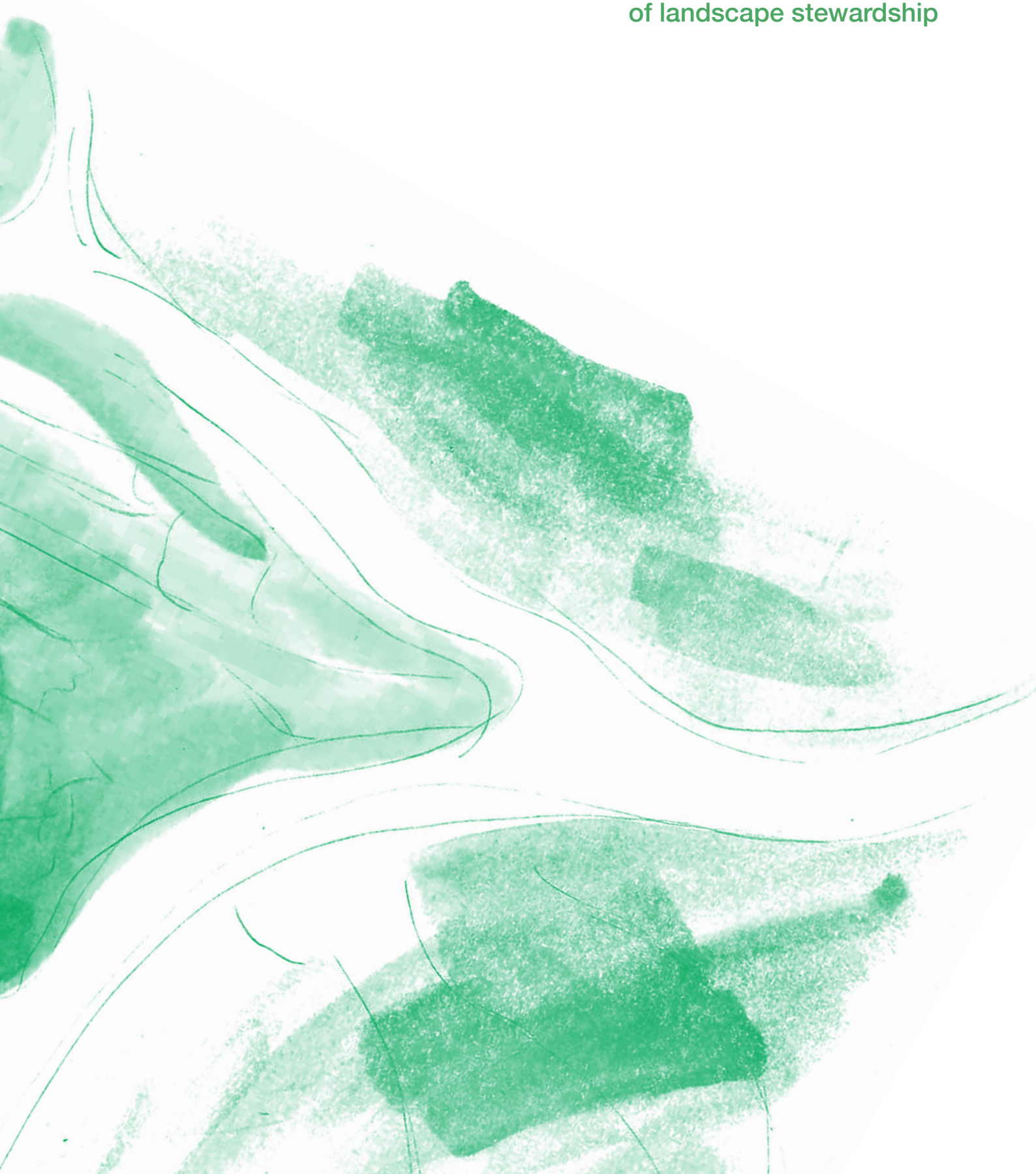
Land and Nature in Scotland:
Emerging Care Alternatives

