 2022.

To articulate concepts of biodiversity beyond individual species, a series of six infographics were created; each focusing on a particular element of backyard biodiversity; *Ground Cover*, *Trees and Shrubs*, *Vegetables*, *Flowers*, *Envirotools* and *Herbs*. Each graphic was designed to highlight ways to enhance backyards and explain why, for example, growing vegetables can help us be more self-sufficient and reduce food miles or express our identity through those plants' geographic and cultural history (see Figures 6 and 7). Other supportive material included a series of 34 small information cards. Each 'seed idea' focussed on a specific action or plant to grow within a given garden layer, and the multidimensional benefits those could deliver. These were used as prompts in workshops run by Jenny Rock, with students from Carisbrook Intermediate School (see Figure 5). Finally, exhibition graphics were developed to engage visitors during the NZSIF. These large-format visuals were used to draw people in, but also served as an interactive

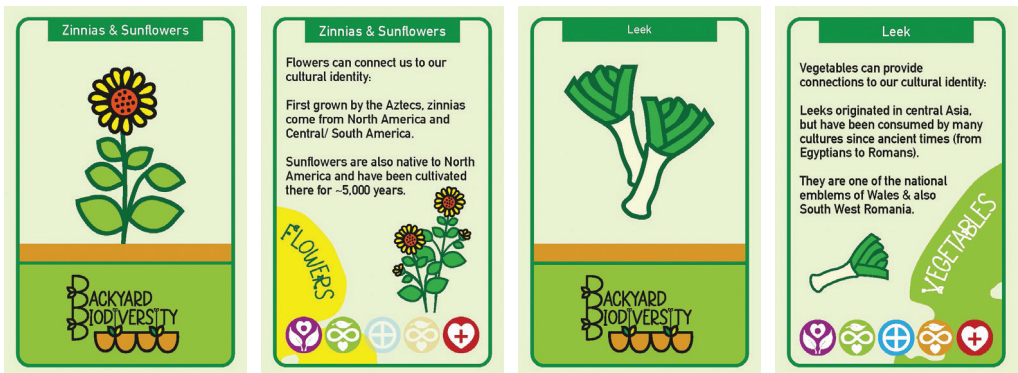


Figure 5. Meg Brasell-Jones, Information cards, 2022.

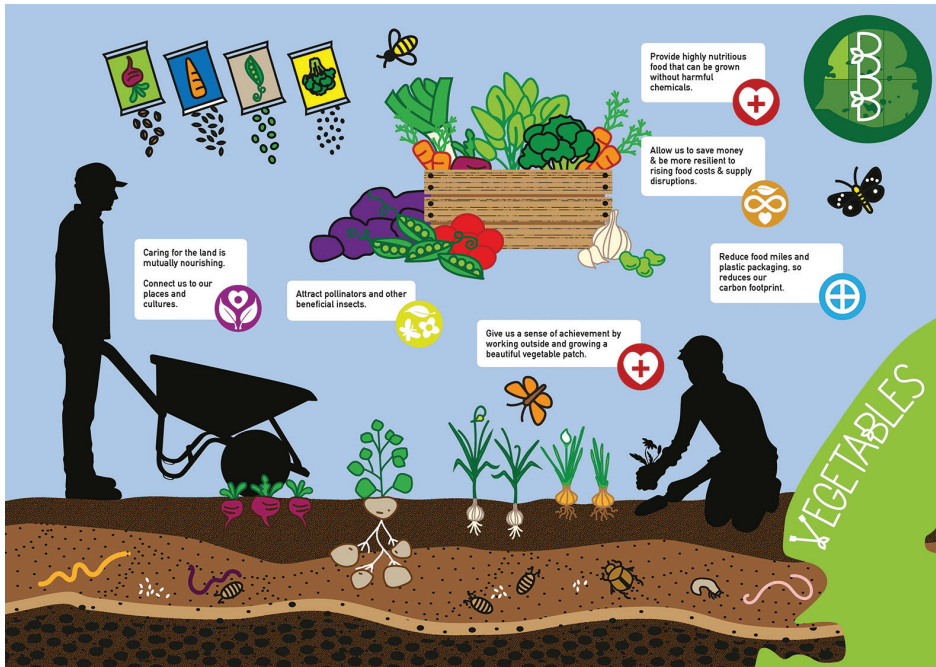


Figure 6. Meg Brasell-Jones, *Vegetables*, 2023. A0 infographic.

