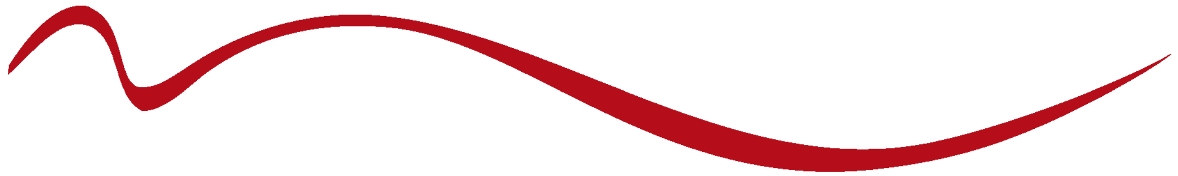
LANDSCAPE REVIEW



VOLUME 21(1)

AN OCEANIA JOURNAL OF LANDSCAPE ARCHITECTURE

LANDSCAPE REVIEW
An Oceania Journal of Landscape Architecture

CHIEF EDITOR
Associate Professor Gill Lawson
School of Landscape Architecture,
Faculty of Environment, Society and Design,
PO Box 85084, Lincoln University, Christchurch 7647,
Canterbury, Aotearoa New Zealand
Telephone: +64–3–423–0466
Email: Gillian.Lawson@lincoln.ac.nz

ASSISTANT EDITORS
Ms Wendy Davies (Lat Studios)
Dr Hannah Hopewell (Cornell University)

BOARD
Associate Professor Matthew Bradbury (Unitec Institute of Technology)
Ms Meg Back (WSP)
Mr Brad Coombs (Isthmus)
Dr Sara Padgett Kjaersgaard (University of NSW)
Ms Rachel de Lambert (Boffa Miskell)
Emeritus Professor Simon Swaffield (Lincoln University)
Dr Ata Tara (Trace Design + Planning)

CONTRIBUTIONS

The editor welcomes contributions, and an author's template can be found under the Submissions link on the website.

The aim of *Landscape Review* is to showcase the relationship between research and professional practice in the field of landscape architecture. It offers a forum for scholarly writing and critique on a wide range of topics that particularly impact Oceania and, more broadly, the rest of the world.

We encourage articles that further develop research ideas and findings from previously published peer-reviewed sources, critiques or reflections, to analyse and synthesise them for impact within professional practice and/or academic research.

For further information on the types of submission, please go to https://journals.lincoln.ac.nz/index.php/lr/about/submissions.

CONTENTS

Foreword

Guest Editor - Hannah Hopewell *1–3*

Research

Against architectures of degradation: pōhaku and protection on Mauna Kea
Caitlin Blanchfield *4–13*

Landscapes, cityscapes and seascapes: Safeguarding wetlands, habitat and urbanisation across the East Australasian flyway
Yibin Mu and Simon Kilbane *14–29*

Edge reprised
Sean Burke *30–43*

Te karanga ki ngakengake: the call of the shifting forces
Matthew Wakelin and Hannah Hopewell *44–48*

Oceanscape as landscape
David Irwin *49–57*

World Blong Yumi
Rod Barnett *58–61*

Thanks to reviewers
Gill Lawson *62*

ISSN 2253-1440

Published May 2025

© Edition: School of Landscape Architecture, Lincoln University.
© Text and illustrations: individual contributors, unless otherwise noted.

Production *Tanya Tremewan, Christchurch* and *Jenny Heine, Wellington*

Cover image *Hannah Hopewell, Auckland (Tīkapa Moana/ Hauraki Gulf, 2020)*

Low tide, Kapowairua, Te Tai Tokerau, Aotearoa New Zealand (image by author, June 2017).

LANDSCAPE
REVIEW

Foreword

HANNAH HOPEWELL

Hannah Hopewell is a Pākehā educator and practitioner of landscape-led urbanism at Cornell University, New York, NY, United States of America.
Email: hh795@cornell.edu

This special edition of *Landscape Review* casts a wide net across the vast fluidity of Moana Oceania to draw forth diverse voices and modes of scholarship acting upon landscape architecture. We collect under the term Moana Oceania to signal landscapes and seascapes without firm borders; yet equally to resist 'Pacific' and its numerous transliterations imposed in 1521 by Ferdinand Magellan. With Moana Oceania, we affirm a more congruous naming that, in the words of Chitham et al (2019), 'empowers and privileges Indigenous perspectives' and 'embodies a worldview that is strongly connected to Aotearoa but has its roots in the wider region vast region of islands'. We are indebted to the Moana Oceania thinkers whose 2018 talanoa (criticality with harmony) endorsed this inclusive usage, and how such a shift demands critical attendance to the ways in which narratives of landscapes and seascapes in the in this fluid region are shaped and transited.

Our aim with this issue is to extend contemporary understandings of the ways collective and relational qualities of landscape and waterscape manifest. This intention acknowledges the impact of two separate currents inflecting how critical ecological thought is carried within prevailing landscape architectural realms.

First, the *relational turn* (Barad, 2007; Bennett, 2010; Haraway, 2016; Morton, 2010; Tsing, 2015) has prompted movement in landscape thought away from a deterministic ecology where ecosystems, humans and other species are discrete, bounded entities, and toward seeing all life forms and systems as interconnected, co-constitutive and shaped through interdependent relationships. These shifts have advanced possibilities for rethinking how landscape knowledge is created, who it's for and how it's felt, resulting in an expanded and more textured bandwidth for critical and creative landscape interpretation and expression. Furthermore, we see landscape knowledge under such relational conditions as bearing what Deborah Bird Rose (2012) names as an 'ethics of connection', a localised and politically charged relational ethics that demands responsiveness to more-than-human rhythms, ecologies and histories.

Second, the *flows of the ocean* that both hold our vast region together and keep it apart bring about localised understandings of landscape unmoored to Euro-Western scopic controls and aligned notions of resource propagated through settler colonial values. Resistant to the naturalisation of imported and hegemonic spatial and aesthetic tropes, this issue is interested in affirming landscape relations that align to the diffused, polyvocal and variegated yet continuous regional identities and knowledges of Moana Oceania. As Epeli Hau'ofa (1998) asserts in his raising of regional consciousness, 'Oceania is vast, Oceania is expanding. Oceania is hospitable and generous, Oceania is humanity rising from the depths of brine and regions of fire deeper still' (p 401).

Within such a context, we aim to foreground the diverse ways in which situated landscape-based practices operate as a gathering force for stories, peoples, living materialities and worldviews that occasion landscape collectives at the margins of settler-colonial reproduction. The papers in this issue perform on their own terms an 'ethics of connection' to seed in partial ways the multiplicity of currents coursing through our fluid region.

Caitlin Blanchfield, a postdoctoral fellow at Princeton University, centres the role of pōhaku (stones) within practices of collective resistance on Mauna Kea, on the island of Hawai'i. Blanchfield critically thinks with the relational dimension of pōhaku in connection to and through knowledge of place to draw around a landscape of collectivity. Here political struggles for self-determination are surfaced through an engagement with the meaning, use and relationships created around earthly materials.

KEY WORDS
waterscapes; Moana Oceania; landscape architecture publication; landscape architecture discourse; decolonisation

Yibin Mu and Simon Kilbane from the University of Western Australia foreground the plight of the Far Eastern curlew and East Australasian flyway to develop a relational reading of the intersecting conditions of urbanisation, wetland loss and biodiversity creation. With a research-by-design focus, they assert the need for both strategic regional and site-specific urban wetlands in sustaining migratory bird species.

Sean Burke, a Principal at Isthmus, offers reflective commentary on the multiple tensions converging within coastal environments through the project Ngā Ūranga ki Pito-One. Touching on cultural and legislative dimensions as well as synthetic materiality, Burke narrates his relationship with the coast as it bears on what is at stake for coastal design modification in a context of resilience and repair.

Matthew Wakelin of SBLA in Melbourne and Hannah Hopewell of Cornell University critically discuss their experimental design proposition for a reef-like 'walkway' extending into Te Whanganui-a-Tara, the harbour of Wellington. Through design, Wakelin and Hopewell foreground the possibility of felt land and seascape relations within a quality of geological time drawn forth by the specificity of Te Ātiawa pūrākau (narratives) of Ngake and Whātaitai (taniwha).

With roving personal reflection, David Irwin of Isthmus proposes the idea of oceanscape as landscape. Citing the New Zealand Institute of Landscape Architects' assessment guidelines, *Te Tangi a te Manu*, alongside his own extensive 'time at sea', Irwin opens meaningful accord between landscape and oceanscape conceptions to offer new ways of seeing and feeling the vast moana.

Closing the issue, Rod Barnett of Victoria University of Wellington uses the format of poem to perform a thick, image-rich string of moments arising from the multilayered, extractive and always in motion conditions acting upon Moana Oceania. In a form of expression that resists perspective, Barnett extends a faceted mirror so we experience a convergence of land and seascape relations, in kaleidoscope.

I offer thanks to the contributors for finding value in sharing their stories and gratitude to *Landscape Review*'s editorial and production team for bringing the collection to life.

REFERENCES

Barad, K. (**2007**) *Meeting the Universe Halfway: Quantum Physics and the Entanglement of Matter and Meaning*, Durham, NC: Duke University Press.

Bennett, J. (**2010**) *Vibrant Matter: A Political Ecology of Things*, Durham, NC: Duke University Press.

Chitham, K.; Māhina-Tuai, K.U.; Skinner, D. (Eds.) (**2019**) *Crafting Aotearoa: A Cultural History of Making in New Zealand and the Wider Moana Oceania*, Wellington: Te Papa Press.

Haraway, D. (**2016**) *Staying with the Trouble: Making Kin in the Chthulucene*, Durham, NC: Duke University Press.

Hau'ofa, E. (**1998**) The ocean in us. In *A New Oceania: Rediscovering Our Sea of Islands*, E. Waddell; V. Naidu; E. Hau'ofa, Eds.; Suva: University of the South Pacific, pp 390–403.

Latour, B. (**2004**) *Politics of Nature: How to Bring the Sciences into Democracy*, Harvard University Press.

Morton, T. (**2010**) *The Ecological Thought*, Cambridge, MA: Harvard University Press.

Rose, D.B. (**2012**) *Wild Dog Dreaming: Love and Extinction*, Charlottesville: University of Virginia Press.

Tsing, A.L. (**2015**) *The Mushroom at the End of the World: On the Possibility of Life in Capitalist Ruins*, Princeton, NJ: Princeton University Press.

Mauna Kea kiaʻi place pōhaku on the Mauna Kea Access Road to prevent construction equipment from ascending (with permission from *Honolulu Civil Beat*, 2015).

LANDSCAPE
REVIEW

Against architectures of degradation: pōhaku and protection on Mauna Kea

CAITLIN BLANCHFIELD

On Mauna Kea, Hawaiʻi island pōhaku (stone) is entangled in practices of erasure and resistance. This volcano is both a sacred site of genealogical connection for Kānaka Maoli and a contested landscape, seized as Crown and Government Land from the Hawaiian Kingdom, held in trust, and later leased to the University of Hawaiʻi to host an ever-expanding astronomy industry. Since Mauna Kea observatories began, Kanaka Maoli kiaʻi (protectors) and environmental activists have resisted the construction of large-scale telescopes, which degrade land and violate Hawaiian sovereignty. In doing so, they have built architectures of protection with and for the land. Pōhaku registers and refuses attempts to expropriate land and control Indigenous political relationships to place. Interviews and archival research reveal how the stones are erected as ahu (shrines) within the reserve, removed by government officers and discounted by archaeologists, only to be returned repeatedly by kiaʻi. These stones dialogue with the Hale Pōhaku (stone house) architecture built for the astronomy industry in the 1970s and 80s, which saw direct action against the construction of the massive Thirty Meter Telescope from 2014–2019. During protests, pōhaku became an architecture of protection, blocking construction equipment from ascending the road.

Caitlin Blanchfield is a postdoctoral fellow, Princeton University.
School of Architecture
S-110 Architecture Building
Princeton, NJ 08544 USA
Telephone: +1-415 990-5702
Email: cjb3@princeton.edu

Introduction

Geographer Kathryn Yusoff (2024) writes that to tell the story of rocks is to see the past surfacing in the present, in a process of coming into view, of other earths. So what pasts do we surface when we tell stories alongside rocks, and what presents? In the well-known song 'Mele Ai Pōhaku', or stone-eating song, originally published as 'Kaulana Nā Pua' in the Hawaiian language newspaper *Ka Leo o ka Lahui* in 1893, the lyrics translate to:

> We do not value
> The government's sums of money
> We are satisfied with the stones
> Astonishing food of the land.
> (Kamehameha Schools, 2023; Nordyke and Noyes, 1993)

This was written in tribute to members of the Royal Hawaiian Band who refused to sign an oath of loyalty to the provisional government that had overthrown Queen Liliʻuokalani of Hawaiʻi. As a result of their refusal, they were told they would have only stones to eat.

In 2015 on Mauna Kea, the sacred volcano on the island of Hawaiʻi, kiaʻi (the protectors of the mauna) placed pōhaku (stones) in the roadway to prevent construction equipment from reaching the summit. These kiaʻi were stone eaters too, putting their bodies alongside the land on the line to protect the mountain from the construction of a massive telescope that would desecrate the sacred summit and degrade a fragile environment, and to which they had not consented. The past they surfaced was one of resistance to colonial land theft; it is a past that is still present.

This paper will tell some stories of pōhaku on Mauna Kea as a contested material and an element for building resistance. By thinking through architectural materials in their relationality, connection to and knowledge of place, I show how pōhaku become 'onipaʻa architecture' – a steadfast architecture standing against practices that occupy and degrade the land, such as industrial telescopes.

KEY WORDS
Mauna Kea; stones; environmental protection; sovereignty

Citation: Blanchfield, C. (**2025**) Against architectures of degradation: pōhaku and protection on Mauna Kea. *Landscape Review*, 21(1), pp 4-13.
Received: 2 December 2024
Published: date: 23 May 2025

Approach

This critique offers a critical framework to understand the relationship between landscape, architecture, and political struggles for self-determination in Hawaiʻi through an engagement with the meaning, use and relationships created around materials – in this case, stone. It is informed by theories in critical geography and geology, architectural history, and Kanaka Maoli political thought. The paper draws on primary source research from the State of Hawaiʻi Department of Land and Natural Resources, the Edith Kanakaole Hawaiʻi Collection at the University of Hawaiʻi, Hilo and the private collection of Deborah Ward, as well as interviews I have conducted.

As I have no genealogical connection to Mauna Kea, my knowledge of these pōhaku is limited to what I have been told or is public information; we can foreground the meaning of the land and its materiality without asking to know everything. As a settler scholar writing from outside of Hawaiʻi, I have used my academic training in architectural history to support the work, and follow the kahea (call), of Mauna Kea kiaʻi through testifying to the National Science Foundation and National Parks Service for the protection of Mauna Kea. I have learned from pōhaku volunteering at the Edith Kanakaole Foundation's Hale o Lono fishpond in Hilo.

Insights

Mauna Kea or Mauna a Wākea, the mountain of Wākea, in Hawaiian genealogy is the child of Wākea, the sky and Papa, the earth (figure 1). It rises 4,206 metres from sea level, and historically the high elevation summit has been a place that humans would go only on rare and special occasions (Maly and Maly, 2005). Mauna Kea is also a unique ecosystem, home to birds, bugs and lichen rarely found elsewhere. Due to its high elevation and porous volcanic stone, the mauna collects water that filters and feeds the island's aquifer (Casumbal-Salazar, 2017).

Figure 1. Mauna Kea from Puʻuhonua o Puʻuhuluhulu (photograph by Danielle Da Silva, 2019 with permission from Photographers without Borders).

The upper reaches of Mauna Kea are also part of Hawaiian Kingdom Crown and Government Lands. These lands were under the jurisdiction of the Kingdom government or belonged to the Hawaiian royal family before a coup, backed by the United States, overthrew Queen Liliʻoukalani in 1893 (Silva, 2004; Van Dyke, 2008). When Hawaiʻi was annexed in 1898, these seized lands were held in trust by the US government and then transferred to the state government when Hawaiʻi gained statehood in 1959. The coup and annexation of Hawaiʻi were illegal – all of the State of Hawaiʻi is stolen land – but because the Crown and Government Lands attained trust status, they are intended to be used for the benefit of Hawaiian people. In this context, their use for the astronomy industry against the wishes of many Kānaka Maoli is especially contentious.

In 1961, the nascent state government designated much of Mauna Kea a conservation district. Then, in 1968, it created a science reserve within this district and leased it to the University of Hawaiʻi to operate a science complex – which involved transferring 5,261 hectares of Crown and Government Lands to the university. This move was an attempt to erase a political designation that reflected this land's former jurisdiction under the kingdom of Hawaiʻi and replace it with a designation that conflated conservation with anticipated scientific development. Soon after, the first telescopes, operated by the United States Air Force and the university, went up. Since then, 13 observatories have been built on the summit, with a total of 20 telescopes if one includes the multiple telescopes in array observatories.

Within this history of land use as a tool of settler colonial occupation, my focus on pōhaku is intended to locate ongoing practices of architectural steadfastness and show how ʻike (knowledge) of and with materials is critical to the politics of their use. In this way, I aim to contribute to a conversation around materials in architecture, and bring a built environment approach to conversations on the protection of Mauna Kea.

Hoʻokupu

The first story of pōhaku is that of a hoʻokupu (offering) stone that Kealoha Pisciotta, Kanaka Maoli cultural practitioner and former telescope systems specialist, found next to the security kiosk at the Hilo town dump. Her family had placed the hoʻokupu near the summit of Mauna Kea four-and-a-half years earlier. But, as she wrote in a letter to the Hawaiʻi Department of Land and Natural Resources (DLNR), when she and another cultural practitioner had ascended the mountain for ceremony and Hawaiian astronomy practice, they discovered the stone was gone (Pisciotta, 2011). Days later, taking her household trash to the dump, she spotted it: the sacred object had literally been thrown away. Amplifying the shock of finding the stone among bags of waste and discarded goods was the revelation as to *who* had brought it there – a tour guide for the Mauna Kea Science Reserve. When questioned, the guide claimed, 'it came from where it did not belong' (ibid). But the summit of Mauna Kea is precisely where the stone does belong, because Pisciotta put it there, as part of a living landscape of Kanaka Maoli cultural and astronomical practice that has existed for millennia.

After returning the stone from the Hilo dump to Mauna Kea only to find days later that it was missing again, Pisciotta confronted the guide. This time it was sitting in the back of his truck. The guide still contended that the stone did not *belong* on the summit or, to be precise, in the reserve. But he finally conceded to her argument and returned the stone to Pisciotta, who brought it back to the mauna. 'What other cultural or historic sites', she asked in her letter, 'have been disturbed, desecrated or destroyed on Mauna Kea, by IfA [Institute for Astronomy] employees?' (ibid). The presence of the stone on the mauna, and the people and practices attached to it, troubled the narrative that the DLNR and University of Hawaiʻi were advancing – that the summit was mostly empty and therefore open for telescope construction.

Here land-as-property is maintained by ongoing theft (Nichols, 2020). Insistence on returning the stone, the act of creating the hoʻokupu, building it again and then again, is an architectural practice that refuses erasure. It does so through knowledge of exactly

where this stone belongs and how it relates to a larger landscape of Mauna Kea and the entire archipelago. In contrast to this precise and intimate knowledge, the policies the guide was enacting operated through colonial unknowing; the stone could only be understood as out of place through intentional ignorance (Vimalassery et al, 2016). It is this unknowing and boundary-making around belonging that I will trace in archaeological practices on Mauna Kea.

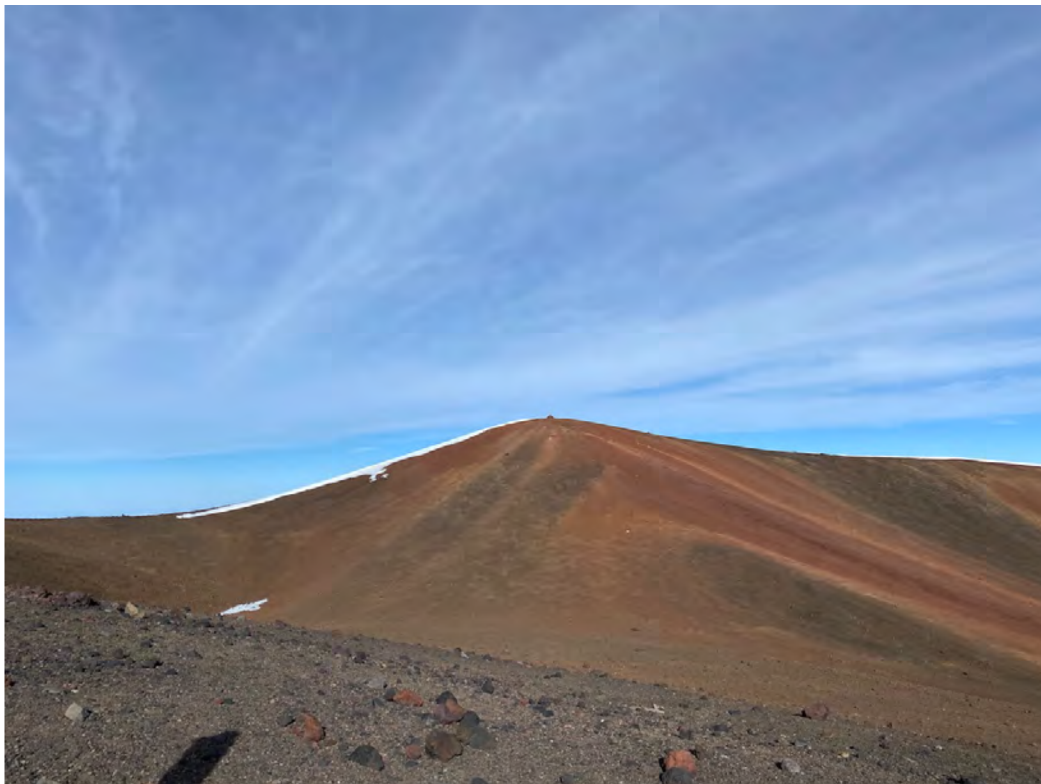


Figure 2. An ahu (shrine) on a puʻu (cinder cone) on Mauna Kea (image by author, 2021).