Exploring alternative forms
of landscape stewardship



Event design and contributors:
John Thackara, Tongji University
Elle Adams, Findhorn Watershed Initiative
Clare Cooper, Bioregioning Tayside
Dr Mairi McFadyen
Raghnaid Sandilands
Emily Harris, Dark Matter Labs
Fang-Jui Chang, Dark Matter Labs

Research team:
Zoë Prosser, John Thackara, Professor Gordon Hush, Professor Lynn-Sayers McHattie, Sophie Gardiner

Report author: Zoë Prosser

Illustrations: Sophie Gardiner

With special thanks to...
Professor Irene McAra McWilliams, Glasgow School of Art
Dr James Oliver, Royal Melbourne Institute of Technology
Dr Katherine Simpson, University of Glasgow
Jeremy Leggett, Highlands Rewilding
Dr Albert Fuster, Glasgow School of Art
Professor Philipp Heidkamp, Köln International School of Design
Marianne McInnes, Glasgow School of Art

Researchers and academic partners from KISD, Elisava, Academy of Fine Arts (Bratislava), University of Central Asia, Tsinghua University and the School of Innovation & Technology, Glasgow School of Art.

Contents

Introduction

Towards a community of practice for alternative forms of landscape stewardship

Opening a Discussion 5

Land Use and Ecosystem Restoration in Scotland 6

Questions and Considerations 7

Contributors 8

Coming Together

Land and Nature in Scotland: Emerging Care Alternatives

Event Design 13

Caring at Landscape Scale 15

Reciprocal Approaches to Landscape Care 17

Ideas and Actions

Reciprocal relationships with nature in Scotland

A Taxonomy of Landscape Stewardship 21

Skills and Processes for Nature Care 23

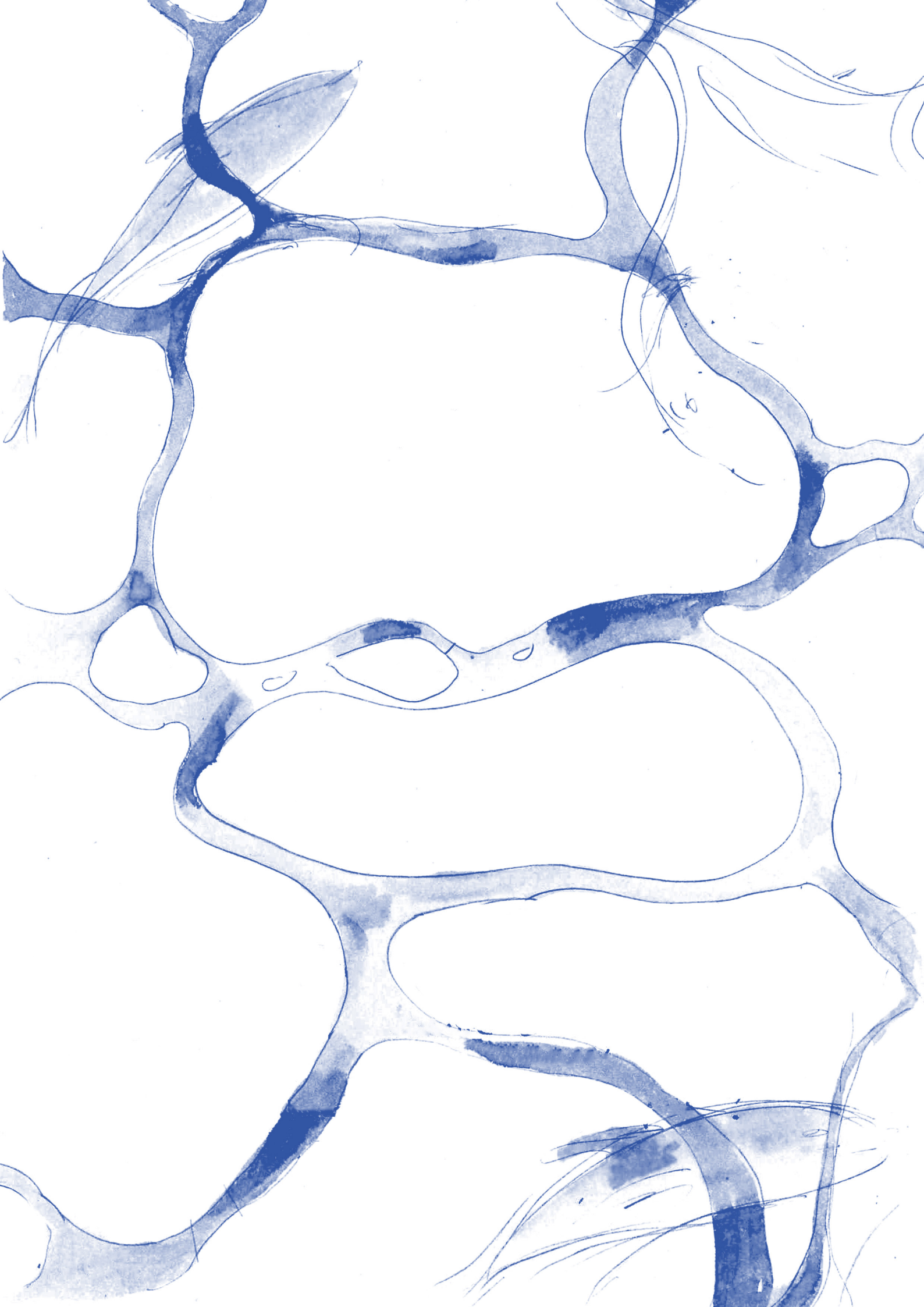
- Embracing New Economies
- Shaping Relational Governance
- Forming Roles and Awarenesses