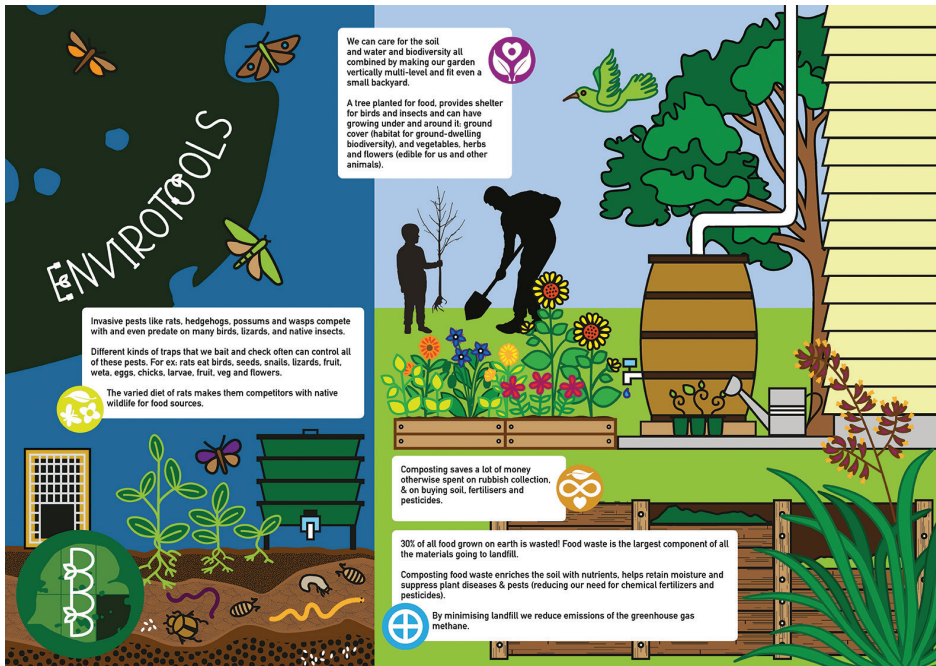


Figure 7. Meg Brasell-Jones, *Envirotools*, 2023. A0 infographic.