Archaeologists have identified many of the ahu (shrines) (figure 2) and pōhaku used in Hawaiian astronomy on Mauna Kea, marking them for state protection (Izaki, 2023; McCoy, 1977). In 2000, the Hawaiʻi State Historic Preservation Division listed the Mauna Kea summit as a state traditional cultural property. In 2024, this designation was expanded to include an area from 1.98 kilometres upward and then, in 2025, the mountain was listed on the National Register of Historic Places. But telescope developers have also instrumentalised archaeology to reify a division between ancient and modern astronomical practices. What Kanaka Maoli archaeologist Kathleen Kawelu (2015) calls 'compliance archaeology' is used to confirm a historical timeline that, by and large, only marks ancient and precolonial sites for protection on the summit, putting at risk the contemporary built landscape, which includes sites for Hawaiian astronomy.

This division would imply that the hoʻokupu stone – and the lele used to calibrate star alignment that Pisciotta (2011) also testified as having been destroyed – were out of place because they were out of time. The State Historic Preservation Division entrenches this divide by separating archaeology, architecture and cultural heritage into distinct branches of preservation.

This epistemological demarcation has real effects. As E Kalani Flores (2022) – a Kanaka Maoli kiaʻi, cultural practitioner and professor of Hawaiian studies – explains, the surveys and reports needed for telescope construction require archaeologists to complete one report and anthropologists to complete cultural impact assessments; while the cultural impact assessments do involve consultation with Hawaiian cultural practitioners, archaeological reports do not, leading to a deficit of knowledge on the Indigenous built environment and a distancing of archaeological findings from contemporary cultural

practices. Moreover, even in instances where archaeologists have tried to protect contemporary sites, their efforts have been deliberately blocked by the University of Hawai'i. In 1986, archaeologists Ross Cordy and Buddy Neller tried to have all summit shrines listed on the National Register of Historic Places. However, the university prevented this in the belief that the listing could jeopardise federal grants for telescopes in the future. In exchange for making this decision, it pledged to develop a historic preservation management plan, which never happened (Ho and McEldowney, 1996, from personal collection of Deborah Ward, no date).

The two major archaeological surveys of the Mauna Kea summit in the 1980s identified about 40 sites for protection. 'Modern' properties, such as ahu and lele still in use, were discounted or even removed from the map after initially being recorded (McCoy and Nees, 2010). A 2010 survey done for the proposed Thirty Meter Telescope found 263 sites, as opposed to the mere 40 found 30 years before (ibid). It also identified 339 'find spots', meaning locations of modern use or locations where the historical period could not be determined; find spots were not taken into consideration when siting the telescope. The discrepancy between surveys from the early 1980s and in 2010 suggests that many cultural sites and stone structures were not protected during the construction of previous telescopes and may well have been disturbed. The exclusion of 339 find spots suggests that this disturbance would continue with the Thirty Meter Telescope, because find spots do not merit protection. These omissions are symptomatic of the shortfalls of compliance archaeology, which relies on existing reports and excavation instead of oral history.

Flores (2022) describes the problem further and more specifically to Mauna Kea. Archaeological surveys, he explains, are 'very narrow in what they know … It's more like what they don't know. Because on Mauna Kea, not on the summit, but surrounding the summit, there are hundreds of these shrines. They have no idea what the shrines are for.'

An annotated map drawn by papa kilo hōkū (Hawaiian astronomy) practitioner Michael Kumukauoha Lee overlays administrative boundaries and archaeological find spots with a rich cartography of star movement, hydrological cycles, physical sites, and their meaning. This map demonstrates that 'find spots' are in fact part of the built landscape with a known use and meaning. That it was introduced as evidence in a contested case hearing is testament to how practitioners turned these proceedings into affirmations of the meaning and use of Mauna Kea in terms the state had wilfully overlooked and ignored.

Additionally, a map that University of California, Berkeley planning students created in collaboration with Mauna Kea Aniana Hou (the president of which is Kealoha Pisciotta) shows how ahu and lele are aligned with star formations and with heiau on other islands. These maps, or counter-maps, reinscribe the meaning of the land and the meaning of pōhaku. This return and reinscription represent an architectural act that refuses erasure and that insists on a continuing, evolving relationship to the very substance of place as a mode of building. These processes of reinscription are forms of landscape making.

Hale Pōhaku

Another story – another examination of materials as knowledge, as contested meaning and as sites of contestation – is that of Hale Pōhaku (which translates to stone house, though there are now several structures on this site). This collection of buildings illustrates how, through the appropriation of materiality and historical narrative, architecture was used to try to naturalise the Mauna Kea observatories. Located at an elevation of around 2.74 kilometres, midway up the mountain, Hale Pōhaku serves as both a visitors' centre and a lodging site for telescope employees, astronomers and construction crews when they are working on the mountain. In addition, it has been used as a staging area for telescope construction. The facility is named for the stone cabins built there in the 1930s, first used by Civilian Conservation Corps crews installing boundaries for the Mauna Kea Forest Reserve, and then by hunters and those travelling to the summit.

During the 1970s, when these base facilities were constructed, they became important nodes for infrastructural expansion up the mountain. At that time, many who opposed the expanding observatory were hunters, voicing their opposition through hunting associations even when their concerns went beyond access for hunting. It is ironic then that the hale that sheltered these hunters would be the site and namesake of an operational base for the expanding observatories they opposed (Tulang and Inouse, 1980).

In the 1980s the University of Hawai'i proposed an expansion of the Hale Pōhaku complex to include additional dormitories as well as common buildings for cooking, dining and lounging. The facilities, designed by Chapman Desai Sakata Inc, comprised up to 17 'cabin like structures' that were 'nestled in the trees' (MCM Planning, 1985) (figure 3). The profile of the buildings and their exteriors 'blended into the surrounding environment' with earth-toned paints and stains and avoided 'visual impacts' (ibid). With a 'rustic', efficient use of wood and stone in the dormitories and visitors' centre, Hale Pōhaku evokes the 'parkitecture' of the American conservation movement – trying to make the astronomy industry blend in with the mountain while aligning with an aesthetic of environmental management and reflecting a national design sensibility strongly associated with historical ideas about the frontier and the wilderness (Carr, 2007).

Pōhaku were used in walls and foundations as part of this aesthetic contextualisation and appropriation. In the eyes of the design firm, their materiality suggested historical connecting to place, implying that the mid-elevation facility was a simple extension of existing structures on the mauna, thus downplaying its footprint, its exclusive use by telescope users and staff, astronomy tourists, and construction workers, and the way in which it enabled further development of the summit for telescopes. At the same time, the Hale Pōhaku Master Plan wrote of the new designs as an 'improvement' over the present appearance of the area – evoking a Lockian language of property appropriation (State of Hawai'i Department of Land and Natural Resources, 1980).

(**a**)

(**b**)

Figure 3. (**a**) Cabins at Hale Pōhaku. (**b**) Hale Pōhaku visitors' centre (images by author, 2021).

Yet it was the mobilisation of pōhaku by kia'i at this very site that proved pivotal in the movement to protect Mauna Kea from the Thirty Meter Telescope. In 2015, when protectors learned that construction equipment was slated to ascend the mountain, several hundred people mobilised to block the road at Hale Pōhaku, encamping across from the visitors' centre (Casumbal-Salazar, 2019; Flores, 2022). This was the first wave of direct action to protect the mauna, with people blocking the road and risking arrest to stop the construction vehicles that were going up to grade the summit.

No vehicles passed that day, but two months later the Thirty Meter Telescope corporation tried again. And again hundreds came to protect the mountain (KAHEA, 2016; Lum, 2015). Lines upon lines of kia'i, holding hands and carrying ti leaves, filled the road, crossing it and preventing movement. Alongside their bodies, kia'i placed pōhaku in the roadway, and at the summit they built ahu and lele. Testifying to the Bureau of Lands and Natural Resources, Kaleo Keli'ikoa (2015) talked of the relationship between the summit ahu and the pōhaku that were placed on the road:

> when I saw how DLNR was behaving themselves … for me what I had to do was, I was just going to run up the mountain to the top, to the summit, and make a pule [prayer] at the ahu. As I was running I just started grabbing pōhaku and put them on the road.

Bodies and pōhaku came together in an architecture of steadfastness against bulldozers. In doing so, they transformed the relationship between infrastructure and access. A throughfare had been leveraged in the 1970s and 80s to facilitate more telescope construction by transporting digging machines and Caterpillars; the DLNR had closed it when it wanted to limit access. Now this road became a site of collectivity. 'Kapu aloha, pule, and oli' moved up and down the mountain and steadfastness held it, in the words of kiaʻi Kuʻuipo Freitas (Ōiwi TV, 2015).

Conclusion

Thinking with pōhaku opens up ways that architectural and landscape historians might engage with materiality and place to understand how knowledge and land are co-constituted through use, and to consider the politics of that knowledge. This invites a certain kind of learning from the land. In this learning, I am reminded of a line from a poem 'No Wai, No Waiwai' by Loke Aloua (2020), a kiaʻi and trained archaeologist who writes:

> These stones we stack no wait for permits and permission to act
> We are *Kaiāulu*
> Taking our Hawaiʻi back.

We might learn from stones precisely to circumvent and ignore the process and protocols that often enact colonial jurisdiction and land theft. Returning to steadfastness and the ways that together pōhaku and people resisted colonial boundary-making and appropriation, architectural historian Mahdi Sabbagh (2024) writes of how architectural *sumud*, steadfastness, when at a communal scale, can build political consciousness and develop politically active communities. He writes of and from Palestine, but with an invitation to think about how tactics of steadfastness may be used in other instances of decolonial struggle. Continuing to inscribe and build the stories that materials hold, as both a narrative and a physical return, is part of this steadfastness.

In this paper, I have argued that together pōhaku and people resisted colonial boundary-making, jurisdiction and appropriation through acts of rebuilding. This is evident in Kealoha Pisciotta's hoʻokupu and in reinscriptions of erased histories such as Michael Kumukauoha Lee's papa kilo hōkū mappings. It is demonstrated through the use of Indigenous building materials as a physical infrastructure of protection, such as in a blockade that connects the people to the land through acts of construction and offering. This steadfastness – through rebuilding, repetition, holding a line – builds knowledge of resistance that is fed by stones. Erasure and removal are spatial strategies to make Indigenous lands available for architectures that degrade environments to advance settler colonial ownership and profit; we might instead look to practices of building for and alongside land as architectures of protection.

About the author

Caitlin Blanchfield is a historian of architecture and landscape whose work examines the infrastructures of settler colonialism and material practices of resistance. Her research addresses the role of modernist land management and design practices in projects of dispossession and colonisation in North America and across the reaches of US empire, as well as the anticolonial architectures that unsettle them. Caitlin received her PhD in architectural history and theory at Columbia University and is a postdoctoral fellow at Princeton University.

Acknowledgments: Mahalo nui to those who shared their stories of Mauna Kea with me, particularly to Deborah Ward for sharing her personal papers with me and to E Kailani Flores for discussing histories of archaeology and activism on the mauna. Mahalo nui to Ikaika Ramones for his comments on an early version of this paper and to the peer reviewers for their generous feedback.

Research for this paper was approved under Columbia University Institutional Review Board Protocol IRB-AAAU0773.

REFERENCES

Aloua, L. (**2020**) We da Waiwai. In *The Value of Hawai'i 3: Hulihia, the Turning*, N. Goodyear-Kaʻōpua, C. Howes, J.K. Kamakawiwoʻole Osorio, A. Yamashiro, P. Rasmussen, Eds.; Honolulu: University of Hawaiʻi Press. DOI: 10.1515/9780824889159.

Carr, E. (**2007**) *Mission 66 : Modernism and the National Park Dilemma*, Amherst: Library of American Landscape History.

Casumbal-Salazar, I. (**2017**) A fictive kinship: making 'modernity', 'ancient Hawaiians', and the telescopes on Mauna Kea. *NAIS: Journal of the Native American and Indigenous Studies Association*, 4(2), pp 1–30. DOI: 10.1353/nai.2017.a703400.

Casumbal-Salazar, I. (**2019**) 'Where are your sacred temples?': notes on the struggle for Mauna a Wākea. In *Detours: A Decolonial Guide to Hawaiʻi*, H. Aikau; V. Gonzalez, Eds.; Durham: Duke University Press. DOI: 10.1215/9781478007203.

Flores, E.K. (**2022**) Interview with C. Blanchfield, Puʻuhuluhulu, Hawaiʻi, 31 May.

Izaki, B. (**2023**) Land board will consider TMT's permit violation proposal to designate the mauna as 'traditional cultural property'. *Ka Wai Ola*, 1 September. Accessed October 2024, https://kawaiola.news/aina/mauna-kea-kiai-continue-their-work.

KAHEA (**2016**) Mauna Kea timeline. Accessed 9 January 2025, https://kahea.org/issues/sacred-summits/timeline-of-events.

Kamehameha Schools (**2023**) Kūkahekahe: 'Mele ʻAi Pōhaku'. Accessed 14 April 2025, www.ksbe.edu/article/kuukahekahe-mele-ai-phaku.

Kawelu, K.L. (**2015**) *Kuleana and Commitment: Working Toward a Collaborative Hawaiian Archaeology*. Honolulu: University of Hawaiʻi Press. DOI: 10.1515/9780824857127.

Keliʻikoa, K. (**2015**) Testimony to the BLNR. Accessed 14 April 2025, www.youtube.com/watch?v=PODb0XIfzq8.

Lum, C. (**2015**) 'Mutual respect and aloha' on the mountain, but no meeting of the minds. *Honolulu Civil Beat* 15 June. Accessed October 2024, www.civilbeat.org/2015/06/the-projector-mutual-respect-and-aloha-on-the-mountain-but-no-meeting-of-the-minds.

Maly, K.; Maly, O. (**2005**) *A Collection of Native Traditions, Historical Accounts, and Oral History Interviews for: Mauna Kea, the Lands of Kaʻohe, Humuʻula and the ʻĀina Mauna on the Island of Hawaiʻi,* Hilo: Kumu Pono Associates.

McCoy, P.C. (**1977**) The Mauna Kea adze quarry project: a summary of the 1975 field investigations. *Journal of the Polynesian Society* 86(2), pp 223–44.

McCoy, P.; Nees R.C. (**2010**) *Archaeological Inventory Survey of the Mauna Kea Science Reserve Kaʻohe Ahupuaʻa, Hāmākua District, Island of Hawaiʻi,* Hilo: Office of Mauna Kea Management.

MCM Planning (**1985**) *Amendment to the Mauna Kea Science Reserve Complex Development Plan*, Honolulu: University of Hawaiʻi.

Nichols, R. (**2020**) *Theft is Property! Dispossession and Critical Theory,* Durham: Duke University Press. DOI: 10.1215/9781478007500.

Nordyke, E.; Noyes, M. (**1993**) 'Kaulana Na Pua': a voice for sovereignty. *Journal of Hawaiian History* 27, pp 27–42.

Ōiwi TV (**2015**) Mauna Kea protectors rally to stop construction. 26 June. Accessed October 2024, https://oiwi.tv/maunakea/maunakea-protectors-rally-to-stop-construction/.

Pisciotta, K. (**2011**) Contested Case HA-16-02 regarding Conservation District Use Application (CDUA) HA-3568 for the Thirty Meter Telescope at the Mauna Kea Science Reserve, Kaohe Mauka, Hamakua, Hawaii, TMK (3) 4-4-015:009. 28 June. Accessed October 2024, https://dlnr.hawaii.gov/mk/files/2016/10/B.01a-Kealoha-Pisciotta-WDT-2016-C-1-amend.pdf.

Sabbagh, M., Ed. (**2024**) *Their Borders, Our World: Building New Solidarities with Palestine*, London: Haymarket.

Silva, N.K. (**2004**) *Aloha Betrayed: Native Hawaiian Resistance to American Colonialism*. Durham: Duke University Press. DOI: 10.1215/9780822386223.

State of Hawai'i Department of Land and Natural Resources (**1980**) *Hale Pōhaku Mid-Elevation Facilities Master Plan Revised Environmental Impact Statement*. Honolulu: Department of Land and Natural Resources.

Tulang, M.; Inouse, A. (**1980**) Hunters express concern for mountain. *Hawaii Tribune-Herald*, 27 January, p B-8.

Van Dyke, J.M. (**2008**) *Who Owns the Crown Lands of Hawaii?* Honolulu: University of Hawaii Press.

Vimalassery, M.; Pegues, J.H.; Goldstein, A. (**2016**) Introduction: on colonial unknowing. *Theory & Event*, 19(4).

Ward, D. (**no date**) Personal collection.

Yusoff, K. (**2024**) *Geologic Life: Inhuman Intimacies and the Geophysics of Race*, Durham: Duke University Press. DOI: 10.1215/9781478059288.

Attadale Cove, Western Australia, the starting point for the Far Eastern curlew on its long journey north to the Yellow Sea region in China (image by Mu, March 2023).

LANDSCAPE
REVIEW

Landscapes, cityscapes and seascapes: Safeguarding wetlands, habitat and urbanisation across the East Australasian flyway

Yibin Mu and Simon Kilbane

Along with the world's population growth, human activities, urban expansion and land-use change seriously impact natural ecosystems, causing water- and biodiversity-related challenges across lands, cities and seascapes. Proposals to effectively address these challenges include Australia's water-sensitive urban design (WSUD) and China's sponge city design (SCD). However, both strategies neglect how widespread loss and degradation of wetlands, as biodiversity hotspots providing essential ecosystem services, threaten many species interdependent with them. A forward-thinking design hybrid of WSUD and SCD could potentially contain and construct wetlands in urban areas to maintain and/or restore habitat for the Far Eastern curlew, which the International Union for Conservation of Nature lists as a large, endangered wading bird. A focus on this species could enlighten our understanding of planning and design synergies across lands, seas, boundaries, politics, space and time. Considering two end-points in this bird's annual cycle – nesting sites in China and Western Australia – leads to a narrative of collaborative concern and design response. A literature review confirms the necessity of protecting vulnerable birds as a regional concern. Research-by-design demonstrates the feasibility of constructing wetlands and habitat, advancing design discourse of this restoration following the proliferation of WSUD and SCD.

Yibin Mu is a Master of Landscape Architecture graduate student at the School of Design, University of Western Australia, Clifton Street, Crawley WA 6009, Australia.
Telephone: +61 620-405-127
Email: 980823825@qq.com

Simon Kilbane is Chair of Landscape Architecture, School of Design, University of Western Australia.
Telephone: +61 466-481-381
Email: simon.kilbane@uwa.edu.au

KEY WORDS
Far Eastern curlew; habitat; wetland; East Australasian flyway; water-sensitive urban design; sponge city design

Citation: Mu, Y; Kilbane, S. (**2025**) Landscapes, cityscapes and seascapes: safeguarding wetlands, habitat and urbanisation across the East Australasian flyway. *Landscape Review*, 21(1), pp 14-28.
Received: 07 January 2025
Published: 23 May 2025

Introduction

The Ramsar Convention is a treaty, signed by 170 countries, that is aimed at curbing the global loss of wetlands. Yet, although it came into effect in 1975 (Finlayson et al, 2011), wetlands in Australia continue to deteriorate at an alarming rate (Burgin et al, 2016). Large areas of natural wetlands have vanished due to human activities such as agriculture and urbanisation, highlighting wetland loss as a widespread regional concern. For instance, extensive natural wetlands in New South Wales and the southwest of Western Australia have been filled in and readied for human land uses. In China and South Korea, the disappearance of wetlands along the Yellow Sea has deprived a large number of migratory birds of their stopover sites. Such loss of wetlands, as biodiversity hotspots providing essential ecosystem services, threatens the many species that depend on wetlands for survival. The Far Eastern curlew (FEC) (*Numenius madagascariensis*) is a large migratory, wading bird interdependent with wetland habitats. Its population has declined dramatically in recent years: habitat fragmentation and urbanisation have made it a 'vulnerable' species, according to the International Union for Conservation of Nature (BirdLife International, 2010).

Annually, the FEC travels a staggering 12,000 kilometres on each migration (figure 1). Each year, 73 per cent of FECs overwintering in Australia reserve enough energy for the long returning flight north and gain 40 to 70 per cent of their body weight (Finn and Catterall, 2023). From March to May, they reach the Yellow Sea region in China (Amano et al, 2010) and finally arrive at their breeding grounds in relatively uninhabited areas of the Russian Far East from April to June (Antonov, 2010; Szabo et al, 2016). It is there that they breed before starting the cycle once again, moving southward in August to September.