Creative Nature Connections 26

References 27

Introduction

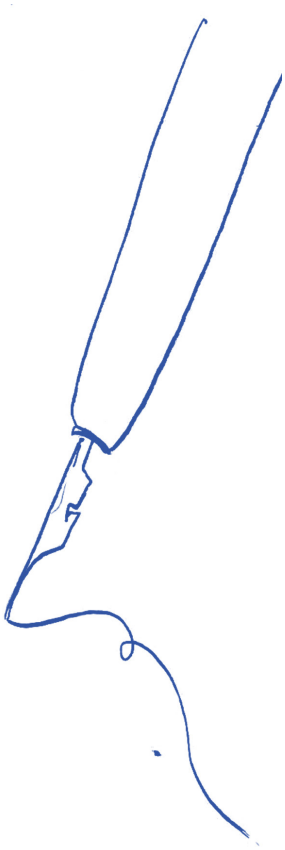
Towards a community of practice for alternative forms of landscape stewardship

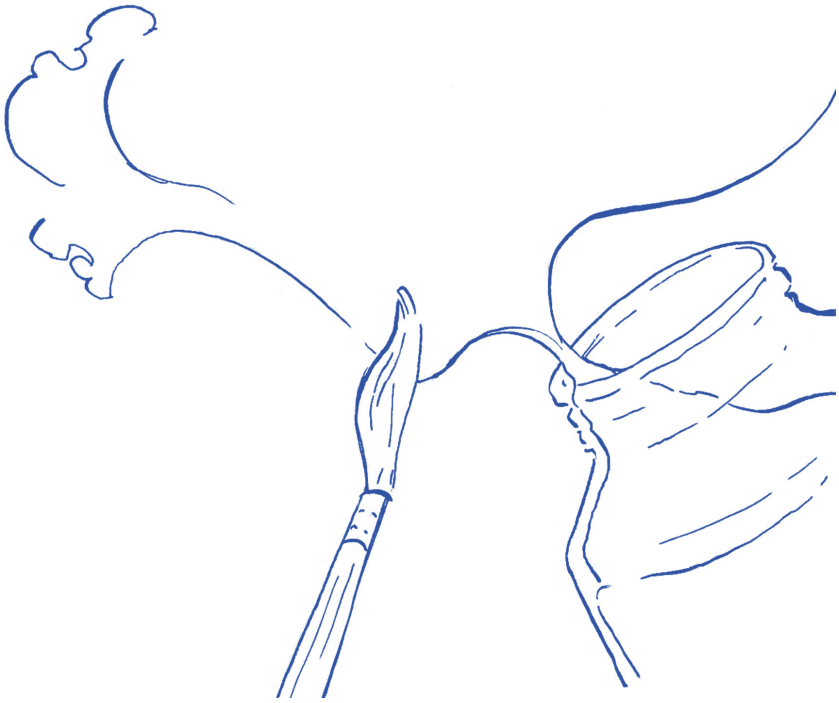


Opening a Discussion

This report presents the discussions that took place during the Land and Nature in Scotland: Emerging Care Alternatives event, a participatory two-day expert meeting hosted by the School of Innovation and Technology (SIT) at the Glasgow School of Art (GSA). The event took place at GSA's Highland Campus at the Altyre Estate in Forres from 9th to 10th April 2024. It brought nature restoration experts and creative engagement practitioners together to compare perspectives, discuss alternative human-landscape relationships and identify needs for the future.

While our meeting was self-contained, it coincided with the final week of GSA's Winter School, a wider learning event that brought together international students and researchers to work on questions of ecology and regenerative design. This included academics and students from GSA, KISD (Köln), Elisava (Barcelona), Academy of Fine Arts (Bratislava), University of Central Asia (Kyrgyzstan/Tajikistan), and Tsinghua University (Beijing), some of whom attended Land and Nature in Scotland: Emerging Care Alternatives and participated in the discussions.





Land Use and Ecosystem Restoration in Scotland

For life to thrive within Earth's planetary boundaries, our understanding of and interconnections with the ecosystems around us requires a systemic shift towards approaches of reciprocal care.

Towards mitigating human-led climate breakdown, the Intergovernmental Panel on Climate Change (IPCC, 2023) has provided guidelines for policymakers globally that prioritises, among other key areas, the importance of regulating land use to support nature restoration and biodiversity. Within which, healthy landscape ecosystems are acknowledged as fundamental to the reduction of greenhouse gas emissions, biodiversity decline and food insecurity, as well as being intrinsic to the wellbeing of all species.

Government policy in Scotland has delivered net zero and biodiversity strategies that set a "clear ambition for Scotland to be Nature Positive by 2030, and to have restored and regenerated biodiversity across the country by 2045" (2022a). Priorities to accelerate restoration and regeneration are paralleled with ambitions to support thriving communities within the transition towards a wellbeing economy. This means enabling participation and mutual human-nature benefit within a Green and Just Transition (The Scottish Government, 2021).