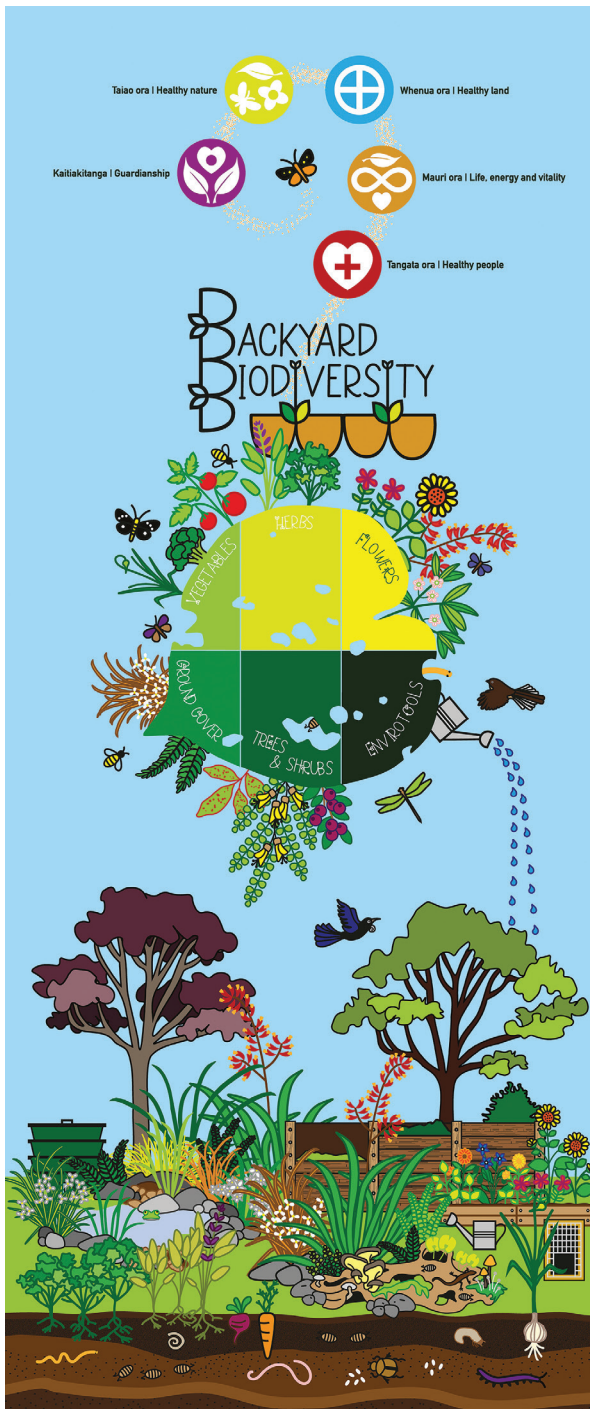


Figure 8. Meg Brasell-Jones, Exhibition banner, 2023.

opportunity. A vertical pull-up banner communicated the project's values, as well as its themes, via a *kawakawa* leaf. Known for its medicinal and nutritional properties, this endemic plant species became a symbol of beneficial backyard engagement and was used to showcase the six areas of engagement (see Figure 8). This graphic device was also used on social media, and the project's accompanying website. A large-scale horizontal graphic was used to wrap around the exhibition kiosk in the *Golden Centre Mall*. This also helped draw attention to the exhibition, while simultaneously acting as a suggested outdoor scene, for participants to add stickers to, from the catalogue of illustrated flora and fauna. Over the course of the exhibition, a thriving backyard evolved. Four large, A0 posters (see Figures 9-11) were also collated and displayed, to inspire action and to celebrate the input from others in the community; *Inspiring Art* (from printmaking workshop participants), *Inspiring Gardeners*, (stories of people already making a difference in Ōtepoti Dunedin), *Inspiring Images* (selected from *Ecosystems Photography*) and *Creating Food-Engaged Communities* (with tips for success).

For me, Backyard biodiversity | Manaakitanga te taiao yielded several useful benefits. First, collaboration and sharing were key to the success and reach of this multi-disciplinary project. Early on, it became clear that Catriona, Jenny and I, all possess a strong interest in ecology and creativity. This dual focus fuelled a vigorous cross-fertilisation of ideas and collective output. Online platforms enabled us to share knowledge, brainstorm, ideate and develop ideas. This ensured a connected approach, despite each of us being simultaneously engaged in various other projects, and at times, in different places around Aotearoa New Zealand and abroad. In this way, we were able to capitalise on each other's resources, relationships, expertise and energy.

INSPIRING GARDENERS

Ōtepoti Dunedin



Karen made raised beds all over her South Dunedin lawn when she moved in just six years ago. She grows fruit trees and vegetables and flowers and herbs all together wherever she can cram them in – even strawberries out of an old gutter! She collects rainwater for the garden, and has a worm farm to turn compost into her fertilizer.

South Dunedin



Trevor and Jenny's Portobello home is on poor clay soil but they grow vegetables in raised beds and pots. And just their tiny patch of greens alone saves them \$10-15 a week! Where they don't have vegetables or fruit bushes, they have native trees that shelter and feed the birds, two pairs of tui nested in their garden this year!

Portobello



Four student flats lock onto a shared garden created by the University of Otago. This "sustainability neighbourhood" has a compost bin, three worm farms, a greenhouse, and lots of lady taster bees. Students say, "Once you know what you're doing, it's kind of easy."

"A lot of the stuff we grow here, you have to buy in plastic in the store, and it has food miles on it. Growing it yourself, it removes ecologically unfriendly elements."

Students Flats

Dunedin City



Rory Harding & his family's backyard garden on George Street is a 200 m² urban section turned into a bountiful orchard. It is inspirational! He even offers tours & workshops. George Street Orchard.

St Kilda

Emma-Kate Lamb & her family not only garden in St Kilda but also share seeds & seedlings from it! For 5 years they have been sharing vegetable & flower seeds as well as seedlings from their front gate at the St Kilda Seed and Seedling Stall. <https://www.facebook.com/sk.kidalandphoto>

MacAndrew Bay

For \$20 or less on some seeds & seed potatoes you could save more than \$100 on groceries.