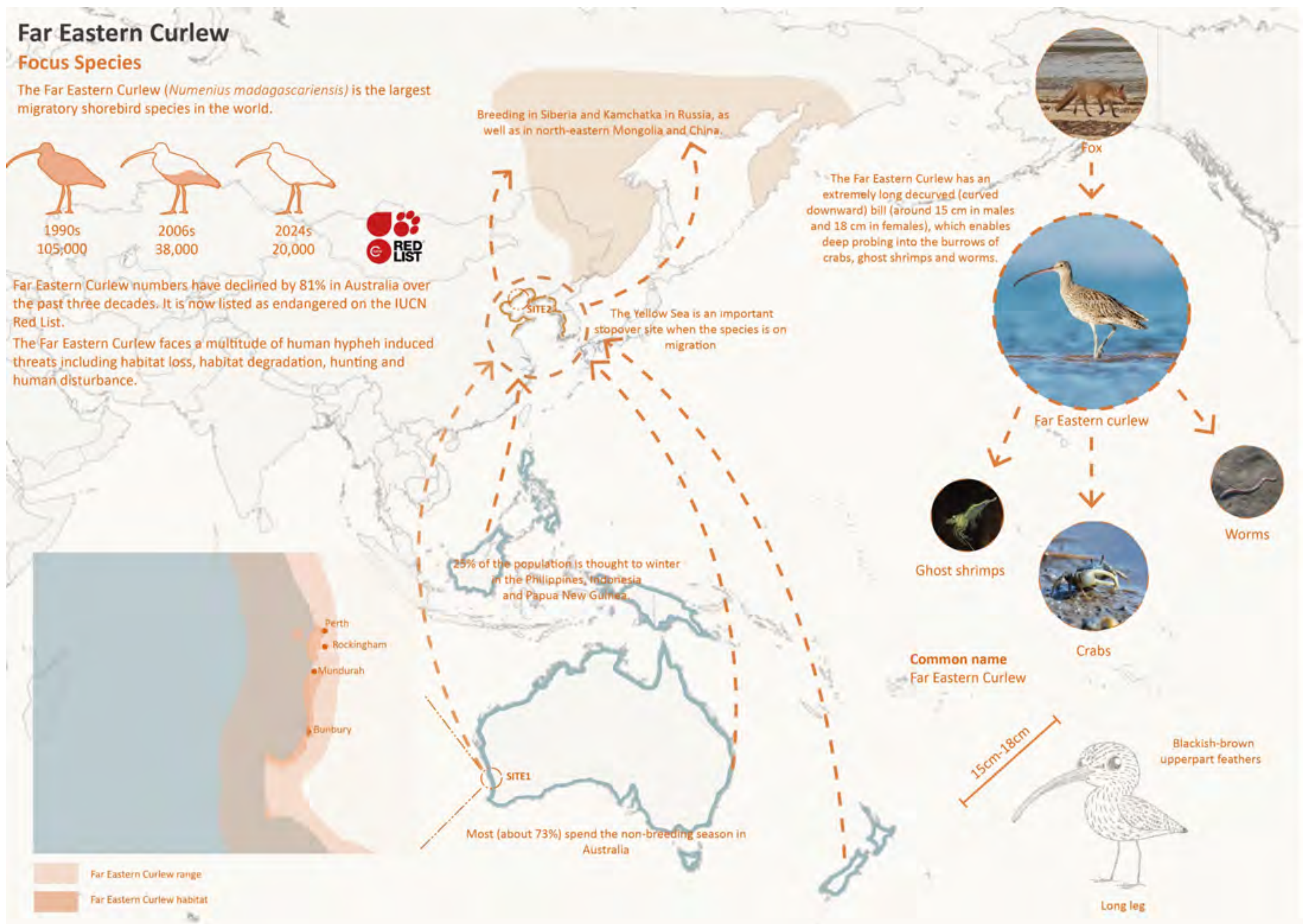


Figure 1. The East Australasian flyway and migratory patterns of the FEC (image by Mu, 2023).

The life of the FEC integrates intimately with annual migratory seasons, oceanic and water systems, along with the diminishing availability of habitat for these temporal cycles. Habitat of a suitable size and location is critical to both its migration and reproduction. Migratory birds require different wetlands as habitats in different seasons and locations, and the loss or deterioration of even a single habitat severely affect the sustainability of the species (Faaborg et al, 2010; XD Wang et al, 2022). For the FEC, anthropogenic disturbance, substrate type and food density are indicators of their habitat suitability. The density of conspecifics, which strongly influences other bird species, does not significantly affect the FEC. One study from the Yellow Sea, China showed that, in contrast to other curlews, for FECs human disturbance negatively affects their feeding to a significant degree (DL Li et al, 2020). Coming to the same conclusion, Lilleyman et al's (2016) study in the Darwin region of Northern Territory, Australia notes that people and dogs greatly affect FEC populations, whereas Darwin Harbour's East Arm Wharf gathers large numbers of FECs precisely because it is undisturbed by humans.

In contrast to the consensus on the negative impacts of anthropogenic disturbances, voices diverge in relation to research on metrics of substrate type and food density. DL Li et al's (2020) study in the Yellow Sea region suggests that substrate type does not significantly affect FEC feeding rate and that seasonally varying food density was the primary influence on the FEC's choice of habitat. However, Finn and Catterall (2023) suggest that substrate type is an essential criterion for FECs in their habitat selection. The authors classified substrates into two broad categories:

- macro-substrate, further divided into four categories of sand, mud, sandy mud, and coral
- micro-substrate, further divided into seven categories of mud, sandy mud, sand, seagrass, seagrass pools, other pools, and tidal water.

They then used the FEC's feeding rate, success rate and biomass intake rate as indicators on different substrates. The experimental evidence showed that substrate type significantly affected the experimental metrics, with FEC feeding rate and biomass intake rate significantly higher on mudflat than on other substrates. It has also been suggested that habitat location and disturbance, rather than food availability, limit the population of the FEC on these beaches (Lilleyman et al, 2016).

In considering the above views, we concur that Li et al's decision to use the feeding rate as the sole criterion for judgement is limited. However, it cannot be ruled out that the different environments in the Yellow Sea region of China and in Australia may cause variations in population size. Therefore, when choosing suitable ecological environments for the FEC, researchers need to use multiple indicators and to adopt different survey methods according to the location.

Approach

This paper consists of two main parts. First, a literature review summarises and discusses the current research on the FEC and the methods and standards for planning wetland habitats using sponge city design (SCD) and water-sensitive urban design (WSUD) concepts in urban areas. The second part illustrates and reflects on a series of research-by-design explorations and how they relate to the original research aims and objectives.

Research significance

Over the past three decades, the FEC population has declined by 80 per cent in Australia, with only 20,000 to 50,000 individuals surviving by 2023, according to Australian government statistics (Finn and Catterall, 2023). The main reason for the population decline is habitat loss caused by development around the Yellow Sea (DL Li et al, 2020) as the wetlands and shoals of the Yellow Sea are important food supply points for the FEC.

However, since the middle of the twentieth century, 49 per cent of the tidal wetland and 67 per cent of the salt marsh wetland in the Yellow Sea have disappeared, making it the fastest-declining coastal wetland area in the world (Peng et al, 2015). Illustrating this polemical dialogue between human population and the Yellow Sea is the Saemangeum development project in South Korea. In 2006, 401 square kilometres of tidal wetland was reclaimed for commercial development, leading the number of FECs in the area to decline sharply from 87,000 to 2,500 in just two years (Moores et al, 2016).

The survival of the FEC is essential to the ecosystem as the species is a key link in the food chain. Actions to protect the habitat of FECs may also protect the habitat of other migratory birds and maintain the stability of migratory bird populations, making the FEC an umbrella genus. It follows that the protection of this habitat helps maintain the health of all coastal ecosystems and the intertidal habitats that are important for other species as well, thus protecting the integrity and stability of the entire coastal ecosystem (Finn and Catterall, 2023).

The FEC, discovered and named in modern science in 1766, is one of the earliest birds to conquer the ocean and sky. Perhaps in a previous era, FECs flew as the earliest 'messengers' between the continents of Australia and Asia. Our dominant worldview is anthropocentric, but the FEC, as a resident of these two continents since ancient times, also has the inherent right to live in both places.

Furthermore, the ongoing resilience of robust (or even expanded) habitat introduces the potential to consider a reconciliatory ecology that connects people with nature. This is potentially both functional – for instance, through WSUD and SCD – and tacit, through recreational, scenic and aesthetic values, and the spirituality of maintaining robust ecosystems that humans can enjoy and potentially be enthused about protecting.

Despite an increasing number of studies on the FEC in recent years, its population continues to decline, and the fundamental contradiction is that it is impossible to make all countries along the migration route compromise on the protection of wetlands for the bird's survival. At the large scale, several policies guide this effort (for instance, Ramsar), while at the smaller scale, as with the focus of this paper, issues of urbanisation, environmental degradation and habitat protection that directly impact the species are inextricable from larger challenges and the complexity of growing cities. This paper considers these contrasting worlds and ways in which synergies and mutual benefits could emerge to integrate them.

On this basis, this paper uses a literature review to explore the potential of augmented wetland habitat through the lens of SCD and WSUD. In this way, it examines the possibility of coexistence between humans and the FEC by utilising wetland habitat within and adjacent to urban regions. At the same time, wetlands can give back, leading to a 'win-win' reconciliatory ecology (Q Li et al, 2022) that can store, purify and reuse urban water resources while simultaneously improving urban biodiversity.

Literature review

Keyword retrieval is commonly applied in literature reviews (Schumann et al, 2020). The aim of using it in this instance was to highlight the existing scholarly literature in the fields of FEC, landscape architecture, SCD, WSUD and habitats research that forms the body of knowledge on the impacts of urbanisation on wetland ecosystems, rewilding principles and their application to urban environments, and the theory and practice of SCD, WSUD and urbanisation. This considered literature comes from the Web of Science and the Chinese National Knowledge Infrastructure (CNKI). To keep the focus on timely research, the search period was set between 2018 and 2023.

Table 1. Keyword search results

Keywords	Number of articles in Web of Science	Number of articles in the CNKI
LA; Bird habitat	4,623	72
LA; SCD	84	1,194
LA; WSUD	75	0
LA; Bird habitat; SCD	1	0
LA; Bird habitat; WSUD	2	0
LA; Bird habitat; Urbanisation	21	3

As table 1 shows, the landscape industry has a notable lack of research on protecting bird habitats in WSUD and SCD. In the field of landscape, bird habitat and urbanisation are negatively correlated, which proves that urbanisation has led to the loss of bird habitats. Most importantly, no results were yielded through searching for the combined key words of 'Far Eastern curlew' and 'landscape architecture'.

The literature review revealed new approaches to urbanism and wetland habitat design.

Alternative development strategies

Urbanisation is the process of city growth, while urbanism is the study and practice of how cities are organised, experienced and managed. To address the contradiction between urbanisation and water, wetlands and ecological environment, scholars and practitioners worldwide have proposed a diversity of urban development strategies. Examples are WSUD in Australia (Morison and Brown, 2011), SCD proposed by Chinese scholar Kongjian Yu (2016), low impact developments (LID) in the United States (Pyke et al, 2011), sustainable urban drainage systems (SuDs) (Mitchell, 2005; Tang et al, 2018) and blue green cities (BGCs) from the United Kingdom (O'Donnell et al, 2020). All of these initiatives attempt

to coalesce the potential for human settlements and populations to explore and improve the relationship between water, habitat, biodiversity and resilience in a synergistic manner. These strategies profoundly affect the landscape and local ecology (K Yu, 2016; L Yu et al, 2016). In the case of SCD and WSUD, both can expand or protect animal habitats and improve biodiversity.

Sponge city design

Kongjian Yu and Dihua Li (2003) first proposed SCD in *The Road to Urban Landscape: A Discussion with Mayors*, an approach that the Chinese government began to heavily promote in 2014. When Budge (2006) studied the Australian population, he likened the ability of cities to absorb people to a sponge. The core concept of SCD is to consider how a city's spaces function as a giant sponge composed of several tiny sponges by building their facility for low-impact development (W Wang et al, 2015). The metaphor of a sponge has been extended to become a common way of describing the ability of cities to absorb and release water. As more scholars have come to recognise the SCD concept, an increasing number of demonstration projects have won awards worldwide (K Yu, 2016).

While some of these 'sponges' may be natural, others are, or could be, constructed or artificial. Each sponge has the capacity to regulate rainwater, store water resources and purify water bodies. Given the distribution of natural 'sponges' within cities is uneven, different parts of the city vary in their ability to regulate water. So it makes sense to design and construct sponges, which may involve a variety of measures, such as constructing rain gardens, wetlands, green roofs and permeable paving. These structures can absorb, store, infiltrate and purify rainwater, as well as use stored water resources when needed (Yanwei, 2015).

Sponges are the same as the landscape in the 'landscape security pattern' theory. Their pattern in space is composed of specific key locations and spaces. This pattern is essential for solving water problems and protecting biodiversity and populations. The diffusion is of great significance (Xiao et al, 2020). However, with the acceleration of urbanisation, natural sponges are destroyed, artificial sponges become sparse, and the important connections between sponges are increasingly damaged. The SCD creates a vital system by repairing existing sponges, adding new ones and re-planning their layout. This system is different from grey infrastructure. It is more resilient and multi-functional and can solve water problems flexibly and continuously (K Yu, 2016).

Water-sensitive urban design

In WSUD, urban planning and urban water cycle management are integrated and optimised through urban planning and design with water supply, wastewater, stormwater, groundwater and other facilities at different spatial scales from the city to the site. WSUD puts 'water' at the beginning of urban design. It carries water through to every aspect so that water resource use, storage and reuse operate within a 'sustainable' framework (Ghofrani et al, 2017). This can be achieved through high-quality planning and design, including rainwater treatment, wastewater reuse, street greening, soft surfaces, and biodiversity enhancement. WSUD can link the natural water cycle, the built environment and traditional groundwater systems to create a safer and more efficient water cycle, thereby increasing the city's immunity to flooding (Oral et al, 2020; YL Wang and van Roon, 2020).

Wetlands in SCD and WSUD

As natural water treatment systems, wetlands can absorb and filter water, purify water bodies and enhance biodiversity. SCD and WSUD can interact with wetlands to achieve sustainable use of water resources and to improve water quality (Zhang et al, 2020). For example, WSUD can collect and store rainwater and then direct it to wetlands for treatment and purification (Kentula and Paulsen, 2019). Wetlands can well purify rainwater, reduce the pollution level of water bodies and protect water quality in SCD (Min et al, 2021). Wetlands can improve water quality by removing pollutants and nutrients from water through plants and soil (Everett et al, 2016).

Therefore, wetlands are an essential water treatment facility in SCD and WSUD to treat sewage and stormwater discharged by cities. More efficient water management and water quality improvement can be achieved by using wetlands in conjunction with other facilities (for example, permeable paving and bioretention basins) (Sochacka et al, 2021). In addition, wetlands can provide landscaping, improve air quality and increase urban green space. In conclusion, although contamination of wetlands may threaten the survival and reproduction of some species, interactions between SCD, WSUD and wetlands can lead to sustainable use of urban water resources and improved water quality, urban environments and biodiversity (Ghofrani et al, 2017). Therefore, wetlands have an essential role in SCD and WSUD, which can reduce waterlogging problems and improve the utilisation efficiency of rainwater resources.

As noted, however, the research has a significant gap on enhancing biodiversity through wetlands in WSUD and SCD strategies. Even when a paper mentions it, it does so only briefly. This phenomenon might be attributed to the difference in scope between landscape architecture and urban planning. Unlike urban planning, which focuses on the macro and the entire city, landscape design pays more attention to the micro and meso scales, concentrating on specific spaces.

As landscape designers, in response to the current challenge of urbanisation leading to the disappearance of FEC habitats, we can capitalise on our expertise in integrating design with natural ecosystems and habitat preservation. Therefore, taking this research on the FEC as an example, a focus on how to restore the habitats of endangered species within urban wetlands supplements and expands on WSUD and SCD strategies in the field of landscape.

Research-by-design explorations

Research-by-design is an academic research approach that employs design as a research method. This approach is mainly applied in landscape architecture and urban design (Dezio et al, 2021). It is particularly suitable for dealing with problems and systems that require continuous adaptation. For instance, in creating a habitat for FECs, research-by-design can further study the habits of FECs through diverse artificial habitat designs and explore its potential to adapt to artificial urban wetlands.

This research method makes design a process not only of design but also of exploration.

- **Scope of geographic range:** The design approach focused on two regions, the Yellow Sea of China and Western Australia, and was mainly concerned with urban environments within these regions.
- **Scope of urban environments:** This study focused on the implementation of wetland rejuvenation in urban environments through WSUD and SCD. Correspondingly, being a location with significant urban population growth and/or pressures was considered as an important factor for selection.
- **Scope of target species:** Although the FEC was the main target species of this design approach, the approach also considered results could apply to other birds and organisms that depend on wetland habitats, as well as visitation and synergistic opportunities for humans visiting and/or residing in the area.

Bodhi Island bird wetland habitat, Hebei, Tangshan, China (440 hectares)

Bodhi Island, situated near Tangshan, Hebei in the Yellow Sea's severely degraded FEC habitat zone (figure 2) provides critical wetlands and shoals that sustain FEC populations and migratory birds. Formed by Qing River alluvial sedimentation, the island was historically used for sea cucumber farming and salt production until 2008, when Tangshan initiated eco-tourism development, including artificial expansion into former salt fields on its southwest. The northwest's three mudflat types offer diverse FEC habitats, simultaneously serving as a research database for ecological studies.

Figure 2. Bodhi Island in (a) 2008 and (b) 2022 (imagery by Google Earth).

Figure 3 outlines the project's dual-purpose design: the western side depicts constructed wetlands for FECs and migratory birds, while the eastern half displays government-planned resorts. This spatial coexistence model highlights human–bird mutualism: proximity to human zones enhances anti-poaching monitoring, while rare birds and intertidal ecosystems attract global tourists and researchers, boosting local eco-tourism.

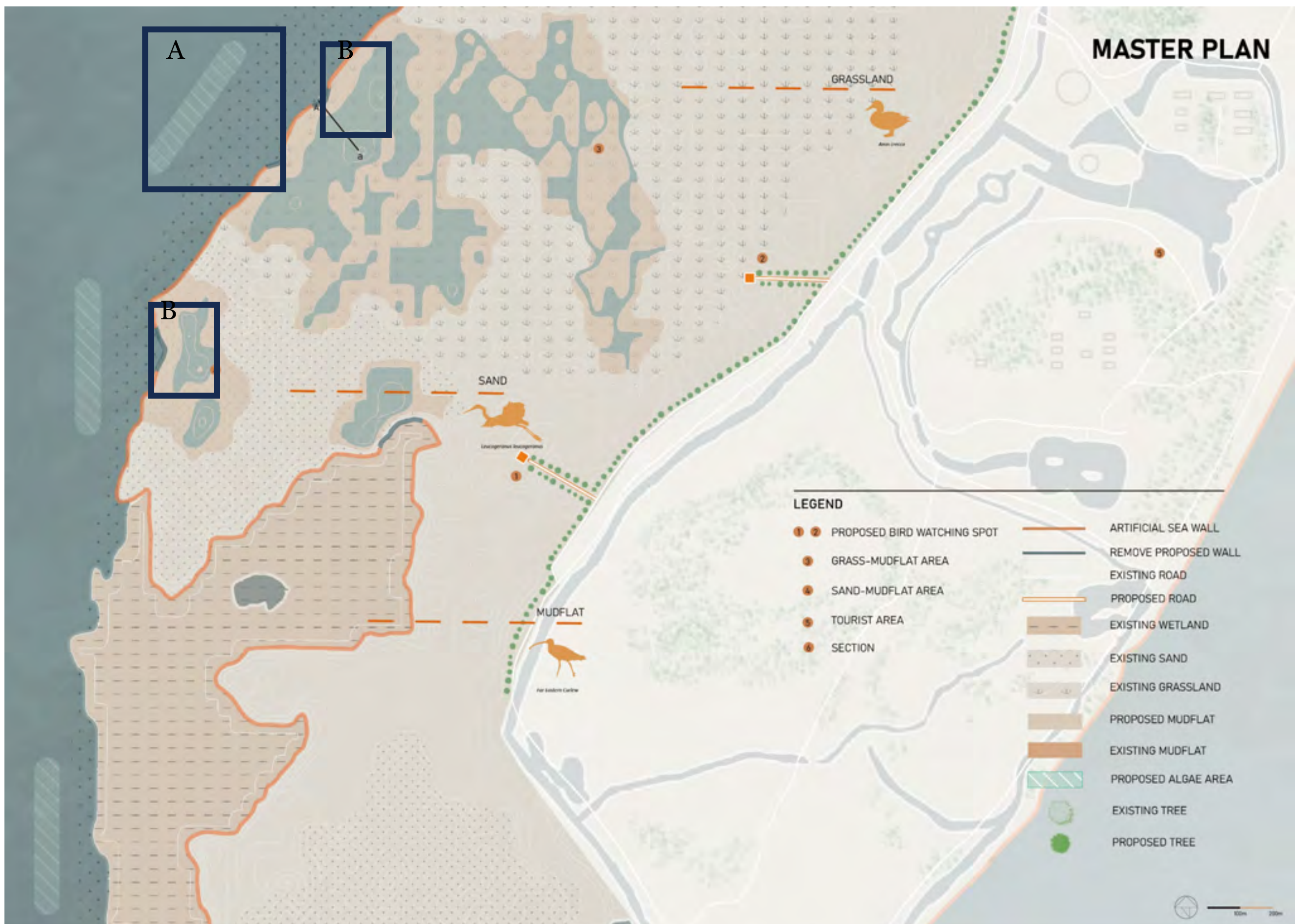


Figure 3. Bodhi Island Plan (image by Mu, 2023).

The following are some key design moves.

Algae cultivation area

As figure 3 (block A) shows, the site lies 3.5 kilometres from Jingtang Port, China's largest port. With 90 per cent of the site's coastline occupied by salt pans and fishing grounds and heavy fishing boat activity, oil pollution has surged on its southern coast. To combat this, a seaweed cultivation zone (light-green diagonal band, western sea) has been implemented, mitigating oil contamination, protecting mudflats, enhancing marine biodiversity and sequestering carbon dioxide.

Forest boundary

Figure 3 also shows a central forest boundary that is proposed despite the site's undisturbed western area. Insufficient supervision allows tourists to illegally access mudflats, threatening nesting bird eggs and food resources. The 50-metre-wide forest strip between the mudflat and road physically obstructs entry, deters egg and seafood harvesting, and visually shields birds from human activity impacts.

Remove the artificial embankment

The island is a naturally formed feature at the mouth of the Qing river, creating a large and fluctuating area of mudflats. The proposal encourages the removal of existing concrete wall embankments built along the shore, so that natural water flow and tides can once again enter the grasslands and sandy areas of the western part of the island, as illustrated in block B of figure 3.

The landscape zoning of the site creates mudflats divided into three categories: mudflats, grassland mudflats and sandy grasslands. These different habitats can provide more choices of predation sites for migratory birds. Diverse environments are also helpful for observing and studying the habits of FECs. These mudflats are sponge bodies in SCD that absorb and store seawater, replacing grey infrastructure with blue-green infrastructure.