Simultaneously, ecosystem restoration initiatives across Scotland, many of which community-led, are increasing in quantity, scale and ambition. Their efforts are being matched with the rapid growth of new natural capital and carbon offsetting markets. Without the necessary infrastructure however, these markets have the potential to divert economic benefits away from local communities and towards distributed and opaque investors; potentially exacerbating hierarchies of power and preventing communities from accessing basic amenities such as affordable homes. Scotland's history of inequitable landownership and extractive land management practices creates significant challenges for community-led ecosystem restoration organisations who must now work with distributed landowners and fragmented habitats. The desire to deliver just transitions for communities in the process, increases pressures to ensure nature restoration is managed and financed in ways that deliver local social and economic benefits.

Participatory design for sustainable and regenerative transitions in this context recognises the need not only for infrastructure that formalises preferable human connections with natural systems, but also the mindsets and worldviews required for their adoption (Irwin, 2015; Gaziulusoy and Ryan, 2017; Gaziulusoy and Öztekin, 2019). These design approaches, traditionally applied through the lens of human needs and values, must now evolve their conceptualisations of agency within the context of climate action towards centring nature's ecosystems and needs. Engagement with, and participation through, more-than-human representation is therefore raising new questions about the ethical, ontological and practical frameworks needed when designing for interconnected relationships with landscapes at scale (Bastian, 2016; Rice, 2016; Akama et al, 2020).

Acknowledging the challenges that ecosystem restoration initiatives face when undertaking landscape-scale developments, the Land and Nature in Scotland event sought to identify areas of need as calls to action for well-directed support. In particular, we have attempted to craft initial proposals for creative practitioners and participatory designers. Alongside this, we have surfaced guiding principles to inform future creative practice when seeking to nurture caring connections with nature and place.