In Oct a Dunedin supermarket was charging \$8.88 for cabbages, \$3.80 for a head of broccoli & kale for \$10.11. Lettuces were \$4.25 - \$4.99 each, cauliflower \$4.99 & silverbeet \$10/kg. Spinach was



Manaaki Whenua
Landcare Research



INSPIRING IMAGES

Ecosystems Photography

Images • conversation to sustain Aotearoa



To the Spotlight

The common blue butterfly is one of 66 species of butterflies that breed in Aotearoa New Zealand. It may have been blown here, or it accidentally hitched a ride in turf imported from Australia. A few high-performing newcomers often displace native species - a terrifying global game of ecological space invaders.

- 🔍 A pair of common blue butterflies (*Glaucopsyche lyceoides*) mating.
- 📷 Noelle Bennett
- 📍 Kaitiaki Bay, Pelorus Sound, Marlborough



Woolly Birds Nest Fungus

Bird's nest fungi are "decomposers" - the great recyclers that keep the world going. Without them dead plants would heap up everywhere, and their nutrients would not be broken down to feed plants and animals coming after them. Raindrops hitting the saucer-like bucket (the bird's nest) propel the spore packet (egg) up to 3 m from the nest.

- 🔍 Woolly bird's nest fungus (*Gyromitra innoxiosa*).
- 📷 Noelle Bennett
- 📍 Pelorus Bridge, Marlborough



Eye of the Hunter

Tomtits escape predation by rats and stoats when fenced reserves like Orokoua Ecocentre near Dunedin. Reserves counter the problem of "tinking baselines" where we begin to accept the depleted ecosystems as "normal" rather than damaged. "Spill-over" from the reserves will one day return birds like tomtits to our backyards.

- 🔍 Ngnungitu (South Island tomtit) (*Peipoua macrocephala*) hunting.
- 📷 Paul Sorrell
- 📍 Orokoua Ecocentre, Otago



'Allium Siculum'

Increasingly we use plants other than just vegetables. Like this the "Sicilian honey garlic plant" (in cooking or for medicine). Nurturing edible plants on towers is a useful way of reconnecting people with nature - a small and healthy step back from being solely a hunder-gatherer in supermarket Ki ora te whenua, ki ora te tangata.

- 🔍 Allium siculum, an ornamental and culinary plant.
- 📷 Nicola Pye
- 📍 Maple Glen Gardens, Wymouth



Family Dynamics

Without fungi, there would be no soil to grow food. Most networks of mycelia, the thread-like structures of underground fungi, pass nutrients and water to plants, in return for receiving sugars. This enables trees to exchange "messages" and nutrients between each other, so a forest functions as a gigantic "super-organism".

- 🔍 Hare's foot inkcap (*Coprinopsis lagopus*).
- 📷 Noelle Bennett
- 📍 Waikare, Marlborough



'Pihukawa Perfection'

Pihukawa, the "New Zealand Christmas Tree", is endemic to Aotearoa - it occurs nowhere else and is part of us all as Kiwis. This beloved Pihukawa Te Waha o Rerekohu, is 600 years old and 20m tall. The tree is Tapu (sacred). Many trees in forests are protected because they are part of our sense of home and connection with nature.

- 🔍 Pihukawa (*Metrosideros excelsa*) sometimes known as the "New Zealand Christmas Tree".
- 📷 Noelle Bennett
- 📍 Waikare, Marlborough



INSPIRING ART

Carisbrook School, South Dunedin



This is a workshop about what good choices we can make to grow biodiversity. Participants move between different visual 'inspiration stations' that introduce ideas of what might be possible to grow or establish (e.g. composting, predator trapping, raised beds, etc.) and why (e.g. growing flowering plants like hebe, feta and salsola helps feed native birds). Multidimensional ideas are also introduced like how growing certain vegetables or herbs is not only healthy, economical, reduces food miles, carbon emissions and increases local resilience, but also is an expression of our identity - when we know the geographic and cultural history of those plants.



We help students make their own decisions about what they would most want to do to grow biodiversity. We help them express their choices visually using art. Priming is an interesting and non-confrontational way for those less artistically inclined for participants to explore visual symbols of choices they can make. Each student is given a window frame to fill with their choices from images representing what might be grown in their backyard to nature biodiversity. Using priming they construct an image of "what I would like to see out my back window" ... helping them, and their whānau, visualise what might be possible.