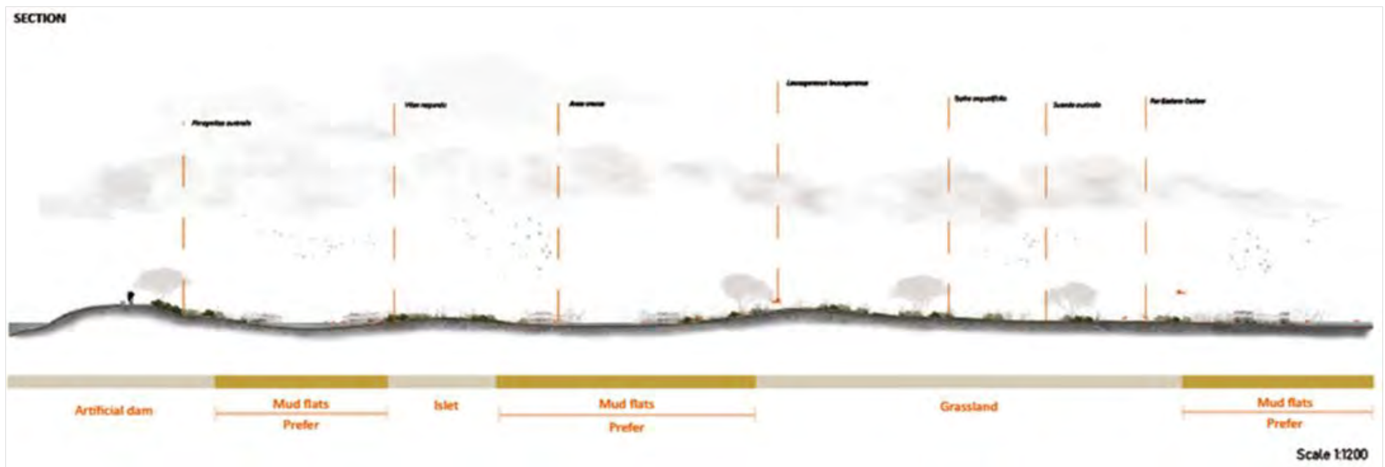


Figure 4. Bodhi Island bird wetland habitat section (image by Mu, 2023).

Design strategies focused on expanding FEC habitats through tidal restoration and native revegetation (figure 4). Removing artificial embankments on the island's west side reconnects tidal flows, enabling natural formation of mudflats, islets and grasslands. Native plantings stabilise soils and provide bird shelter, while the dynamic intertidal zone – functioning like a tidal sponge – boosts biodiversity by absorbing and releasing water with tidal cycles. As mentioned in the literature review, anthropogenic disturbance, substrate type and food density are the main influences on the FEC habitat. The large-scale, complex and diverse habitats restored artificially in this area can provide more comprehensive indicators for the FEC habitat research.

Illustrating the proposal by section was also a feature of the design approach, akin to the 'measurable, accurate and visual' approach suggested by Kilbane et al (2019). This

demonstrates the variety of habitats created and their utility for the FEC in supplementing the aerial/masterplan view.

Attadale Cove wetland habitat, Perth, Western Australia (9.97 hectares)

Attadale Cove, a critical Western Australian wintering ground for FECs, has seen population declines linked to coastal urban development and sea-level rise, despite its Bush Forever Area status. The site's narrow configuration intensifies conflicts between habitat and human activity.

To address this issue, proposed artificial islets aim to expand FEC habitats while maintaining essential human uses, aligning with DL Li et al's (2020) findings on habitat selection criteria. This nature-based solution implements Lilleyman et al's (2016) successful artificial habitat strategies while mitigating acidic soil exposure and stormwater impacts, supporting WSUD objectives. The dual-purpose design enhances ecological resilience without compromising coastal functionality.

Figure 5. Attadale Cove master plan (image by Mu, 2023).

At the master plan level (figure 5), the FEC's preferred mudflat habitats (light-orange zone) face shrinkage from sea-level rise, coastal erosion and adjacent human activities (parks, school, cycling routes). Existing metal fencing and vegetation fail to buffer noise and visual disturbances. A proposed reinforced tree belt, 15 metres wide, along the fence line would mitigate human impacts. Additionally, upgrading the neglected bird-watching platform and adding new observation points will enhance monitoring of habitat dynamics.

The following are some key design moves.

Figure 6. Strategy map (image by Mu, 2023).

Eco boardwalk

As illustrated in block A of figure 6, the boardwalk features separate cycling and running paths while providing shade and minimising avian disturbance. Addressing the site's legacy as a buried waste zone, the design incorporates water-absorbent materials and plants to mitigate acidic soil exposure risks from winter storms. This dual-function solution reduces rainy-season erosion and toxic leaching while enhancing recreational safety.

Artificial islet

As illustrated in block B of figure 6, the artificial islet gives the FEC enough distance from human activities while protecting it from the threat of feral foxes that roam the site and prey on the FEC (and other species). More importantly, based on the Digital Elevation Model, the artificial islet is located on a higher terrain, which significantly increases the area of the mudflats while avoiding the risk of exposing toxic materials.

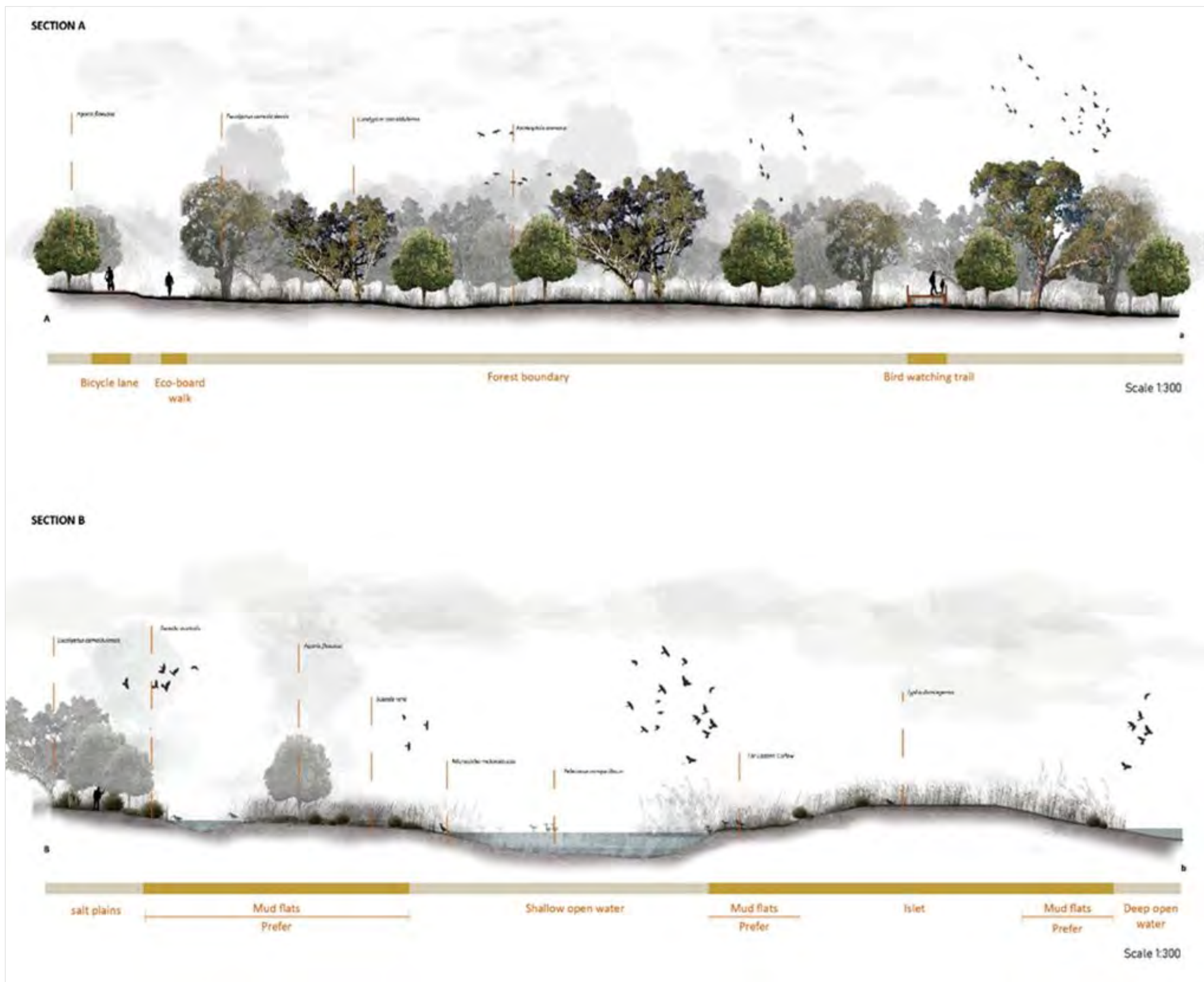


Figure 7. Attadale Cove bird wetland habitat section (image by Mu, 2023).

In figure 7, section A mainly shows the shielding effect of newly planted native plants on human activities. Bird-watching platforms allow visitors and bird lovers to maintain a suitable distance from the FEC, while also making it easy for researchers to inspect and evaluate the site. In addition, their careful siting maintains critical distance so as not to disturb the birds. Section B illustrates the provision of an expanded menu of salt plains mudflats and shallow open-water areas around the artificial island to cater for the specific needs and tolerances (ie, preferred water depth) of the FEC.

Discussion

The overarching aim of this research was to explore the ways in which we might better use design approaches to explore possible synergistic outcomes that could augment habitat of the FEC in the face of increasing urbanisation and human activity.

The literature review found many wetlands and habitats along the FEC migration route are disappearing fast (MacKinnon et al, 2012). Taking the loss of habitats around the Yellow Sea as an example, with the disappearance of these food supply points, the FEC cannot obtain enough food to complete its long-distance migration. The best response to this problem, to support the longevity of the species, is to protect and restore these habitats (Finn and Catterall, 2023). However, because the migration space covers a vast area, it is unrealistic to persuade all countries along the migration route to sacrifice economic development and prohibit human activities near these habitats. In such a situation, the only pragmatic solution is to find ways for humans and the FEC to coexist.

Lilleyman et al's (2016) research in the Northern Territory of Australia shows that attracting the FEC to artificial wetlands is feasible. Additionally, Q Li et al's (2022) research on the ecological needs of the FEC for habitats provides standards for the construction of artificial wetlands. Therefore, building artificial wetlands in cities to replace those that have disappeared is one of the main ways to solve the threats to the FEC. More importantly, the construction of these artificial wetlands not only helps the FEC, but also solves the water problems that urbanisation creates. SCD and WSUD provide a good theoretical basis for this, as these wetlands can purify polluted water, reduce flood disasters (K Yu, 2016), and store and reuse water resources, and through these wetlands, humans and birds can achieve mutual benefits.

Based on these combined findings, this paper has adopted the research-by-design approach to explore how wetlands in SCD and WSUD could be used as vectors for increasing bird habitat. The first proposal under these design strategies is to develop wetlands to meet the basic requirements of SCD and WSUD and store, purify and reuse water resources. At the same time, sewage collection on site should not impact birds. Second, these wetlands should have different types of habitats and sites, such as shoals, reeds, mudflats and island lakes, so that they can meet the needs of a variety of bird species. Thirdly, water-purifying abilities are crucial to site design.

Strategies related to human activity propose it is crucial to control the distance between visitors and birds, and to provide protective perimeter vegetation and/or bird-watching platforms in each instance to minimise or prevent human interference. In addition, it is essential to consider future monitoring and maintenance, including regular assessment of the status of plant and predator populations, as well as the influence of humans, to prevent the emergence of invasive plants and animals that may damage the habitat.

Through the integration of theory and practice, this research sets a good precedent for how to restore the habitats of specific wetland species through WSUD and SCD, especially for those species that have been driven away from their habitats by urbanisation. These initiatives can enrich the WSUD and SCD strategies at the micro and meso levels.

Conclusion

This research intersects with Lilleyman et al's (2016) migratory bird habitat restoration through landscape, SCD and WSUD, using the FEC as an example. The FEC is indigenous to the Oceania region and has been part of its tapestry for millennia. With human development across the entire ocean, covering a total length of more than 12,000 kilometres of migration routes, only a diversified design strategy can meet the particular needs of different habitats in the FEC and the conditions of specific to individual countries.

About the authors

Mu Yibin graduated from the School of Design, University of Western Australia with a postgraduate degree in landscape architecture in 2024. His research focuses on restoring habitats for animals, especially birds, through landscape design.

Simon Kilbane is the Discipline Chair of Landscape Architecture in the School of Design, University of Western Australia. With a diverse experience across public, private and academic sectors both in Australia and overseas, he is driven by the pressing need for novel solutions that articulate and strengthen an enduring connection between people, place and ecology. Notable achievements include founding the landscape architecture degree at the University of Technology Sydney and co-founding the award-winning consultancy Rhizome.

REFERENCES

Amano, T.; Székely, T.; Koyama, K.; Amano, H.; Sutherland, W.J. (**2010**) A framework for monitoring the status of populations: an example from wader populations in the East Asian-Australasian flyway. *Biological Conservation*, 143(9), pp 2238–2247. DOI: 10.1016/j.biocon.2010.06.010.

Antonov, A.I. (**2010**) Nesting ecology of the eastern curlew, *Numenius madagascariensis* (Linnaeus, 1766) in the south of the species range. *Russian Journal of Ecology*, 41(4), pp 345–346. DOI: 10.1134/s1067413610040119.

BirdLife International. (**2010**) Spotlight on flyways. BirdLife International, Cambridge, United Kingdom. Accessed 11 May 2025, www.birdlife.org.

Budge, T. (**2006**) Sponge cities and small towns: a new economic partnership. *The Changing Nature of Australia's Country Towns,* M.F. Rogers, D.R. Jones, Eds., Ballarat: Victorian Universities Regional Research Network Press.

Burgin, S.; Franklin, M.J.M.; Hull, L. (**2016**) Wetland loss in the transition to urbanisation: a case study from Western Sydney, Australia. *Wetlands*, 36, pp 985–994.

Dezio, C.; Zhang, C.; Zhang, Y.; Marino, D. (**2021**) The role of landscape design in cultural rural areas: a didactic exercise to experiment a research-by-design process applied to an Italian UNESCO wine site. *Architecture*, 1, pp 117–139.

Everett, G., Lamond, J.; Morzillo, A.T; Chan, F.K.S; Matsler, A.M. (**2016**) Sustainable drainage systems: helping people live with water. *Proceedings of the Institution of Civil Engineers – Water Management*, 169(2), pp 94–104. DOI: 10.1680/wama.14.00076.

Faaborg, J.; Holmes, R.T; Anders, A.D.; Bildstein, K.L.; Dugger, K.M.; Gauthreaux, S.A.; et al. (**2010**) Conserving migratory land birds in the New World: do we know enough? *Ecological Applications*, 20(2), pp 398–418. DOI: 10.1890/09-0397.1.

Finlayson, C.M.; Davidson, N.; Pritchard, D.; Milton, G.R.; Mackay, H. (**2011**) The Ramsar Convention and ecosystem-based approaches to the wise use and sustainable development of wetlands. *Journal of International Wildlife Law & Policy*, 14, pp 176–198.

Finn, P.G.; Catterall, C.P. (**2023**) Towards an efficient indicator of habitat quality for Eastern Curlews on their intertidal feeding areas. *Australasian Journal of Environmental Management*, 30(1), pp 26–47. DOI: 10.1080/14486563.2022.2084166.

Ghofrani, Z.; Sposito, V.; Faggian, R. (**2017**) A comprehensive review of blue-green infrastructure concepts. *International Journal of the Environment*, 6, pp 15–35.

Kentula, M.E.; Paulsen, S.G. (**2019**) The 2011 National Wetland Condition Assessment: overview and an invitation. *Environmental Monitoring and Assessment*, 191, art 325. DOI: 10.1007/s10661-019-7316-4.

Kilbane, S.; Weller, R.; Hobbs, R. (**2019**) Beyond ecological modelling: ground-truthing connectivity conservation networks through a design charrette in Western Australia. *Landscape and Urban Planning,* 191, art 103122. DOI: 10.1016/j.landurbplan.2017.05.001.

Li, D.L.; Zhang, J.; Liu, Y.; Lloyd, H.; Pagani-Núñez, E.; Zhang, Z.W. (**2020**) Differences in dietary specialization, habitat use and susceptibility to human disturbance influence feeding rates and resource partitioning between two migratory *Numenius* curlew species. *Estuarine Coastal and Shelf Science*, 245, art 106990. DOI: 10.1016/j.ecss.2020.106990.

Li, Q.; Zhou, Y.; Yi, S.Q. (**2022**) An integrated approach to constructing ecological security patterns and identifying ecological restoration and protection areas: a case study of Jingmen, China. *Ecological Indicators*, 137. DOI: 10.1016/j.ecolind.2022.108723.

Lilleyman, A.; Garnett, S.T.; Rogers, D.I.; Lawes, M.J. (**2016**) Trends in relative abundance of the eastern curlew (*Numenius madagascariensis*) in Darwin, Northern Territory. *Stilt*, 68, pp 25–30. Accessed 16 April 2024, http://awsg.org.au/publications/stilt/.

MacKinnon, J.; Verkuil, Y.I.; Murray, N. (**2012**) *IUCN Situation Analysis on East and Southeast Asian Intertidal Habitats, with Particular Reference to the Yellow Sea (including the Bohai Sea)*. IUCN.

Min, L.; Xuxu, W.; Rui, Z. (**2021**) Initial exploration of ecological river management based on the concept of spongy city: taking the Chunlian River and Zifei Port Project in Lingang, Shanghai as an example. *Water Purification Technology* 40(6), pp 126–133. DOI: 10.15890/j.cnki.jsjs.2021.06.021.

Mitchell, G. (**2005**) Mapping hazard from urban non-point pollution: a screening model to support sustainable urban drainage planning. *Journal of Environmental Management*, 74(1), pp 1–9. DOI: 10.1016/j.jenvman.2004.08.002.

Moores, N.; Rogers, D.L.; Rogers, K.; Hansbro, P.M. (**2016**) Reclamation of tidal flats and shorebird declines in Saemangeum and elsewhere in the Republic of Korea. *Emu-Austral Ornithology* 116(2), pp 136–146. DOI: 10.1071/mu16006.

Morison, P.J.; Brown, R.R. (**2011**) Understanding the nature of publics and local policy commitment to water sensitive urban design. *Landscape and Urban Planning* 99(2), pp 83–92. DOI: 10.1016/j.landurbplan.2010.08.019.

O'Donnell, E.; Thorne, C.; Ahilan, S.; Arthur, S.; Birkinshaw, S.; Butler, D.; et al. (**2020**) The blue-green path to urban flood resilience. *Blue-Green Systems*, 2(1), pp 28–45. DOI: 10.2166/bgs.2019.199.

Oral, H.V.; Carvalho, P.; Gajewska, M.; Ursino, N.; Masi, F.; van Hullebusch, E.D.; et al. (**2020**) A review of nature-based solutions for urban water management in European circular cities: a critical assessment based on case studies and literature. *Blue-Green Systems* 2(1), pp 112–36. DOI: 10.2166/bgs.2020.932.

Peng, H.B.; Hua, N.; Choi, C.Y.; Melville, D.S.; Gao, Y.; Zhou, Q.Y.; et al. (**2015**) Adjusting migration schedules at stopping sites: time strategy of a long-distance migratory shorebird during northward migration. *Journal of Ornithology* 156(1), pp 191–199. DOI: 10.1007/s10336-014-1119-8.

Pyke, C.;. Warren, M.P.; Johnson, T.; LaGro, J.; Scharfenberg, J.; Groth, P.; et al. (**2011**) Assessment of low impact development for managing stormwater with changing precipitation due to climate change. *Landscape and Urban Planning* 103(2), pp 166–173. DOI: 10.1016/j.landurbplan.2011.07.006.

Schumann, H.; Berres, A.; Stehr, T.; Engelhardt, D. 2020. Effective selection of quality literature during a systematic literature review. *Informing Science*, 23, pp 77–87.

Sochacka, B.A.; Kenway, S.J.; Renouf, M.A. (**2021**) Liveability and its interpretation in urban water management: systematic literature review. *Cities,* 113**,** art. 103154.

Szabo, J.K.; Choi, C.Y.; Clemens, R.S.; Hansen, B. (**2016**) Conservation without borders: solutions to declines of migratory shorebirds in the East Asian–Australasian flyway. *Emu-Austral Ornithology* 116(2), pp 215–221. DOI: 10.1071/mu15133.

Tang, Y.T.; Chan, F.K.S.; O'Donnell, E.C.; Griffiths, J.; Lau, L.; Higgitt, D.L; Thorne, C.R. (**2018**) Aligning ancient and modern approaches to sustainable urban water management in China: Ningbo as a 'Blue-Green City' in the 'Sponge City' campaign. *Journal of Flood Risk Management*, 11(4), p 14. DOI: 10.1111/jfr3.12451.

Wang, W.; Li, J.; Wu, J; Yang, Z. (**2015**) Interpretation of the sponge city construction guidelines: indicators for total urban runoff control. *China Water & Wastewater*, 31, pp 18–23.

Wang, X.D.; Chen, Y.; Melville, D.S.; Choi, C.Y.; Tan, K.; Liu, J.J., et al. (**2022**) Impacts of habitat loss on migratory shorebird populations and communities at stopover sites in the Yellow Sea. *Biological Conservation*, 269, art 109947. DOI: 10.1016/j.biocon.2022.109547.

Wang, Y.L.; van Roon, M. (**2020**) Water sensitive design as an ecologically based urban design approach to facilitate stormwater resilience for industrial areas in Auckland. International Low Impact Development Conference (LID), Bethesda, MD, 20–24 July.

Xiao, S.C.; Wu, W.J.; Guo, J.; Ou, M.H.; Pueppke, S.G.; Ou, W.X.; Tao, Y. (**2020**) An evaluation framework for designing ecological security patterns and prioritizing ecological corridors: application in Jiangsu Province, China. *Landscape Ecology*, 35(11), pp 2517–34. DOI: 10.1007/s10980-020-01113-6.