Questions and Considerations

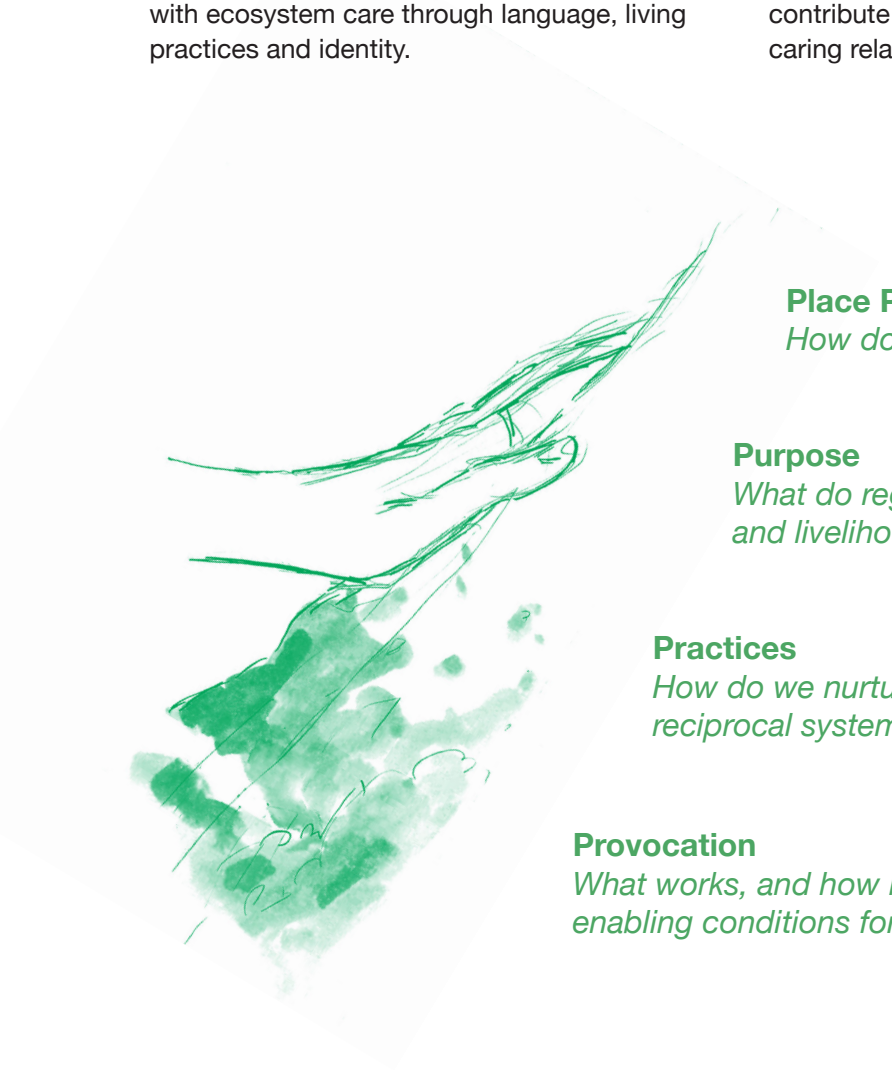
The event's purpose was therefore twofold: firstly, to explore the ways in which we can nurture land, nature and communities in Scotland through emerging alternative care approaches; and secondly, to consider how collaborative creativity and design might help the most desirable of those alternatives to flourish.

Four questions were derived from these ambitions, which are outlined below. By questioning our ***partnerships with place*** we sought to uncover the practical and current relationships between people and natural systems in areas of Scotland, particularly with the Gàidhealtachd (which centres Gaelic-speaking cultures from across Scotland). Expressions of the Gàidhealtachd are entwined with ecosystem care through language, living practices and identity.

These regions are where many restoration initiatives are championing landscape-scale ecosystem care through new organisational structures and community-nature relationships.

Exploring the ***purposes and practices*** of these relationships allowed us to open conversations about the skills, roles and perspectives required to support reciprocal systems of care, whilst being open about the limitations of undertaking such activity.