Figure 12. Meg Brasell-Jones, Kiosk wrap.

A further reciprocal benefit was gained from, not only working with and learning from others in this knowledgeable team but also from the public, who interacted with the various forms of visual communication design. The busy location of the mall was crucial for visibility and the installation attracted a broad cross-section of people that might not otherwise attend a specific event. Temporarily distracted from their shopping, people asked questions, wrote down their thoughts on leaves to hang on our tree, created artwork, shared gardening stories and pondered sublime photographs of our unique flora and fauna. They contributed to a digital book, a survey, a print-making workshop, made their own bird masks and many other activities. Present at workshops and the mall installation, Catriona, Jenny and I were not just researcher-creatives, we were also directly participating in science communication with the public, of all ages and backgrounds. This reaching out to others in the community, helped us to reinforce and instigate connections with people with both similar, and alternative ideas. A link to the annual NZISF gave the exhibition financial support and an established platform from which to engage with everyday people. This festival continues to be a valid way to connect humans and planet, in ways that benefit both. It also acts a vehicle to enable new relationships, which have the potential to benefit future collaborations.

Most importantly, the overall experience of the Backyard biodiversity | Manaakitanga te taiao project helped reconfirm for me that design sits in a complimentary space between science and art. And, that design acts as an important catalyst for creatively sharing knowledge and bringing about positive change in our society and natural environment. In a world exponentially impacted by modern civilisation, the sharing of knowledge and resources is crucial to restoring an equilibrium between planet and people. In fact, we critically require not only balance, but urgent restorative action to repair and replenish life of all kinds. With the aid of considered design, this can begin with a conversation and a seed in our own backyards.

Figures 9, 10 and 11. Meg Brasell-Jones, *Inspiring Gardeners*, 2023. A0 posters.

Meg Brasell-Jones (ORCID ID: <https://orcid.org/0000-0001-8065-3527>) is a principal lecturer in visual communication design at Te Maru Pūmanwa | College of Practice and Enterprise. Her research interest is in design, social responsibility and sustainable practice. She holds a Masters of Consumer and Applied Science (in Design Studies), a Bachelor of Arts (Art History and Theory), Postgraduate Diploma and Diploma for Graduates in Design Studies from the University of Otago, Diploma of Teaching from the Dunedin College of Education, Certificate in Adult Teaching from CPIT (Ara), a Graduate Diploma in Sustainable Practice, and a Certificate in Te Mata a Ao Māori from Otago Polytechnic. Meg is particularly interested in creating, and facilitating the making of, meaningful design for a more positive, regenerative future.

Catriona MacLeod is a Senior Researcher at Manaaki Whenua – Landcare Research. Her research focuses on conservation ecology, drawing on functional ecology to deliver strong fundamental advances as well as applied solutions to better inform environmental policy and management decisions. Catriona proactively seeks a collective action approach, incorporating te ao Māori, to resolve complex socio-environmental challenges for the benefit of all New Zealanders and Aotearoa's environment. This often requires working at the interface of multiple disciplines, but also draws on her strong quantitative skills and expertise in environmental monitoring and reporting, which she has developed working across a range of biomes.

Dr Jenny Rock is a researcher/practitioner/teacher in the transdisciplinary space between science and the arts and humanities. She holds a BA in Human Ecology, PhD in the Biological Sciences and has completed postgraduate work in the Visual Arts. As a biologist she has researched widely on the effects of environmental change, often on temperature adaptation. As an ecologically-focused printmaker her work has appeared in international exhibitions, as well as within/on covers of science, art and humanities journals and texts. She lectures in diverse aspects of science communication, as well as community-based conservation management, and ArtScience - specifically a course 'Seeing Ecology through Arts Practice'. Much of her transdisciplinary work focuses on place-based research in community social arts practice for socio-environmental decision making. Although based mostly on the Otago Peninsula, she currently holds research fellow or adjunct faculty positions with the University of Otago, the University Centre of the Westfjords (Ísafjörður, Iceland); and College of the Atlantic (Maine, USA).

1 Victor Papanek, *Design for the Real World: Human Ecology and Social Change* (New York: Van Nostrand, 1972), 13.

2 Victor Papanek, *The Green Imperative: Ecology and Ethics in Design and Architecture* (New York: Thames and Hudson, 1995), 9.