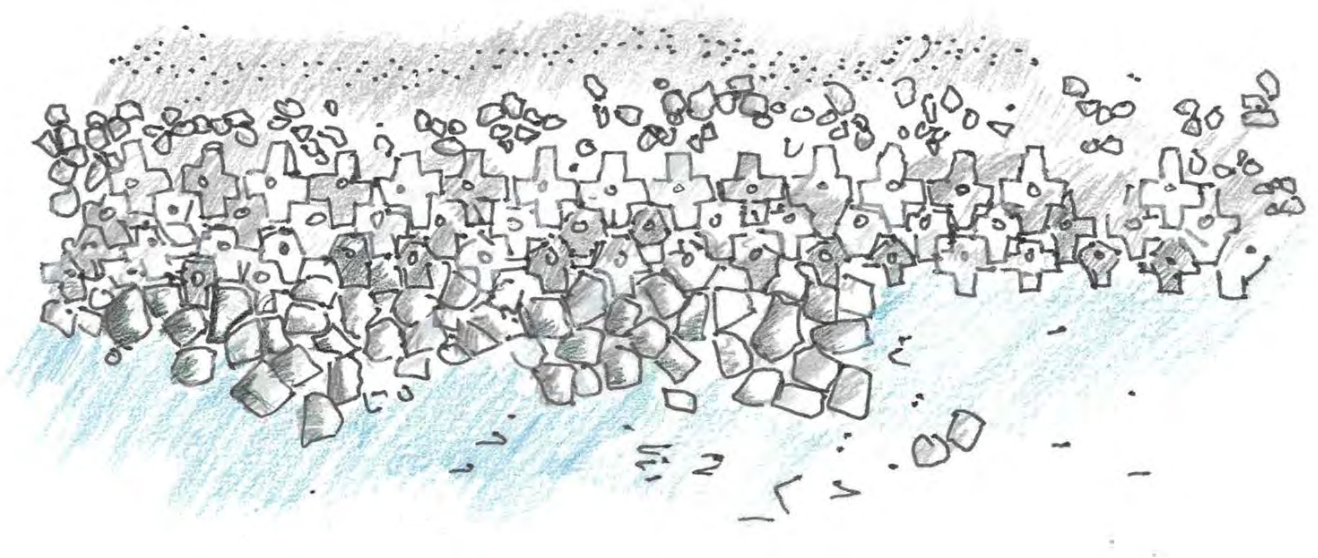
Yanwei, Z. (**2015**) Application of the porous city theory in road greening and landscape design. *Hebei Forestry Science and Technology* (6), pp 59–64. DOI: 10.16449/j.cnki.issn1002-3356.2015.06.021 .

Yu, K.; Li, D. (**2003**) *The Road to Urban Landscape: A Discussion with Mayors*, Beijing: Architecture and Building Press.

Yu, K. (**2016**) Designing cities that make sense. *Landscape Architecture Frontiers*, 4(4).

Yu, L.; Bai, Y.; Yan, W.; Li, Y.; Chen, T.; Zhang, G; Zhang, C. (**2016**) Integrated system for biological restoration of urban river water, has aquatic organism function group building region that is comprised with emergent aquatic plant and submerged plant to restore healthy water ecological system.

Zhang, K.F.; Deletic, A.; Dotto, C.B.S; Allen, R.; Bach, P.M. (**2020**) Modelling a 'business case' for blue-green infrastructure: lessons from the Water Sensitive Cities Toolkit. *Blue-Green Systems* 2(1), pp 383–403. DOI: 10.2166/bgs.2020.018.



Modified Xbloc revetment under construction (sketch by author, January 2025 from Te Ara Tupua Alliance drone photo 2024).

LANDSCAPE
REVIEW

Edge reprised

Sean Burke

This paper reviews relationships towards the land–sea interface in the currency of landscape architecture practice in Aotearoa New Zealand. With changing climates and failing infrastructure, there is urgent demand to repair and, further, to reframe and reposition how landscape practice engages in such modification. At stake is the necessity for repair to be in service of relationships across the many life worlds past and present that move with and through the coastal edge. Drawing on the project Ngā Ūranga ki Pito-One (Ngauranga to Petone) in Wellington, which 'reclaims' a strip of land from the sea, the paper takes a journey through this ambition, touching on aspects of the project and context including cultural, legislative and synthetic materiality. Reflective commentary offers an intimate window on current tensions and opportunities in landscape practice at the mercurial edges of the land, where stakes are high.

Sean Burke, Principal, Isthmus,
PO Box 90366,
Level 6, 246 Queen St, Auckland,
Aotearoa New Zealand.
Telephone: +64 27-249-4399
Email: sean.burke@isthmus.co.nz

Introduction

I am not a mariner, nor do I draw a living from the sea other than as it relates to my practice as a landscape architect. On Waiheke Island (figure 1), where home is, the sea is never far from mind— we smell it, watch it, cross it, play in it – and in that sense, my relationship with the sea is personal and normalised. I write as a practitioner, backed by my everyday experience, and share my reflections from my involvement in a significant edge reclamation project providing resilience and access. The moana of Tāmaki Makaurau Auckland and Te Whanganui-a-Tara Wellington have been a major component in some of my key projects over the last 20 plus years.

In this paper, I consider my relationship to this activity, the acts of seascape modification, hoping for care and intent rather than any wholesale approach. I note the tension between subtlety and deftness in landscape architecture as a design practice. In places, I touch on the technical knowledge held by other disciplines and therefore have positioned these technical aspects as what I know or understand imperfectly rather than as absolutes. I have done the same with matters relating to te ao Māori (the Māori worldview), which I have written about from my limited understanding and interpretation as tangata Tiriti (non-Māori) and have kept my comments at a high level for that reason.

KEY WORDS
reclamation; biodiversity; perception

Project discussion

Auckland, it is said, has four seasons in a day, and has been desired for centuries for its fertility and mild subtropical climate. Petone (figures 1 and 4) in Wellington, some 600 kilometres to the south, is also subject to 'four seasons in a day' weather. I know this from the many months spent working at the foreshore site office as urban design lead for Te Ara Tupua Alliance, an Alliance formed to deliver Ngā Ūranga ki Pito-One resilience and access project along the western harbour edge. At Petone, the squalls roll through from the Southern Ocean as strong bands of clouds, wind and chop. Sun, rain and sun again, great light and strong landscape, green, blue and grey, the harbour cinematic and powerful. In my opinion, the best view in Wellington is from the navel of the beach – Pito-One – it feels like birth and hanging on at the same time. My father is from Petone, and through him my connection to place and the incidental personal journey this project affords.

Citation: Burke, S. (**2025**) Edge reprised. *Landscape Review*, 21(1), pp 29-41.
Received: 24 January 2025
Published: 23 May 2025

Figure 1. Map of Aotearoa New Zealand showing locations mentioned in the text.

From Petone, the outlook to the south (figure 2) connects to oceanic vastness, making the mountain ranges and harbour feel primeval. From this positioning I have a certain sense of the subantarctic islands, though I have never been in the glug of the tide, the curve of the bull kelp in the water, and the smell of the ocean. Wellington, where everything is on the edge and there is a power in it. The ferries battered and bruised by the sea, rust streaks on white hulls, strange plays of scale and light, moving islands of people ever closer and further away, trains and cars buttoned in.

Into a faint opening, we as designers inserted a proposal to solve a resilience and access problem, imagining the fit of new space and utility in a tenuous battle between leap of faith and self-belief. It is not possible, though, to take something from nothing; the trade between land and sea is almost always inequitable, usually in this context in favour of land. In the back of mind are echoes of the past reclamation heyday with an elementary pragmatism that suited colonial utility, or at least its 20th century successor, a blind spot to the impact on the original inhabitants, the creatures and plants of the edge above and below the water and in the air.

There is huge cultural experience on the edge of Te Whanganui-a-Tara – and 'huge' as a word likely does not do justice to the lived experience of Taranaki Whānui ki Te Upoko o Te Ika (mana whenua or tribal authority over land). The origin story of the harbour and its Tupua creators is imbued with memories of phenomenal events. The detail of these events is well recorded in a cultural framework and worldview that explains the changes and experiences of the landscape in way that is together accurate and poetic – as I understand it from the outside. As tangata Tiriti (non-Māori), I could be well off beam. This is also true of the annual, monthly and daily phenomena associated with the ocean around Aotearoa, a rich field for designers and artists, but one that others with legitimate ownership of such knowledge are better positioned to share should they wish to.

Figure 2. View south from the project to the entrance of Te Whanganui-a-Tara Wellington Harbour. A portion of Wellington city is visible on the horizon to the right (image by author, August, 2024).

I enjoy working on the coastal edge; these are the landscapes of my youth but equally are not experiences unique to me as we have in many places – built suburbs on the edge. There is a dynamism in the coastal edge not found elsewhere; tide is a big contributor along with the variability of weather and light. Shifting qualities and the ever-present sense of potential.

Ngā Ūranga ki Pito-One project (figure 3) that this discussion circulates around ‘reclaims’ a strip of land from the sea, a piece of seafloor not yet uplifted by tectonic activity. Its primary ambition is to protect land not yet submerged by sea-level rise, and infrastructure not yet destroyed by climate change supercharged storms. The project was prompted by a 2010 weather event that in part washed out the commuter rail line. Such a synopsis, however, ignores the strip of life obliterated in the act of reclamation, and presupposes the replacement is of equal quality, in so far as it creates the ability to support life comparable with the former condition. though, to be fair, it is not all high-value seafloor, having been long exposed to sediment and other unwanted anthropogenic influences. The reclamation also provides for public access via a dedicated path for active transport modes to improve accessibility and safety by providing an alternative to the road corridor. In an urban sense, the project is a game changer, catalysing safe journeys to and from the capital; worthy of consideration, as the granting of consent identifies.

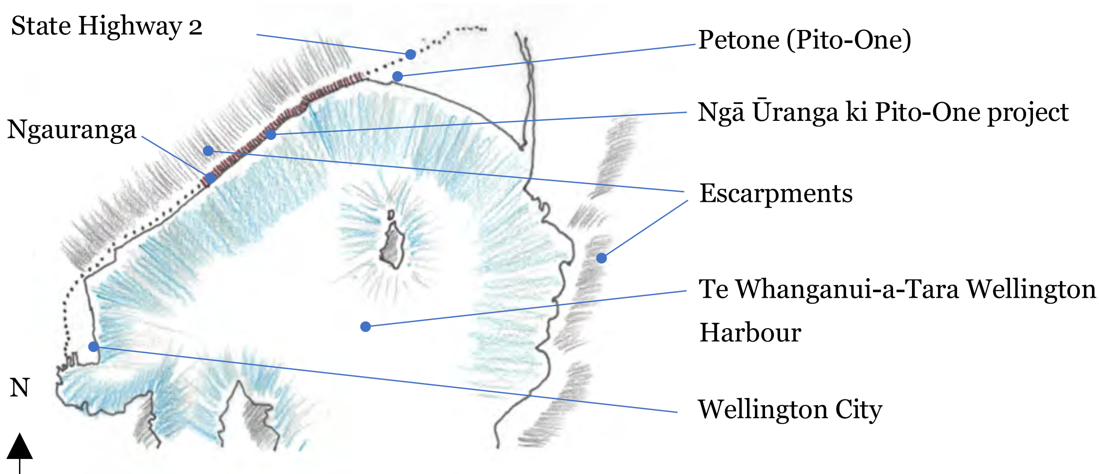


Figure 3. Te Whanganui-a-Tara. The section Ngā Ūranga ki Pito-One, within the wider Te Ara Tupua project, runs along the top left (west) edge as indicated (sketch by author based on an earlier Isthmus figure, 2024).

Progressed under the COVID-19 fast track process, the project gained consent for a series of ūranga (buildouts) for rest and gathering, lengths of rock revetment to support the path, and seawalls so the project can avoid cobble beaches and important bird-feeding areas. Footprint or plan view of the ūranga looked to mimic the form of the adjacent escarpment features to convey a sense of fit and continuity with those landforms. The approach did not, ride roughshod over coastal rock outcrops (figure 5) and underwater reefs, so alignment to the escarpment is not absolute. With ecological input, the proposed ūranga avoid high-value seafloor habitat as much as that habitat could be inferred initially, before it was confirmed with underwater cameras and diver footage. This process demanded adaptability throughout the design process, including in the detailed design when a stand of bull kelp was identified in a proposed ūranga footprint. After consideration of the issue led to governance consensus, the buildout was moved to avoid the existing kelp and the habitat it provides for other marine organisms. To a designer, that is a simple enough solution, an iteration to refine outcomes when more information is known. The design process is endless, and – to borrow a principle from project management – ending is the hardest part.

Reclamation is to be avoided under the New Zealand Coastal Policy Statement 2010 (part of the Resource Management Act 1991 cascade of policies that manage activities in our coastal marine area), and consent is difficult to achieve. However evolving wave data showed it would be challenging to achieve the natural rock revetment between ūranga within the consented footprint. Another solution was therefore required to avoid the need for further reclamation consents and impact on seabed habitat. The solution was to use modular concrete units developed in the Netherlands, which could achieve steeper slopes than quarry rock, allowing a fit within the consent footprint. Despite this, the fast-track process had not contemplated the form and effects of these units so a variation to the consent was still required, albeit of a lesser nature. In response, a concept was developed to modify the base unit form and colour, adding coastal character (figure 6), or at least approaching an equivalency of sorts with the consented solution of natural rock revetment. The units are not the same as natural rock, yet they do address matters of landscape in offering visual, experiential and perceptual outcomes along with character.

Figure 4. View north to Petone and the Remutaka Ranges (image by author, August 2024).

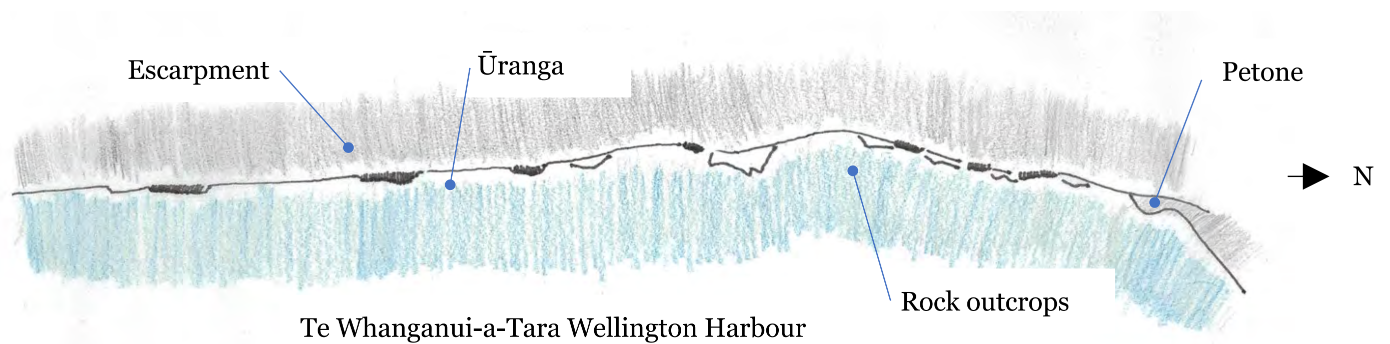


Figure 5. Ūranga (buildout) sequence is shown in black between land and sea. Existing outcrops (indicated as clear areas) were avoided. South to north, left to right. Nuances of the escarpment are not shown (sketch by author based on an earlier Isthmus figure, 2024).

The layering in of biodiversity drew on a cultural narrative proposed by mana whenua, through which their esteemed artist Len Hetet made visible the guardianship or custodial responsibilities that mana whenua have to the sea, the coast and all entities within these environments. This responsibility is real and vital for the project and the relationships therein. The narrative is understood to refer to the breath of the sea as expressed by the tidal rhythm, and as such to the sea as a living and ancestral entity and source of life and

sustenance. Artwork applied through formwork carefully considered negative and positive spaces to enhance ecological value, creating varied niche opportunities to attract a range of species. Thinking grew from the habitat qualities of bull kelp 'holdfasts', expressed as running perpendicular to the cultural pattern (figures 6 and 10) to create pockets within the concrete of differing depths.

An iterative design process with multidisciplinary review ensued between artist, scientist and designer to get the best fit from all perspectives (Bell et al, 2023). The complexities of construction drove further changes to the design, including shifting of the pattern from the inside to the outside faces so that the formwork could be removed. Constructor input was crucial; indeed, early solutions undertaken without it were abandoned, even though design in that sense is never really abandoned – just adapted and built on. Prior to progression, the coastal engineer required that ecological and cultural enhancements would not undermine the structural competency of the modular unit revetment. Similarly, it was essential for the ornithologist to be confident that kororā (blue penguins) could easily make their way up under the units to nest boxes at crest level without being inadvertently trapped and killed, with consequences for their breeding and viability in the harbour.

Figure 6. View north. Transport corridor to top left. Architectural and ecological Xblocs, both modified from the original functional Xbloc exhibiting initial algal growth after recent installation. The northern end of the project is shallow compared with the southern end (image by author, August 2024).

Straddling both land and sea, this in-between space (as above) is important to the cultural narrative, a stitch between the truly sea (anything subtidal) and truly land (above inundation by the tide). There is a gradient across the intertidal zone expected to be

colonised by sea life in a multitude of plant and animal forms, from the microscopic level where barely touched by sea spray through to larger and more varied organisms as wetting becomes more permanent. It is an exercise in human care and responsibility for the environment while at the same time extracting a function.

With many collaborators, it can be hard to identify the role of the landscape architect as designer in this piece. Landscape architecture certainly is the stuff of glue, pen holding and creative problem-solving; however, it is clear each collaborator leads for their discipline in terms of expertise, understanding and outcome priorities.

Figure 7. Example of an ūranga (buildout) with accent rocks. Note ūranga revetments are constructed of rock rather than modified Xblocs. The latter are used to support the path (along with seawall sections) between ūranga (with permission from Isthmus, August 2024).

More broadly, the design process and landscape architecture intent filtered by constraints and future proofing can lead to open-ended consequences. Early pre-consent sections developed by coastal engineers for a resilience scenario included rock revetment benches that are understood to reduce wave impacts. With the addition of natural rock clusters as high points and the introduction of troughs and 'guts' such as might be found along a rocky shoreline landscape, sections were prepared over the functional design. Here, considering user perception and sense of fit, the landscape architecture is intended to visually and perceptually work with natural rock outcrops, providing roosting habitat for birds and a resting place for visiting seals. Conceptually it is not dissimilar to earlier constructed work Isthmus undertook for Taumanu Reserve in Auckland but it is applied differently for the different landscape context. A pre consent illustration of the intended outcome is shown in figure 7, and a partially completed ūranga in figure 8a.

Concerns about the proximity of these structures to the walkway and therefore an entourage of people and dogs – perhaps accompanied by some reticence around constructability – amplified the ecological role over character. This reflects the priorities under the Resource Management Act 1991, which in my opinion are correct, although, thinking purely of design, somewhat frustrating. These concerns pushed the bird habitats offshore with required footprint and resilience parameters that, while protecting the intent, made subtle execution more difficult. Nonetheless, where connected to land, the design strikes a balance to avoid a functional cross-section as a singular experience extruded along the ūranga rock revetments. A clustered approach with accent rocks retains the general landscape architectural intent of the concept. Concrete tide pools (figure 11) add to the welcome, ecologically driven outcome and visual richness, along with the possibility of multilayered life. While they are an offset in this design, they hold potential and purpose.

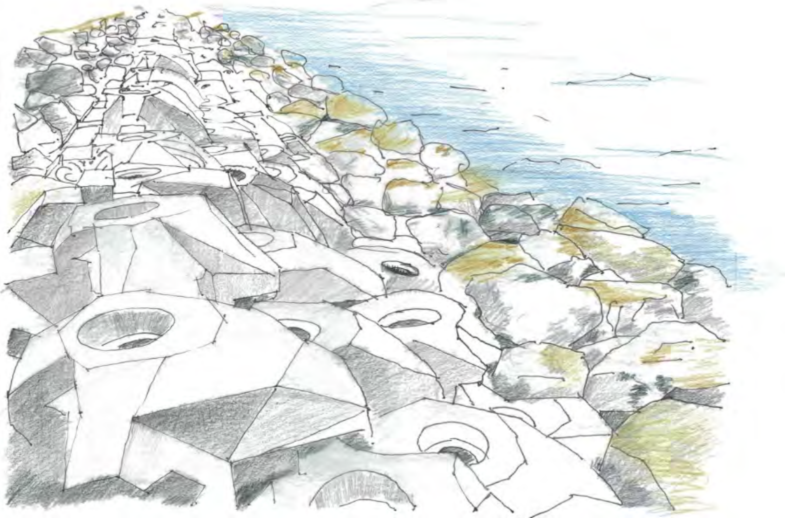


Figure 8. Modified Xbloc revetment section against the new pathway (sketch by author).

Figure 9. Concrete reef structures. Indicative marine growth post installation (sketch by author, August 2024).

Within this project, landscape architects lent weight to an opportunity to develop an offshore artificial reef (figure 9) to regenerate life in an area of seafloor that is of low ecological value. The inclusion of seafloor as a component of landscape, despite escarpments obviously bounding the harbour, is a hard argument to make without a strong regulatory requirement. A tendency exists outside of landscape architectural practice, to privilege the visual despite its implications for the 'out of sight' landscape.

Could the concept of underwater landscape be argued more strongly on an intellectual level? Absolutely. Landscape in the Aotearoa New Zealand context is accepted as physical, associative and perceptual (Lister et al, 2022, p 72). The seafloor is 'known' in this way, particularly with intergenerational experience and knowledge. In a similar way, terrestrial landscapes do not cease to exist on moonless nights and can be traversed by muscle memory or the shared knowledge of the group. As a practitioner, it can be a hard to advocate for what seem abstract concepts to others. Nonetheless a successful offshore underwater reef will be a game changer by promoting life in a currently barren area of the harbour while helping with water quality.

For longer-term consideration is the question of whether the artificial reef is valuable ecological infrastructure, given that it adds more human presence and intervention on the seafloor. However, experience in Australia with fish aggregating devices and artificial reefs

weighs the outcome strongly in favour of its value and gives confidence in this approach. If its success is proven, it opens the opportunity for using further well-thought-through interventions judiciously and in appropriate locations across coastal zones of Aotearoa New Zealand. Certainly, the perceptual problem is real and could lead to future removal. Yet the perceptual problem will also diminish with the project's success, and therefore much rides on it for the future of similar initiatives in this country. Of course, it is no silver bullet, but with improvements to management on land to protect our harbours as receiving environments, and other mechanisms to reduce pressure – such as personally limiting fish, shellfish and crustacean take to a sub-regulatory limit – the dial can shift to better outcomes.