Our discussions were largely future-orientated and solutions-focused, which invited those leading new practices to surface the tensions and constraints they experienced. It is our hope that their challenges, re-framed as ***provocations*** for support needed, will contribute towards collaborative creativity and caring relationships with landscapes at scale.



Place Partnerships
How do we live on and with this land?

Purpose
What do regenerative lives, lifestyles and livelihoods look like?

Practices
How do we nurture these reciprocal systems?

Provocation
What works, and how might we create the enabling conditions for them to thrive?

Contributors

The event brought together a diverse group of experts, practitioners, academics and specialists who work across the intersections of Ecosystem Restoration, Creative Ethnology and Regenerative Design.

Hosts and Facilitators

Design for Life expert and author, John Thackara opened the event, which was co-produced with and convened by GSA Research Fellow, Zoë Prosser.

The event's production was supported by Professor Irene McAra McWilliams (Director GSA Highland and Islands, Deputy Director Research and Innovation), Professor Gordon Hush (Head of GSA School of Innovation and Technology) and Marianne McInnes (Operations Director).

An action-setting round table discussion, which was led by Professor Lynn-Sayers McHattie (Professor of Design Innovation) closed the two-day event. Data collection and illustrations throughout were conducted by Research Associate, Sophie Gardiner.

Academics and Specialists

Founder and CEO of Highlands Rewilding, Jeremy Leggett, joined the event to share his organisation's roadmap for creating a relationship between nature-recovery and community benefits.

Specialist expertise from around the world came from those who participated in session discussions. This included Dr Katherine Simpson (Lecturer in One Health and Environmental Economics, University of Glasgow) and Dr James Oliver (Associate Professor, School of Design Royal Melbourne Institute of Technology).

Academics orchestrating the wider Winter School programme also joined the event, which included Dr Albert Fuster (Academic Lead, GSA Highlands and Islands) and Professor Philipp Heidkamp (KISD, Köln) along with GSA SIT researchers and academic partners from KISD (Köln), Elisava (Barcelona), Academy of Fine Arts (Bratislava), University of Central Asia (Kyrgyzstan/Tajikistan), and Tsinghua University (Beijing).

Keynote Speakers: Experts and Practitioners

The keynote speakers represented an already established and growing partnership of shared and innovative work across the UK. Each speaker, introduced on the following page, represents leadership of creative and diverse reciprocal approaches to landscape care.

John Thackara

John is an author, curator and professor exploring the agenda of designing for life - and caring for place - within social and ecological systems. He was commissioner of the UK social innovation biennial Dott (Designs of the Time) 07, and the French design biennial City Eco Lab. In 2019 he curated the Urban-Rural expo in Shanghai. He is visiting Professor at Tongji University in Shanghai, and Politectino di Milano, and he is a Senior Fellow at the Royal College of Art. His 12 books have been published in 14 languages including his last two in Chinese.

Elle Adams, Findhorn Watershed Initiative

Elle Adams leads strategic development of the Findhorn Watershed Initiative, and worked with the Findhorn, Nairn and Lossie Rivers Trust to co-initiate, fund and launch this catchment-scale ecosystem restoration project. Alongside her work with the Rivers Trust, Elle is an entrepreneur and co-founder of a selection of other initiatives focussed on driving behaviour change for social and environmental impact – including Scotland CAN B, a nationwide programme launched in a unique partnership between the Scottish Government and B Lab to leverage the role of business towards place-based economic system change in Scotland, for which she currently serves as the Strategy Lead.

Raghnaid Sandilands

Raghnaid is a creative ethnologist, Gaelic translator, map maker and small press publisher based in Strathnairn on the south side of Loch Ness. She was involved in initiating the ‘Farr Conversations’ talk series in 2013 aiming to ‘oil the wheel of engagement with issues affecting Scotland by hosting lively nights in one Highland hall.’ She also runs the local Fèis Farr and is involved with Fearnag Growers - Lios na Feàrnaig, a community-run allotment project which offers talks and creative workshops for the local community.

Dr Mairi McFadyen

Mairi is an independent freelancer and creative collaborator working across the interconnected roles of educator, writer, researcher, organiser, facilitator, producer, ethnologist and fieldworker.

Her work engages with themes connecting folk culture, heritage, land, environment, human ecology, geopoetics, climate justice and degrowth as a hopeful alternative to extractive capitalism.

Clare Cooper, Bioregioning Tayside

Clare is an independent creative producer, working across the fields of culture, nature restoration and tourism. She is co-founder and co-director of Tayside's new 'museum without walls', the Cateran Ecomuseum and with her sister, operates two micro-businesses in tourism, Vanora's Cottages and Alyth Craft Tourism. Previously a member of Alyth Community Council and a founding Director of the Alyth Development Trust, she also served on the Local Action Group of the Rural Perth & Kinross LEADER programme from 2014-2021. She is a member of the Scottish Nature Finance Pioneers Group and co-leads The Alyth River-Keepers.

Fang-Jui Chang, Dark Matter Labs

Fang is a strategic designer who graduated from the Royal College of Art with an MA in Service Design. She has worked in a design capacity at both the Taiwanese and British governments plus architecture and design consultancies.

The main body of her work focused on digital democracy, public service innovation, citizen engagement, collaborative policy and rule making. At Dark Matter Labs Fang co-holds the Radicle Civics Arc of work.

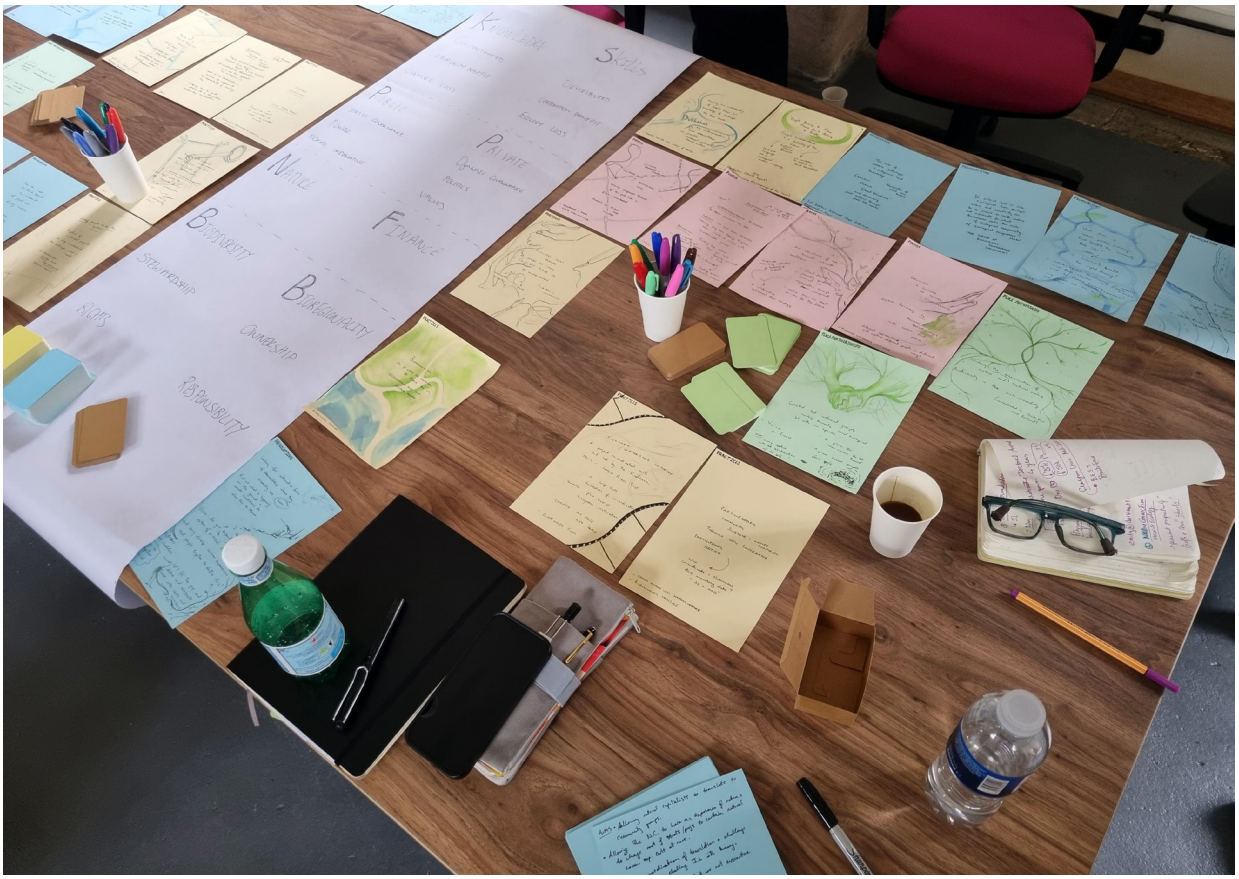
Emily Harris, Dark Matter Labs

Emily is a chartered Accountant and a Fellow of the ICAEW with an MA in Regenerative Economics (Distinction). She originally trained with Deloitte in London and was a manager in their Big Ticket Restructuring Team during the 2008 global financial crisis. She is committed to