In the same way, the support of mana whenua and local government partnership initiatives are important to reduce marine pests and increase biodiversity, as is respect for any marine reserves existing already or created in the future. A large emphasis, I think, is on personal responsibility for building back abundance – not necessarily always involving abstinence but certainly thoughtfulness in the act of taking.

As I write, installation of revetment modular unit sections is under way, and these to high-tide level have attracted a skin of bright-green algae. It feels encouraging as evidence of life, a weathering into place of this intervention on the edge. The designer in me is waiting for any sign that this is the right thing to do and marks the beginning of a broader colonisation of marine organisms across the project. It is understandable that interventions like this are difficult to consent after the reclamation excesses of the past. Conversely, I can see the pragmatic thinking and likely cost constraints at play that drove past decision-making and accept that they remain drivers even as solutions are now more ecologically considered. Yet an open mind is needed in assessing against the regulatory framework so that we can access the tools to design back abundance in degraded environments, either as standalone initiatives or as offsetting scenarios: a 'right tool, right place' approach.

Figure 10. Ecological Xblocs integrated with cultural artwork. While functionally above the tide, the artwork provides an important conceptual link between sea and land for mana whenua (image by author, August 2024).

Nonetheless, the coastline of Aotearoa is littered with demolished construction material used as armour to protect eroding beaches or to front reclamation of the past. In places are concrete seawalls, originally solid structures but since demolished by the waves over decades of impact. The detritus is jarring and a constant reminder of the eventual redundancy of intervention where thinking is more short term than long. The conditions today show what we have in front of us to rebuild the country's edge, but to do so purposefully and with care – augmenting where necessary, repairing, and creating substrates to support life as much as function and experience.

For the project, over and above the trajectory we have imagined, designed and consented, time will tell what success looks like. To a large degree, this success relies on the more dynamic nature of the coastal edge in comparison to other environments, noting nothing is truly static in any landscape condition. We know there are issues. Kororā management, for example, is ongoing and at the forefront for the project. My observation, contrary to what I might have thought otherwise, is that the constructors are serious about avoiding and minimising impacts on kororā – from a regulatory perspective certainly, but also to ensure positive relationships and reputations are maintained and, through engagement and education, to care for the birds themselves. As pressure comes on to complete the project, these positive cultures are important to avoid adverse outcomes for kororā. Nonetheless, resilience of the transport corridor for all travel modes is a necessity for a functioning city. Additionally, with an abundance of life as a project outcome, we have the opportunity to prove the equitable idea of exchange between land and sea – rather than one over the other – and so to offer a compelling precedent for the designed edge.

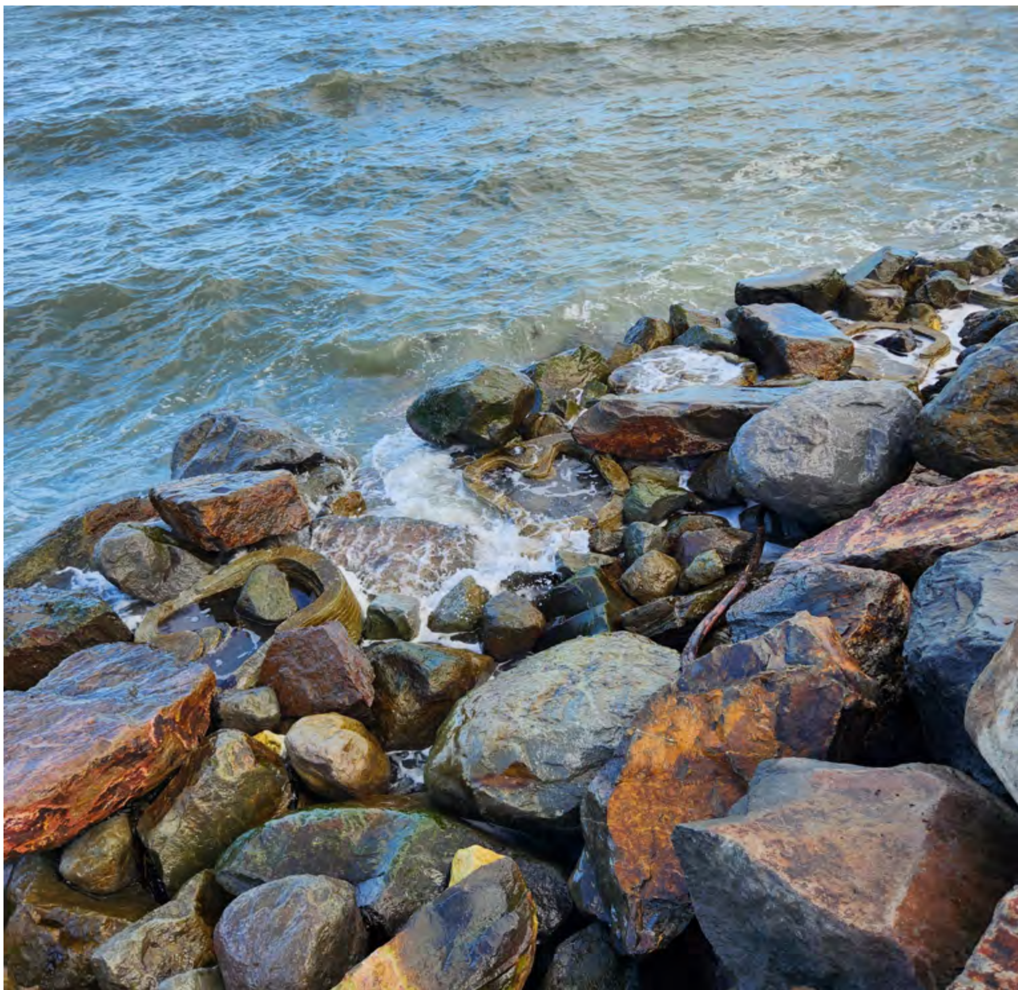


Figure 11. Construction phase. Tide pools required for ecological mitigation provide variability, enrich experience and exhibit a duty of care to build back opportunities for life (image by author, August 2024).

Reflection

There is an understandable wariness of reclamation and other sensitive environment interventions within contemporary Aotearoa New Zealand. Forest and Bird successfully appealed the granting of consent for an infrastructural project, Auckland's East West Link (Environmental Protection Authority, 2024), in a case that centred (as I understand it) on weighing the aggregated benefits approach against the New Zealand Coastal Policy Statement policies to avoid reclamation. The Supreme Court has recently returned the project to the drawing board and, helpfully for the discourse, provided guidance on interpretation.

Linking this outcome back to design, challenge like any other constraint can be good for innovation and creative outcomes due to the focus of thinking it forces. I acknowledge here also that I provided design support for the East West Link, albeit in 2017, and the determinations are real and relevant for my practice. Within landscape architecture, most practitioners have a high regard for natural values and systems even in remnant form. Ecology and ecosystems in the scientific sense are universal threads in our work in aspiration, though not normally our core expertise. Along with its emphasis on climate change, expert messaging is increasingly about impending catastrophic loss of biodiversity from human and human-induced activity (Ministry for the Environment, 2019).

Our modified environments press in on indigenous ecosystems, particularly where we occupy an edge for functions that primarily serve us, directly competing with endemic species for space. Nonetheless, humans are part of nature inherently, even if our presence in places like Aotearoa New Zealand has been comparatively short, and binary or similar separation is causative and problematic. Our modifications could in some arguments be construed as an expression of nature even if that proposition is loaded with existential risk and, for that reason, of limited practical use. Such an argument, I think, is not really what we mean when we say nature is us; it is rather that there is no 'them and us'.

In Aotearoa New Zealand, there is certainly interleaving of remnant ecosystems and imported organisms into environments modified by humans, and it is fair to acknowledge these elements do bring day-to-day benefits to human wellbeing (Department of Conservation, no date). But the quality of execution and sometimes reliance on a happy accident approach could be more well rounded with respect to broader outcomes. For landscape architects challenged by ecologists on the one-dimensional nature of planting (without habitat), the message can be hard to hear. Somewhere between full protection and complete permissiveness is the opportunity to look at creative solutions to build back better for robust biodiversity, cultural outcomes, good urban form, health and wellbeing benefits and infrastructure resilience, particularly when dealing with the coastal edge. If we are going wide in a design process, then all options should be considered on merit before focusing more specifically on effects, both positive and negative.

Where alternatives have been considered in depth and discounted (for good reason), part of the toolkit in that process should be considered reclamation and other interventions to achieve, where needed, resilience, urban form or other outcomes. Where they are used, the right balance between subtlety and deftness is needed. Design should be backed by good data and tempered with self-doubt. In that regard, the builder's adage of measuring twice and cutting once makes sense as it is easier to intervene than go back, but the right cut is necessary for the right outcome. It is my expectation that Ngā Ūranga ki Pito-One will be a success and become an example within Aotearoa of the building back of biodiversity in a considered and empathetic way for ecological (and landscape) values. I am not arguing for this approach as a model per se; rather that this occasion of design process demonstrates land-based tactics can have a place among the broad set of tools available to landscape architects to consider.

As to providing a high-quality experience, the project discussed here is blessed with a powerful and variable context within which to work. Buildouts provide places to rest, gather and contemplate and to achieve proximity. With an outlook dominated by a landscape in which scale and environmental dynamics mute the human-influenced components, it is

possible to forget peripheral 'city noise' with focused landscape architecture and in so doing, from a user perspective, gain the opportunity for formative experience and reconnecting to this coastline. The elements will be real, sometimes too much so. With an outcome layered with life, should that be established as expected through careful analysis and design, it may even be possible to imagine the subantarctic in the gulls, seals and bull kelp on certain days and envisage some future visit to those wild islands.

About the author

Sean Burke BSc BLA(Hons) NZILA Reg is a Principal Landscape Architect at Isthmus and is based in the Tāmaki Makaurau (Auckland) studio and lives on Waiheke Island where his family have grown up. Sean has 24 years of experience in practice, building on an initial degree in earth sciences from the University of Waikato followed by a degree in landscape architecture from Lincoln University. Sean has interests in design, history and natural sciences and is an NZILA Registered Landscape Architect. Projects Sean is involved in are across a variety of scales; however, some of the larger projects typically unfold over several years. Sean's involvement in Ngā Ūranga ki Pito-One began in 2016, when he worked on the consent design, and continues with the design and construct portion of the project programmed for completion in 2026. Similar coastal projects include the Beachlands Maraetai Walkway, Taumanu Reserve and Ngā Hau Māngere Bridge in Tāmaki Makaurau Auckland. Sean is a working-week commuter cyclist, ferry user and pedestrian and takes a multi-modal approach.

Glossary

Mana whenua	Tribal authority over land. Ngāti Toa Rangatira also are mana whenua. By agreement, Taranaki Whānui are providing cultural guidance for this project in the first instance; however, Ngāti Toa also have representation at a governance level (author's understanding)
Ngā Ūranga ki Pito-One	Ngauranga to Petone
Taranaki	A maunga (mountain) to the west of the central North Island, from which the region gets its name. Taranaki Maunga has the legal status of a person in recognition of its cultural importance. It is an active stratovolcano associated with the central North Island volcanic region and is the second-highest peak in Te Ika-a-Māui North Island
Te Ara Tupua	The path (ara) of the phenomenon (tupua). In the case of this project, it refers to the phenomenon caused by Whātaitai and Ngāke who, in te ao Māori, formed Te Whanganui-a-Tara Wellington Harbour (Waka Kotahi, 2020)
Te Ara Tupua Alliance	An alliance of the New Zealand Transport Agency Waka Kotahi as project owner and non-owner participants Heb, Downer and Tonkin and Taylor. Isthmus and others are subconsultants to the alliance
Te Ika-a-Māui	North Island of Aotearoa New Zealand
Te Upoko o Te Ika	Southern tip of Te Ika-a-Māui North Island
Te Wai Pounamu	South Island of Aotearoa New Zealand

Ūranga	Buildouts. Contextual for the project. Buildouts are named for historic landing places and, for that reason, are referred to as ūranga The names were gifted by mana whenua
Waiheke	An island in the Hauraki Gulf, 21.5 kilometres from Auckland city and with a population of 9,100

REFERENCES

Bell, J.; Bull, L.; Miller, A. (**2023**) Greening the Grey: Incorporating ecological enhancement into the Te Ara Tupua pathway. In *Proceedings of the Australasian Coasts and Ports 2023 Conference*, Sunshine Coast, QLD, Australia, 15–18 August. Accessed 30 April 2025, www.researchgate.net/publication/373899853_Greening_the_grey_-_Incorporating_ecological_enhancement_into_the_Te_Ara_Tupua_pathway.

Department of Conservation (**no date**) Healthy Nature Healthy People. Accessed 10 April 2025, www.doc.govt.nz/our-work/healthy-nature-healthy-people.

Environmental Protection Authority (**2024**) East West Link. Accessed 10 April 2025, www.epa.govt.nz/public-consultations/decided/east-west-link.

Lister, G.; de Lambert, R.; Titchener, A. (**2022**) *Te Tangi a te Manu: Aotearoa New Zealand Landscape Assessment Guidelines*, Auckland: New Zealand Institute of Landscape Architects. Accessed 29 April 2025, https://nzila.co.nz/media/uploads/2022_09/Te_Tangi_a_te_Manu_Version_01_2022_.pdf.

Ministry for the Environment (**2019**) Theme 1: Our ecosystems and biodiversity. In *Our environment 2019,* Wellington: Ministry for the Environment. Accessed 29 April 2025, https://environment.govt.nz/publications/environment-aotearoa-2019/theme-1-our-ecosystems-and-biodiversity/.

Waka Kotahi (**2020**) *Te Ara Tupua: Ngā Ūranga ki Pito-One: Cultural & Environmental Design Framework (CEDF)*, Report prepared by Isthmus for Waka Kotahi. Accessed 29 April 2025, www.epa.govt.nz/assets/Uploads/Documents/Fast-track-consenting/Te-Ara-Tupua/LP01_Te_Ara_Tupua_CEDF_Overview.pdf.

Te Whanganui-a-Tara Wellington and the geological forces of two taniwha, Ngake and Whātaitai (image by Matt Wakelin, 2020).

LANDSCAPE
REVIEW

Te karanga ki ngakengake: the call of the shifting forces

Matthew Wakelin and Hannah Hopewell

This design proposal extends and intensifies the powerfully present geological conditions of Te Whanganui-a-Tara Wellington in Aotearoa New Zealand. Originally conceived for an international design competition, it contextualises the magnitude of geological time and imagines an embodied experience of suspension, a quality of being between worlds yet in the felt immediacy of nothing but a field of transmissible intensity. The design emerges from and is given meaning by pūrākau (narratives) of Te Ātiawa (a tribal grouping) about two taniwha (powerful supernatural entities) called Ngake and Whātaitai. Together these taniwha give the why and how of Te Whanganui-a-Tara land and seascape; they contextualise geomorphology in deep time and express the entangled alliance between mana whenua and the specificity of place, a quality defining Te Whanganui-a-Tara. With the design, we touch on multiple relational intersections made possible by the forever mercurial space where the sea and the land meet, yet do so in such a way as to unsettle settler colonial schemas of landscape–seascape experience.

Matt Wakelin is a landscape architect at SBLA, 241 Sydney Road, VIC 3046, Australia.
Email: www.mattroy@gmail.com

Hannah Hopewell is a Lecturer, Landscape Architecture at Cornell University, 215 Garden Ave, Ithaca, NY 14853, United States of America.
Email: hh795@cornell.edu

Introduction

This design proposition is in service of Ngake and Whātaitai – taniwha (powerful supernatural entities) of Te Whanganui-a-Tara Wellington (harbour, city and wider region). Their ancient pūrākau (narrative) from Te Ātiawa, who are mana whenua (people with traditional territorial authority) of Te Whanganui-a-Tara, carries a wary reminder that the land of Te Whanganui-a-Tara is restless, unruly and very much alive. The landscape of this region knows action: tectonic plates subduct and fracture; rock corrugates and sculpts landform. In response, the wind tightens and speeds up when squeezing between up-thrusted ridgelines. In geological time, Te Whanganui-a-Tara is positively fluid, spilling its turbulence as a condition of material chaos.

While the impacts of everyday geological dynamism go undetected, massive geological events create significant dents in the deep-time psyche of place. For mana whenua and ahi kā (burning fires of occupation) of Te Whanganui-a-Tara, Whātaitai and Ngake – taniwha of Te Whanganui-a-Tara – carry as memory the impression of the origin event that formed the harbour of Te Whanganui-a-Tara. Together they represent an agreement with a place that writhes. The agreement is one of interdependency, a tethered and unbreakable relation that transmits the specificity of place knowledge. The name Whātaitai refers to the lifting of the land through tectonic force, and Ngake (a short form of Tō-Ngake-Ngake) refers to acts of tearing and thrashing. Together these taniwha continue to shape Te Whanganui-a-Tara landscape and seascape at a scale and power well beyond the reach of any land design, yet the significance of their influence is seldom fully conceived.

It is a prerequisite of systematic colonisation and the settler colonial mind to relegate land to being static, lifeless. Under this paradigm, which gave rise to the nation of New Zealand by way of invasion and 'literal trespass' (Simon, 2023), land was and continues to be abstracted as resource to own and occupy. In turn, land is leveraged as a foothold in the circulations of capital gain concurrently ushering a cascade of rights-based and aesthetic sensibilities that cement 'kiwi' *settlerness* as the cultural norm.

Such western-centric objectifications and their associated effacements of the relational realities embedded in lands fail to conceive of taniwha in their rightful context. *Settlerness* thus fails to understand what relation and responsibility to land might mean on this motu (island). Settler sensibilities consign the taniwha to myth, or a fragment of

KEY WORDS
Te Ātiawa; pūrākau; taniwha; waterfront design; decolonisation

Citation: Wakelin, M.; Hopewell, H. (**2025**) Te karanga ki ngakengake: the call of the shifting forces. *Landscape Review*, 21(1), pp 42-45.
Received: 20 January 2025
Published: 23 May 2025

superstition, casting it outside ‘real’ knowledge. This at once minimises taniwha and erases their rightful place as bearers of deep scientific knowledge acquired through generations of observation. It is an outcome that demonstrates not only suppression as a condition of settler nationhood, but also the incommensurability of colliding knowledge systems. The settler colonial mind therefore neither hears the call, nor heeds the warning, that the ground here moves. Such are the blind spots conditioned by whiteness.

Design

With this design we critically question the role of taniwha in occasions of landscape architecture. The design refuses to locate taniwha in the ‘habitat’ of superstition installed by colonisation. Instead it works with the prevailing wind and sea patterns to materially intensify a manifestation of Ngake as the tearing of the earth in fault-lines, and Whātaitai as the tectonic uplift that constitutes the highly turbulent geology of Te Whanganui-a-Tara. It works to ‘place’ the human within this movement, and afford an experience that registers the knowledge of taniwha power in the realm of sense.

A precarious ‘reef-like’ walkway from Oruaiti, a point at the mouth of the harbour, is envisioned (figure 1). Like a microcosm of Te Whanganui-a-Tara, the ‘reef’ captures the rushing winds, or the energy of Ngāke’s unseen presence, ‘turning up the velocity’ of its movements.

Figure 1. Oruaiti Point and plan of the ‘reef-like’ walkway (image by Matt Wakelin, 2020).

Figure 2. Elevation of the 'reef-like' walkway (image by Matt Wakelin, 2020).

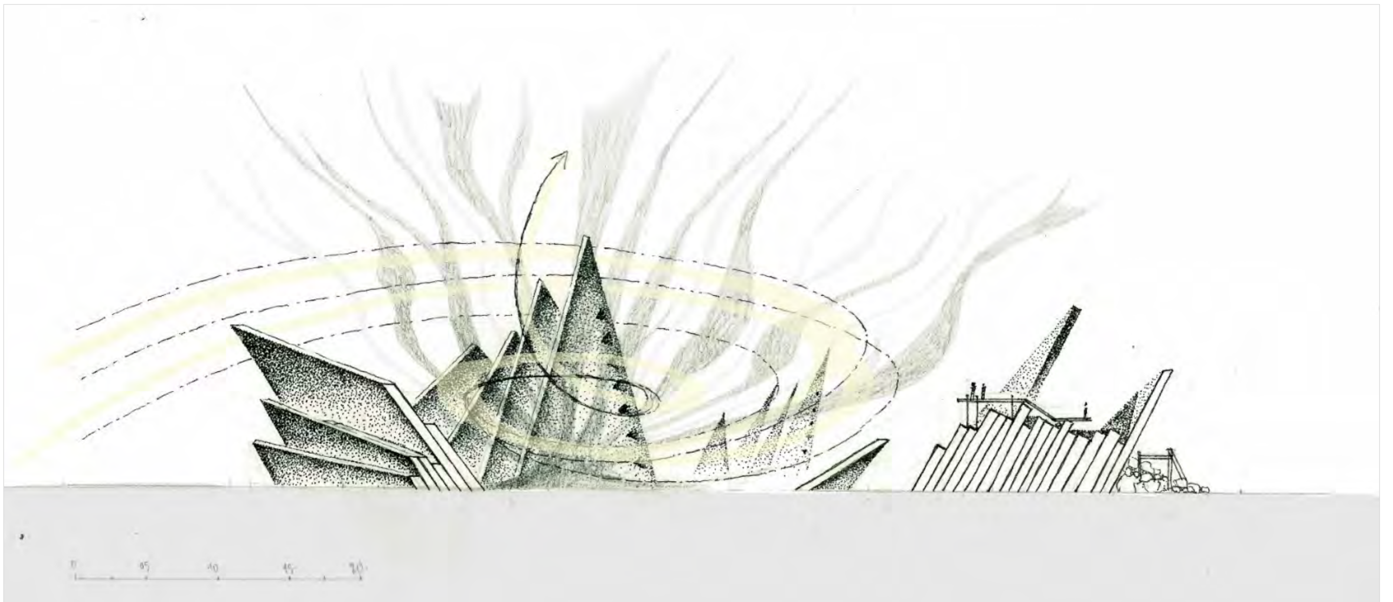


Figure 3. The 'fins' intersecting with the wind to tear up the sea's surface as the sounds of Ngake and Whātaitai resonate (image by Matt Wakelin, 2020).

With a series of concrete 'fins' protruding up to 20 metres from the sea's surface, wind-flow is concentrated to 'tear up' the surface of the sea (figures 2 and 3). Below the water line, the concrete substrate is variegated to accommodate the diverse and specific niches for local marine inhabitants. Between the Whātaitai structures, eddies and vortexes intermittently form and rise up, surprising walkers with seemingly spontaneous 'water spouts'. Channels and chutes are bored through the 'fins' to funnel the fast-moving winds, transforming the rushing air into fluctuating resonances of the power of Ngake and Whātaitai.

A path of shifting elevation permits embodied extension into this dramatic, yet everyday situation. Physical access is created and invited to impart experience; however, we want to be clear that the intended experience is not geared to co-opting the experiences and relationships mana whenua hold. Nor is it to assert an incidence of benign allure affirming the settler sublime and its fetishisation of natural systems. Taniwha are not fables of the past, but real, nonetheless virtual, dimensions of the everyday landscape–seascape of Te Whanganui-a-Tara.

Conclusion

This design response emerges from the ancient understandings of pūrākau to employ taniwha not as mythological creatures, but as deep knowledge about the phenomena of earth and time. It is our hope that through this design, the settler colonial usage of taniwha as a primitive mythical monster is cast aside, so as to awaken an empathetic re-cognition of taniwha in and of itself outside the ongoing hegemony of eurosphere epistemic appropriation.

While this design changes nothing for Ngake and Whātaitai, nor for mana whenua, perhaps the speculative materialisation of pūrākau might prompt another dent in the history of this harbour; this time one that dislodges blindnesses perpetuated by colonialism. For too long, landscape architecture has participated in settler 'common sense', aligning itself with a form of nostalgia for an idealised nature that ignores not only historical injustices, but knowledge held by mana whenua. To this end, this paper uses design as an occasion to dislodge settler logics through productive disorientation, and interrupt the constant yet often unnoticed reproductions of the settler sublime in landscape architectural projects.

Acknowledgements: We gratefully acknowledge Kura Moeahu, Chair of Te Rūnanganui o Te Āti Awa, mana whenua of the Wellington region, and offer thanks for the gift of his time and knowledge. This project would have no bearings without Kura's tikanga (customary protocols) and in-depth mātauranga Māori (indigenous knowledge) with respect to Te Whanganui-a-Tara, and his generosity in sharing it with us.

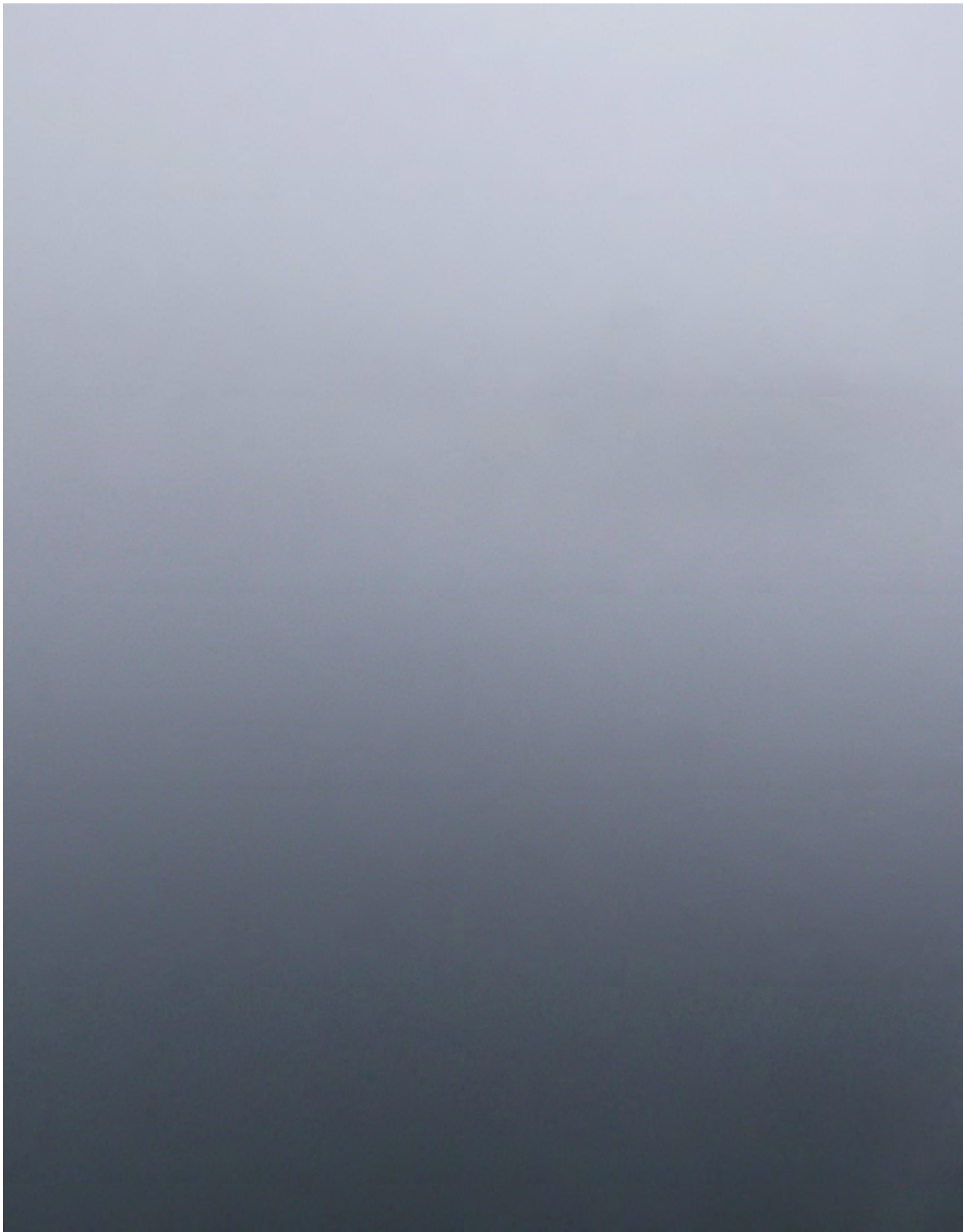
About the authors

Matt Wakelin, BArch, MLArch (Victoria University of Wellington), is a landscape architect at SBLA Studio with skills in planting, ecological design, community engagement,\ and hand-drawing. Matt has played key roles in designing schools, neighbourhood centres, inner-city public spaces, streetscapes, expansive inter-suburban parks, playgrounds, ecologically informed infrastructural systems, and master planned communities. All of Matt's projects emphasise understanding of a site's history and its unique natural systems in placemaking initiatives and biodiversity enhancement. He is always looking for ways we can innovate our designs and design processes towards sustainable, resilient and socially just outcomes.

Hannah Hopewell, PhD, is a Pākehā landscape architect, educator and creative practice researcher. In her teaching and research, she experiments with ways to identify and reckon with the complex legacy of landscape in human–ecological–geological relationships in settler colonial contexts. Hannah has contributed reviews, research articles and experimental text to *Architecture NZ, Freerange, Kerb Journal, Oraxiom* and *Interstices* and has authored chapters in books such as *The Politics of Design: Privilege and Prejudice* (2021), *Teaching Landscape History* (2025) and *Collective Landscape Futures* (2025). She has also exhibited in the *5th Auckland Triennial, Te Kura Waihanga Window Gallery* and *Pōneke Wellington City Light Boxes*. Hannah is a lecturer at Cornell University and an honorary research associate with Te Herenga Waka, Victoria University of Wellington.

REFERENCE

Simon, H. (**2023**) Settler/invader identity and belonging in Aotearoa New Zealand. *Ethnic Studies Review*, 46(3), pp 95–127. DOI: 10.1525/esr.2023.46.3.95.



Baltic Sea (image by author, 2024).

LANDSCAPE
REVIEW

Oceanscape as landscape

David Irwin

David Irwin is a landscape architect and founding director of Isthmus. PO Box 90 366, Auckland 1010, New Zealand
Email: david.irwin@isthmus.co.nz

'Landscapes are part of who we are. They are natural systems on which we depend, how we live with our land, and the meaning and pleasure we take from them and our surroundings. They are part of our identity. Landscapes are important to us all.' These words open the book, *Te Tangi a te Manu: Aotearoa New Zealand Landscape Assessment Guidelines*, and I agree with them fully. But, I wonder, can we not say the same about the ocean? What follows is a personal narration of my immersion in oceanscape. The reflection forms the beginnings of my understanding of what oceanscape is and how it is organised. My approach here is not to provide a structured assessment of oceanscapes in accord with *Te Tangi a te Manu*, but instead to open up an accord between landscape and oceanscapes, and possibly new ways of seeing and feeling the vast water bodies of the moana of the Pacific – the Pacific Ocean.

Introduction

Te Tangi a te Manu – authored by Gavin Lister, Rachael de Lambert and Alan Titchener (2022) – has recently become the go-to text for landscape assessment in Aotearoa New Zealand. In addition to being a professional practice guideline, it is a highly informed text offering a broad context within which to critique landscape. The authors outline the three overlapping dimensions that create 'a bridge between Te Ao Pākehā and Te Ao Māori interpretations of landscape'. These dimensions are: first, the physical environment; second, associative as in the meanings we attach to places; and third, perceptual as in how we experience places (figure 1).

Te Tangi a te Manu goes on to describe a bicultural, inclusive landscape concept in which these three overlapping dimensions have an overlay that integrates mātauranga (knowledge). This mātauranga comprises: whakapapa – the genealogy and layers of landscape and people (reflecting an overlap between biophysical and associative dimensions); hikoi – walking and talking with landscape and people, experiencing and perceiving the land in all its entirety; and kōrero tuku iho – ancestral knowledge passed down through generations interconnected through time, place and people, or pūrākau (ibid, p 73).

Te Tangi a te Manu prompts us to think again about the dimensions of landscape that we know but might take for granted or forget. Reflecting on the conceptualisation of *Te Tangi a te Manu*, I believe that the description of landscape it outlines allows us to consider the ocean as landscape. Ocean can be described more precisely as the overlapping intersection of the physical, perceptual and associated meanings of this world. The ocean is a natural system, it directly affects how we live with our land, and we gain meaning and pleasure from it and its surroundings. No one could deny it has perceptual and associative meanings. Every culture holds stories of the sea. Seafaring folk are a superstitious lot. And then, of course, there are the gods and atua of the sea – for example, Neptune and Tangaroa.

KEY WORDS
oceanscape; landscape assessment

Citation: Irwin, D. (**2025**) Oceanscape as landscape. *Landscape Review*, 21(1), pp 46-56.

Received: 18 January 2025
Published: 23 May 2025

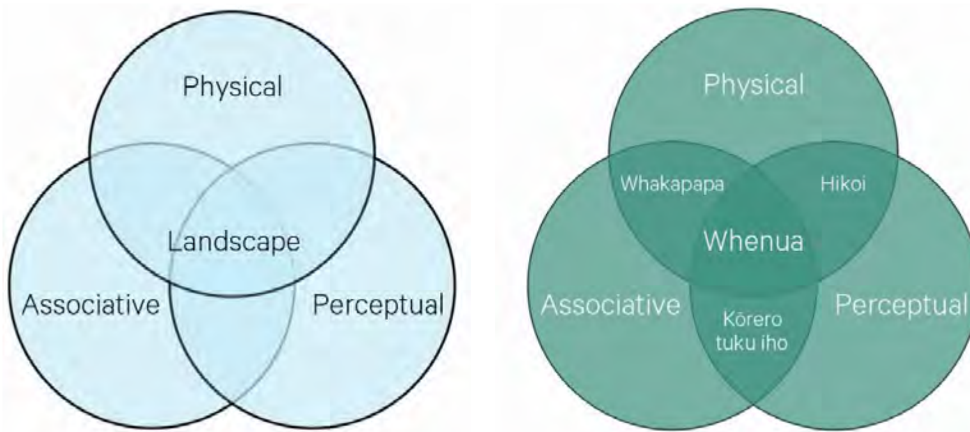


Figure 1. Diagrams of three overlapping dimensions of landscape from *Te Tangi a te Manu* (Lister et al, 2022, p 72)

I have come to understand that oceans are in fact landscapes, even when out of sight of land. We can consider oceans as an expanded type of landscape – as oceanscape. However, the ocean is often at the edges of statutory considerations and even of international environmental laws. Unlike land, its boundaries are fluid and hard to mark and control. The political lines drawn by conventions are invisible and conceived, on the whole, virtually without substantive place markers.

What follows are reflections on my immersion in oceanscape. This reflection forms the beginnings of my understanding of what oceanscape is and how it is organised. My approach here is personal, and not intended to be a structured assessment of oceanscapes in accord with *Te Tangi a te Manu*. I offer my account through thoughts, notes and photographs collected en route as I journeyed through the ever-changing liquid landscape. It is interesting to note that, while doing this, I remained responsible for the safety of the vessel at sea and all the people on board. I thank them for indulging me as I discussed with them many of these thoughts while we shared our time together on the 'high seas'.

Figure 2. Chasing the Southern Cross across the equator (image by author).

Notes from the crossing

'Southern Cross' is a song by Crosby, Stills and Nash from the early 1980s. I loved it then as I do today. Recently I chased the constellation of the Southern Cross across the southern sky aboard a boat '80 feet at the water line' (namely, the length of the boat where it touches the water), en route from San Diego to Papeete via the Marquesas – just as the first verse of the song describes. The second verse starts:

> When you see the Southern Cross for the first time
>
> You understand now why you came this way
>
> 'Cause the truth you might be running from is so small
>
> But it's as big as the promise
>
> The promise of a coming day

While under the light of the moon, on a night when you could whisper and still be heard, the three of us on board sang along to the stereo at the top of our lungs. I had spent my off-watch time studying the horizon, and making odd notes, drawings and photographs in trying to come to grips with our voyage, the journey and purpose, the scale of things All the while, I couldn't help but think of those who had journeyed this way before.

Travelling the moana of the Pacific – the Pacific Ocean – is not new to me. I consider many of the more abstract thoughts presented here are part of my day job as a landscape architect of more than 35 years. In the last 12 months, I have clocked more than 5,000 nautical miles or 9,000 kilometres on the Pacific Ocean. I have thought about this landscape, the oceanscape, before. A landscape where there are no apparent boundaries. Where the edge is being constantly renegotiated.

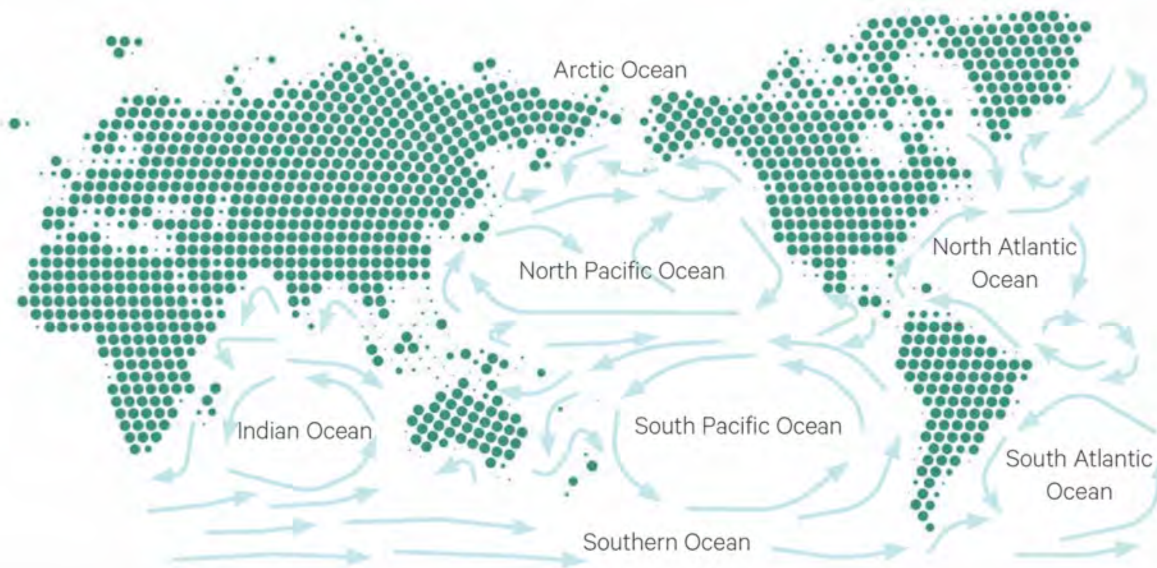


Figure 3. The oceans of the world (image by author).

It is a landscape where scale is hard to comprehend as it breaks with convention. Where the surface is fluid and the form infinitely variable all the time. Where everything is the same but different all the time. Where, as a human travelling through it, day, night and time in general get renegotiated. Where there are no lines, no visible pathways, tracks or footprints. The marks you do leave are washed away before your eyes. It is a place where I have learnt to accept that I am alien. The forces at play are substantial beyond my comprehension. When we spend time here, we do so at the discretion of the weather and the sea gods. This is why we did not waste the rum toasting Neptune while crossing the equator. We invested in his good fortune so he would treat us well as we moved across his domain, not ours.

I speak to my experiences in this landscape while I acknowledge all of those who travelled these routes before me. I feel closer to their histories. Time in this landscape is distorted. You can imagine a waka hourua sailing on a great migration. Those voyagers may be just over the horizon in front of you. At the same time, looking behind, you can feel a little concerned that a US warship could take you out for target practice.

One text I read that became an important part of my personal history as a landscape architect is *Land Alone Endures* by L F Molloy (1980). The content of the paper is as far from the sea as one might get, given it covers the plight of poor-quality soils in the high country of the South Island. The soils there are as dry as the book is. But it is the title that captured me. It implies an everlasting landscape. Not a whenua alive with a life force or a combination of ecologies abundant in a multitude of ways. It implies some stoic place fighting the physics of nature. Whereas I suggest the landscape that endures is in fact the sea. Water cuts through stone. It exists in all its forms, all of the time. It can easily shape-shift and invade all earthly things. All the while, it eats at the coast – at times with hunger, at others just nibbling.

Oceans cover more than 70 per cent of the world's surface. The Pacific Ocean accounts for nearly half of that share. It covers 32 per cent of the surface of the planet, holds 60 times more carbon than the atmosphere and absorbs 30 per cent of the world's carbon dioxide emissions from human activities. It holds more life and sequests more carbon than all of the world's forests combined. It is our life force.

Air rises from the sea as it heats near the equator to form the clouds that rise even further. Where those clouds meet land, their rain sustains life, including our own The water runs over the land to form the rivers and the valleys. If water was added to a game of 'paper, scissors, rock, lizard, Spock', in which every form can defeat at least one other, it would beat even the mighty Spock.

Our world spins at 1,600 kilometres an hour while hurtling through space at 107,000 kph. As it does so, the oceans respond – they too move. This, along with the gravitational pull of the moon, creates a complex inter-relationship of weather and tides and with it the dynamic of the ocean. With the sun's heating and night's cooling added to the mix, the effects of land masses, the polar ice caps and even the Coriolis effect result from Earth spinning. The movement affects not only the direction in which water flows down the plughole of the galley sink as we crossed the equator, but also the direction of the weather as it circles the Pacific Ocean – anti-clockwise in the southern hemisphere and clockwise in the north. The result is the complex inter-related systems that we call weather. The scientists have modelled all of this, but as my weather guru explains on his website, weather is a mix of pattern and chaos. The best way we can understand this as designers is through our patterned biased minds.

The weather is, in part, ocean. It shapes our terrestrial landscapes, over millions of years. While these processes are described as dynamic, on land they are in reality often glacially slow. The weather makes our oceanscapes as well. Again the processes are dynamic although in this case the change occurs not by millennia but constantly: an ocean-going vessel logs the oceanscape hourly. The logbook is a formal written record that includes a description of the oceanscape at the time.

While for the fish, marine mammals and ocean-going birds, the ocean is their home, those of us travelling through are not adapted to living in this environment. To remain safe, at times we tether ourselves to the bunk and the boat. Figure 4 presents a simple movement study that I completed each day while sailing from Fiji to Auckland in September 2023. Standing unaided in the companionway of the yacht, I held a pen on a small page for a minute. The lines are the result of the movement between my body and the boat. Note the still dot on the last day, recorded while waiting on board for quarantine inspection, having made landfall at Westhaven marina.

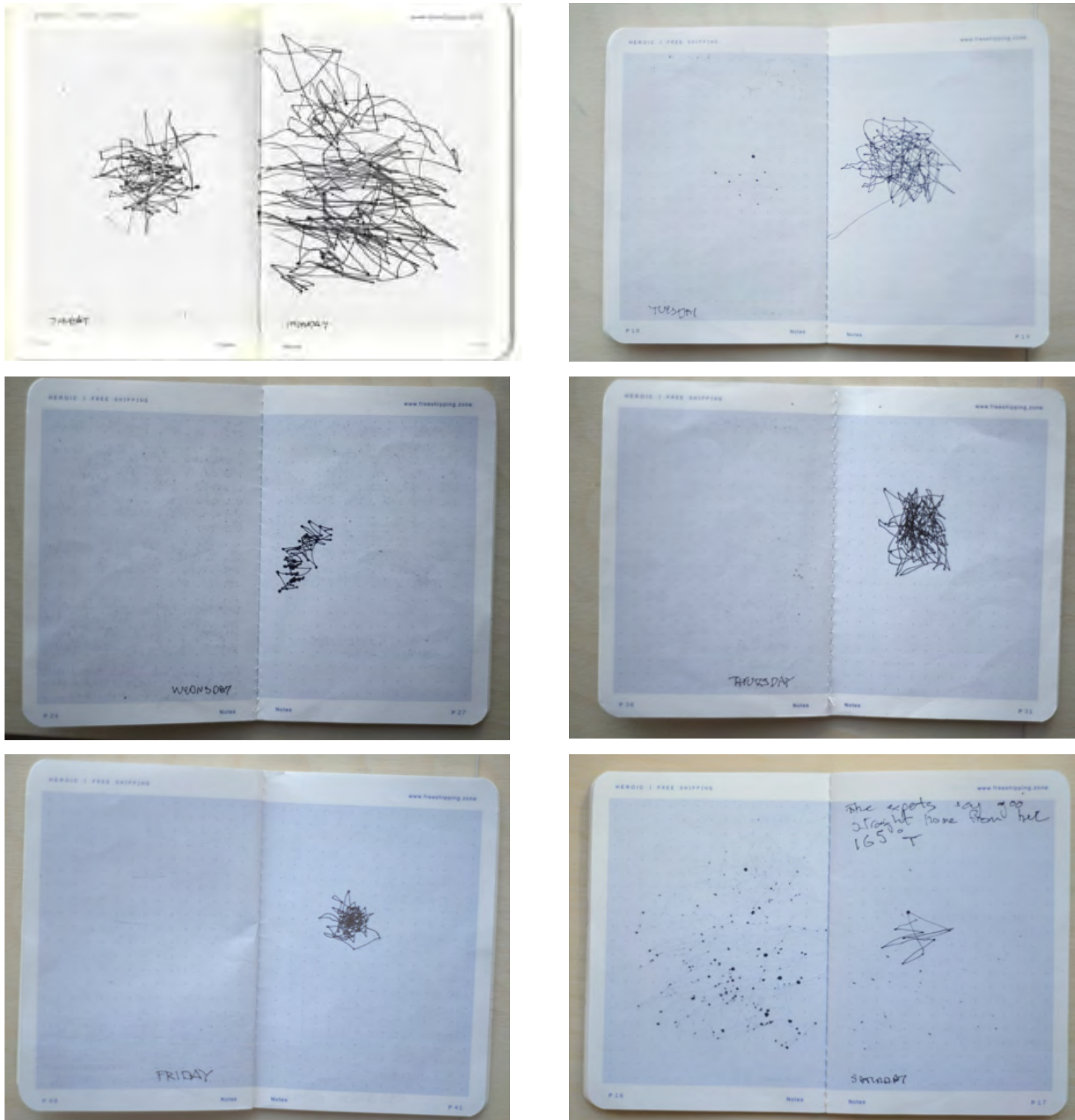


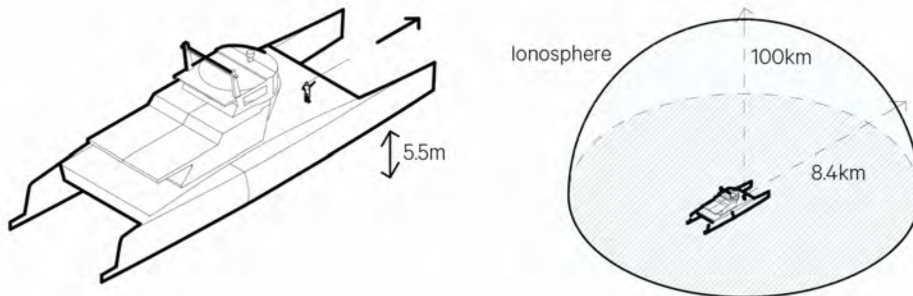
Figure 4. Above is a sample of movement studies conducted daily on my journey from Fiji to New Zealand (images by author).

The invisible force of the wind shapes not only the landscape of waves but also the movement of the entire ocean. The whole oceanscape is moving, with its invisible currents constantly in motion. The oceanscape is one of relativities. Driven by current and tide, the ocean is moving up and down with swell, wind and waves always shifting.

We humans create constants to allow us to understand this constantly moving place. We draw lines. We break up the ocean onto a distorted imaginary grid that extends from the top to the bottom of the world. We then orientate ourselves based on the compass (which in turn is based on a magnetic mass that is not even at the ends of Earth). We measure the angle of the sun to the horizon to understand our distance from the equator and we fix our horizontal position with some complex maths and accurate time. The point of all these efforts is to understand where we are in a place with no visual references. Today we also have GPS, bouncing radio waves off satellites in space. Knowing where we are helps us feel secure in the seemingly endless place of the ocean.

Travelling through the oceanscape, scale becomes difficult to comprehend without a reference to help us. Scale is relative. Oceanscape removes almost all ways of gauging

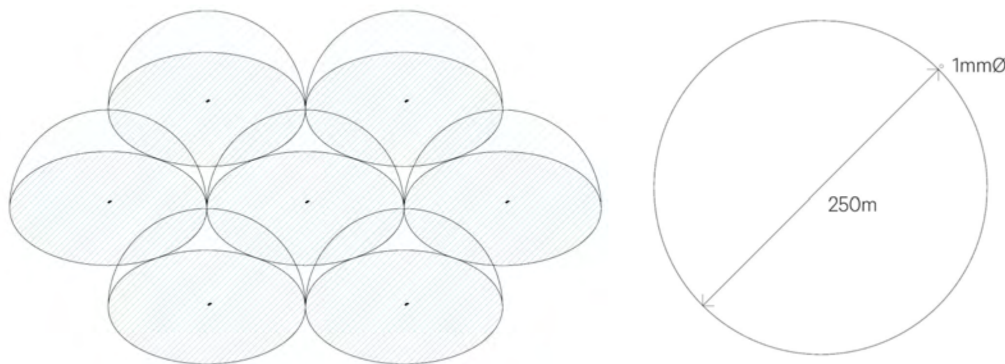
relativity. Unlike the desert, it features no mountains on the other side. No headland, no trees, rarely even other boats. Even the distance to the horizon, which is so much closer than you think, depends on the weather. On a crystal-clear day, the horizon could be only 4.4 nautical miles away (at eye height, 2 metres above sea level). In a fog it could be less than 100 metres. When we are standing in the middle of a hemisphere of nothing, even the sky has a visual limit.



(a) **(b)**

Figure 5. **(a)** On a boat in the middle of the Pacific Ocean, an observer on the deck can see all the way to the ionosphere – Earth's upper atmosphere. The distance to the visible horizon is only a fraction of this distance due to the curvature of Earth. This unit of measurement is known as a 'nautical horizon'. **(b)** Measured from 5.5 metres above sea level, a human standing on deck can see approximately 8.4 kilometres to the nautical horizon (an area of approximately 222 square metres).

The oceanscape can be a considered as a field of imaginary, invisible hemispheres covering the surface. Or perhaps it could be just your own personal hemisphere in the middle of a vast landscape of ocean. To get a feeling for the sheer size of an oceanscape, consider the example of my journey San Diego to the Marquesas. Finding the island Nuku Hiva from San Diego is like trying to find a 1-millimetre dot on the edge of a piece of paper that is 250 metres in diameter.



(a) **(b)**

Figure 6. **(a)** In area, the Pacific Ocean is approximately 163,000,000 square kilometres; therefore it fits 603,703 circular horizons. **(b)** Diagram of locating a 1-millimetre dot on a circle of paper 250 metres in diameter.

On a clear day in 2020, as I rode my bike on Ninety Mile Beach at the start of a journey down the length of Aotearoa New Zealand, for a short time I could see neither where I had come from nor where I was going to – the beach disappeared into nothing at either end. The sea remained on my right and the sand dunes on my left. This is the only time except in fog that I have felt this sense of unfathomable scale on the terrestrial landscape. Within an oceanscape, this is the normality.

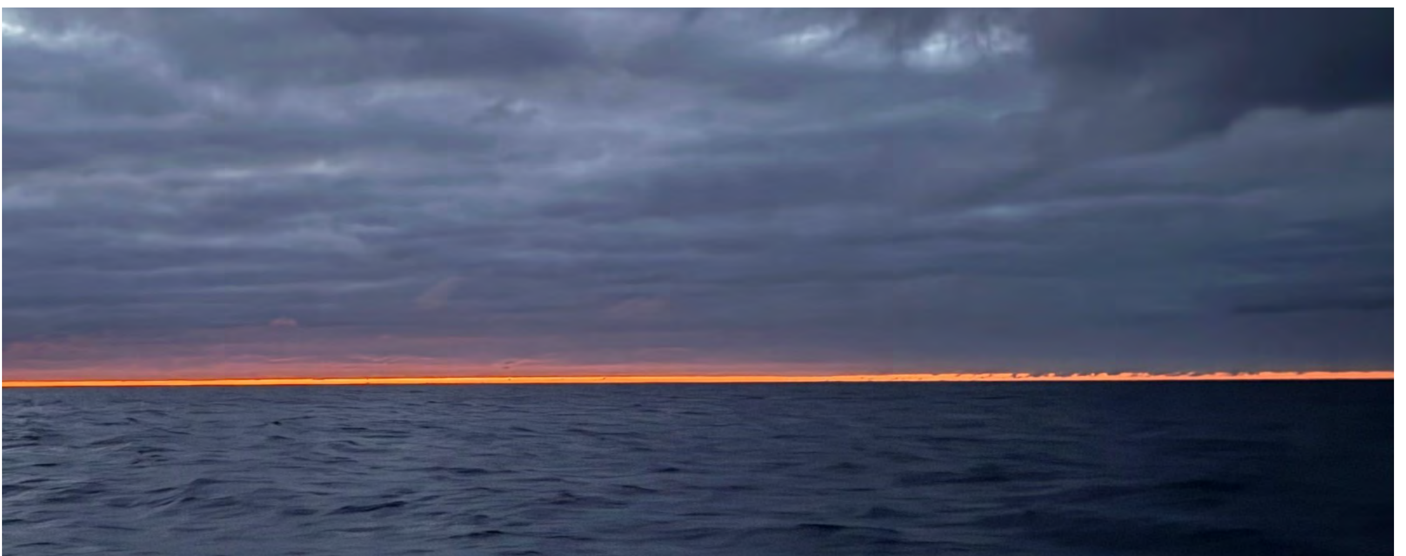


Figure 7. Horizon studies 02 (images by the author 2024).

At night, this unfathomable condition is exaggerated. With no moon, there is no light and no horizon. Then you are truly alone in an invisible, moving landscape, moving with your vessel through the night, relying on instruments and a keen eye for danger. It is similar, I would think, to flying a spaceship through space. An invisible landscape with no boundaries.

Oceanscape is a landscape of exposure. There is nowhere to shelter, nowhere to hide. Unlike a terrestrial landscape, where you can usually seek shelter from the wind and the rain, oceanscape has no respite. Your vessel is your home; you are a temporary visitor constantly in motion.

For thousands of years, we have created ways of travelling through the oceanscapes of this world. We have built boats specific to this challenge and created systems and language that try to make sense of the scale of the ocean. Today we have technological tools to help us navigate the oceans, which make us safer than we ever were before. And yet the oceans maintain a mystique. Their complexity and the impact of human endeavours on them mean the oceans are seriously in need of care.

To help protect the high seas, we need to understand and value *oceanscape* as we do landscape. If we consider their physical, associative and perceptual dimensions, we might more deeply engage with our oceans.

About the author

David Irwin is a founding Director of Isthmus and Fellow of the New Zealand Institute of Landscape Architects (NZILA) with over 30 years' experience in the field of landscape architecture and urban design. His experience encompasses a wide range of projects throughout New Zealand, including large-scale urban developments, town centres, coastal edges and residential framework planning. David specialises in providing design leadership in complex project teams. His work has received numerous NZILA awards for its quality, innovation and contribution to place-making for communities in Aotearoa New Zealand.

REFERENCES

Lister, G.; de Lambert, R.; Titchener, A. (**2022**) *Te Tangi a te Manu: Aotearoa New Zealand Landscape Assessment Guidelines*, Wellington: Tuia Pito Ora New Zealand Institute of Landscape Architects.

Molloy, L. F. (**1980**) *Land Alone Endures: Land Use and the Role of Research*. Discussion paper. Wellington: Department of Scientific and Industrial Research.

Top: Looking across the reef where the HMNZS *Manawanui* sank off the south coast of Samoa on 5 October 2024 (image by author, 9 October 2024). Bottom: Nature looking back. I'm watching you, human (image by author, 28 August 2023).

LANDSCAPE
REVIEW

World Blong Yumi

Rod Barnett

With this poem I explore the many nuanced considerations of geography, geopolitics, community, insiderness and outsiderness that grapple with and influence each other throughout the multilayered space that is the Blue Pacific Continent. I unfold a narrative that works through a moment-by-moment attentiveness that does not – cannot – grasp the whole. It's told by a persona that recognises scholarly omniscience comes at the cost of embedded agency and connection, and so refuses that singular perspective and invites a kind of complicity from the reader. We are watching ourselves through a screen or representation. But are we really just figures on some screen, ever distanced from the immediacy of life, cajoled to see it in a certain way through a narrow choice of gazes and actions, anthropological, quizzical, touristic and/or complicit? The poem offers a string of place-specific images and characters, tourists, yachties, industrialists, government representatives and, yes, even locals interacting across the big sea landscape resource that is the Pacific Ocean. The title, in Bislama (a pidgin English specific to Vanuatu), comes from graffiti on a wall in downtown Port Vila, Vanuatu.

Rod Barnett is Head of School of Architecture at Te Herenga Waka - Victoria University of Wellington, PO Box 600, Wellington 6140, Aotearoa New Zealand.
Telephone: +64 21 025 04 897
Email: rod.barnett@vuw.ac.nz

World Blong Yumi

Cattle wander among coconut palms, a low,
lowing quiet slow movement lateral among the verticals,
dun, red, russet, cream, steering mildly, swaying in motion
with the swinging palms. Charismatic megafauna, yes?

Oh I don't know, but on the lowland terrace between seas
and trees a comb parts hair into rows as a blue-green cock
crows on the road where yet another SUV parts people
from their histories. Your buds in, you watch through

custom blinds. One voice only in your mind, the stark
terroir of coral soils and mangrove knees – the sandalwood
now gone with the French, the English and Chinese.
Though no longer present to my present concept of the good

it reminds me of the 80s: yachts, backpacks, a certain easy
smile, misplaced info in the gardens of trainees. Somewhere
north or south an icefloe calves, new clouds of expectation
sink soft into the coral sand. This morning our high

purpose was to keep the pale skies clear of them, while over
lunch a satisfaction crept between phases of maybe, yes
no, tomorrow – absorbent, diffuse, minutely considered.
Behind you a man shin-deep in warm tide water with his

umbrella, a spear and a net, calling softly to his brother.
On the far side of the world bright hard men and women
pick a future for whānau, fish, you, me, Martina, Juan, Marie.
I can't believe it, you shot the shark? No one's actually

KEY WORDS
geopolitics; fieldpoetics

Citation: Barnett, R. (2025) World Blong Yumi. *Landscape Review*, 21(1), pp 57-59.
Received: 14 January 2025
Published: 23 May 2025

going to care … but what about the guy who chopped down
the tree? Don't worry there's no him inside him, no basic care
there. At least the flowers are still floating to the lawn, the system
working still. Down the beach, folk are shopping in the rocks.

Haven't you heard? The shark is dead. Let's chop off its head.
Lemme put my shorts on and I'll join you at the water's edge.
Bring the bush knife, grab the bag called Bon Marché – the blue
one by the door. Watch out for the cat, it's got a bird. I'll

help you drag the fish, we'll slice right through the frame:
a few steaks and throw the rest back in the sea.
The sharks will take care of their ol' frère and we'll
have poisson frais for tea. Meanwhile two women,

one man in the SUV. They ford a crystal stream and point
across the river flats to, hey that's you and me. No that's
a doctored photograph. Someone has AI'd us, that's not
my dress. You're right that's not my graphic tee.

When rain falls on banana leaves it's so much better.
Out in the weather here on the weather coast banana leaves
are shredded, but we've got to get that old guy to agree.
The steers move through the palms quite gracefully.

Hey look that white heron's riding on the dark one's back.
That's me. Well, we don't want your aid. Spend it on a weight-
loss programme for your foreign sec-rat-ree. We got ginger, crotons,
spider flowers, and twice-voted happiest nation on earth.

Sandalwood gone, reefs bleached, sea lapping at the
recliners below the pool all good. Happy insects, happy lizards,
happy butterflies all folded into a maze of closed allusions:
the wandering duck whistling in the pond at the end of the lawn.

A dentate-shaped carinated vessel in the case, in the museum
when the breeze gets up. So cool. Pigeons, doves rise up, swifts
and rails all in the sky above the sky who watch and come and come
bring magic to help us live a wide free wingblur coast plain life.

Tankyu tumas. We are the happiest people in the world.
The unsubtle self-importance, unconscious insolence
of proprietary expats in the evening when the breeze gets up
and bluecoats come ashore across the reef: bankers, brokers,

agents, south pacific loafers. We watch red eyes among the pandanus
white on black, the silent mouth, face on face, 'the duty
of man is to protect his land'. They'd sold themselves but
somehow had not got the cash. You hold out your closed

hand. It opens, petals unfurling, with a thumb so long it it's
like a fifth finger. A rhinoceros coco palm beetle crawls along
your wrist, you gently put it on the sand and invite me
to stand on its hard black shell, the carapace it brought from PNG

on the barges with gravel funded by you-know-who. There
is a them inside them. There is a them over there too,
in the restaurant where some dumb leaders sign security
and climate declarations. Where Canberra politicians all agree

to fund a new airport proposal and the Chinese come back in their SUV.
An old guy with a grizzled beard paddleboards over the lagoon.
I want to be like him. Ribs showing through my skin. An obscure
truth rolling in the water lapping on the sands, dream on you say.

Temporary surrenders that become magnificently destructively
all-encompassingly permanent and after the establishment of this
condition get worse. Dream on you say. Raise the blue Mr Harrison,
we'll force them windward, but we'll have to fly. Aye aye sir, the blue it is.

(**a**) (**b**)

Figure 1. (**a**) The resort is where the biz is done. It's an ambivalent, empty landscape. (**b**) A sense of menace and disquiet prevails. What, really, is going on here? (Images by author, 4 October 2024.)

About the author

Rod Barnett (Ngāti Raukawa) is a landscape architect who has crossed disciplinary boundaries throughout his career. He has collaborated with artists, architects, scientists and urban planners on funded design research projects in locations as far flung as the coastlines of Tonga, under-served communities in rust-belt United States cities, and the stone alignments of Carnac, France. Barnett's firm, Kaihanga Awawhenua [Riverland Design], is a landscape architecture practice dedicated to the open-ended, self-organising and productive curation of planetary environments. He puts Te Tiriti o Waitangi first in all of the practice's projects, and everything is driven by its generative power. Wherever he works across the world, the values and practices of Indigenous peoples are Barnett's compass and his guide.

Head of the School of Architecture at Victoria University Wellington, Barnett has attracted international recognition for his publications, won awards for urban landscape design, and while in the U.S. for an extended period achieved the national Design Intelligence Award for most admired design educator (2012). His book *Emergence in Landscape Architecture* (2013) led to a teaching position at the Harvard Graduate School of Design, and in 2017 Routledge published *The Modern Landscapes of Ted Smyth: Landscape Modernism in the South Pacific* (with Jacqueline Margetts) in which they place Smyth's work in the context of tropical modernism. Currently he is researching the whakapapa of the black sands of the west coast of Te Ika-a-Māui, the North Island of Aotearoa New Zealand.

LANDSCAPE
REVIEW

Thanks to reviewers

On behalf of the *Landscape Review* editorial team and the School of Landscape Architecture at Lincoln University in Aotearoa New Zealand, I would like to express our sincere thanks to those listed below for acting as peer reviewers in 2022, 2023 and 2024. Without the work of these generous individuals, we would not be able to maintain the high standards of publication in this journal.

Jacky Bowring, Lincoln University, **Aotearoa New Zealand** Jacky.Bowring@lincoln.ac.nz

Matthew Bradbury, Unitec Institute of Technology, **Aotearoa New Zealand** mbradbury@unitec.ac.nz

Peter Breen, E2DesignLab, **Australia** peter@e2designlab.com.au

Martin Bryant, University of Technology, Sydney, **Australia** Martin.Bryant@uts.edu.au

Lloyd Carpenter, Te Whatu Ora Health New Zealand, **Aotearoa New Zealand** lloyd.carpenter@cdhb.health.nz

Sara Carr, North Eastern University, **United States of America** sa.carr@northeastern.edu

Kanglin 'Connie' Chen, Harvard University, **United States of America** conniechenchenchen@gmail.com

Qingtao Cheng, South East University, Nanjing, **PR China** 230208456@seu.edu.cn

Alan Chenoweth, Griffith University, **Australia** chenowethenvironment@gmail.com

Julie Crawshaw, Northumbria University, **United Kingdom** julie.crawshaw@northumbria.ac.uk

Shannon Davis, Lincoln University, **Aotearoa New Zealand** Shannon.davis@lincoln.ac.nz

Ertan Düzgüneş, Karadeniz Technical University, **Turkey** ertan.duzgunes@ktu.edu.tr

Aimee Felstead, Sheffield University, **United Kingdom** a.felstead@sheffield.ac.uk

George Haremate, Te Whatu Ora Health New Zealand, **Aotearoa New Zealand** nzgeorge@hotmail.com

İbrahim Halil Hatipoğlu, Harran University, **Turkey** ibrahimhhatipoglu@gmail.com

Courtney Henderson, AECOM, **Australia** courtney.henderson@aecom.com

Tingting Huang, Beijing Forestry University, **PR China** bjyx13529@gmail.com

Jennifer Jettner, Auburn University, **United States of America** jfj0010@auburn.edu

Rebecca Kiddle, Te Manawahoukura Rangahau Institute, **Aotearoa New Zealand** rebecca.kiddle@twoa.ac.nzb

Joern Langhorst, University of Colorado, **United States of America** joern.langhorst@ucdenver.edu

Carlos V Licon, Utah State University, **United States of America** carlos.licon@usu.edu

Di Menzies, Rongowhakaata, Aitanga a Mahaki, **Aotearoa New Zealand** drdhmenzies@ark.co.nz

Sara Padgett-Kjaersgaard, University of New South Wales, **Australia** s.padgettkjaersgaard@unsw.edu.au

Jiwon Park, Korea National Arboretum, **South Korea** apfhdpjy@naver.com

Hamish Rennie, Lincoln University, **Aotearoa New Zealand** hamish.rennie@lincoln.ac.nz

Deb Robbins, Taylor Cullity Lethlean, **Australia** deb.r@tcl.net.au

John Richard Stephens, Curtin University, **Australia** j.stephens@curtin.edu.au

Simon Swaffield, Lincoln University, **Aotearoa New Zealand** Simon.Swaffield@lincoln.ac.nz

Ken Taylor, Australian National University, **Australia** k.taylor@anu.edu.au

Matthew Wynyard, Massey University, **Aotearoa New Zealand** m.wynyard@massey.ac.nz