challenging the imagined order or our financial and economic systems. At Dark Matter Labs Emily leads the overall finance and economic innovation workflows and holds the Next Economics Lab. Two key areas of focus are building elements of a new financial system (e.g. developing multivalent currencies) whilst bridging capital from the existing one to the things that need to happen now (e.g. creating a closed loop material economy).

Coming Together

Land and Nature in Scotland: Emerging Care Alternatives

Event Design



Structure

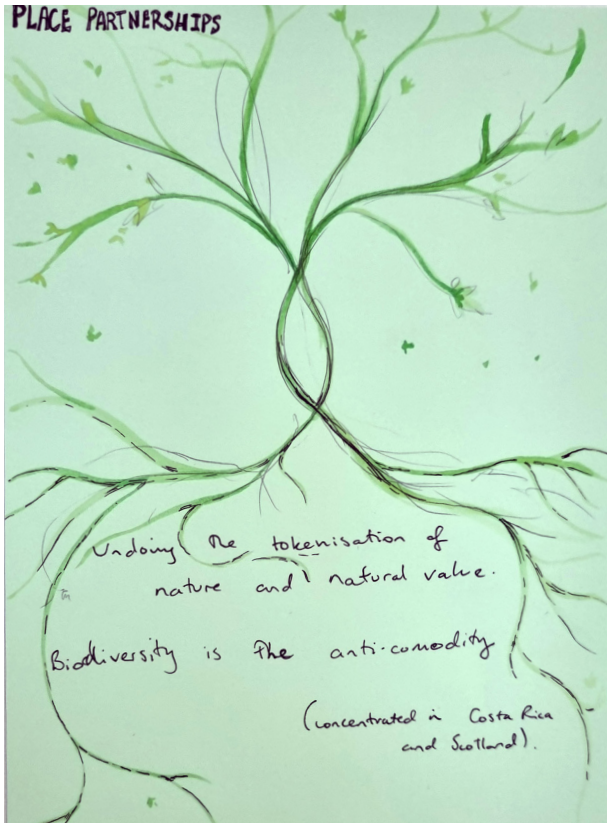
The first day of the event introduced themes of ***care, value and stewardship*** of landscape through an opening talk from John Thackara and discussion led by Zoë Prosser. Elle Adams and Clare Cooper spoke to the theme of ***Caring at Landscape Scale*** by sharing their experiences of navigating large-scale ecosystem restoration programmes with the Findhorn Watershed Initiative and Bioregioning Tayside respectively. Within the theme of ***Reciprocal Approaches to Landscape Care***, Dr Mairi McFadyen and Raghnaid Sandilands discussed the value of creativity within stewardship and of the connections between cultural and ecological loss. Also within this theme, Emily Harris and Fang-Jui Chang shared their work with Dark Matter Labs, which focused on co-creating models of dynamic governance to stimulate participation in regenerative economies.

GSA SIT facilitators analysed the insights captured from the discussions and presented a series of early-stage provocations on the second day. These were then crafted into wider challenges and opportunities during a guided round-table discussion.

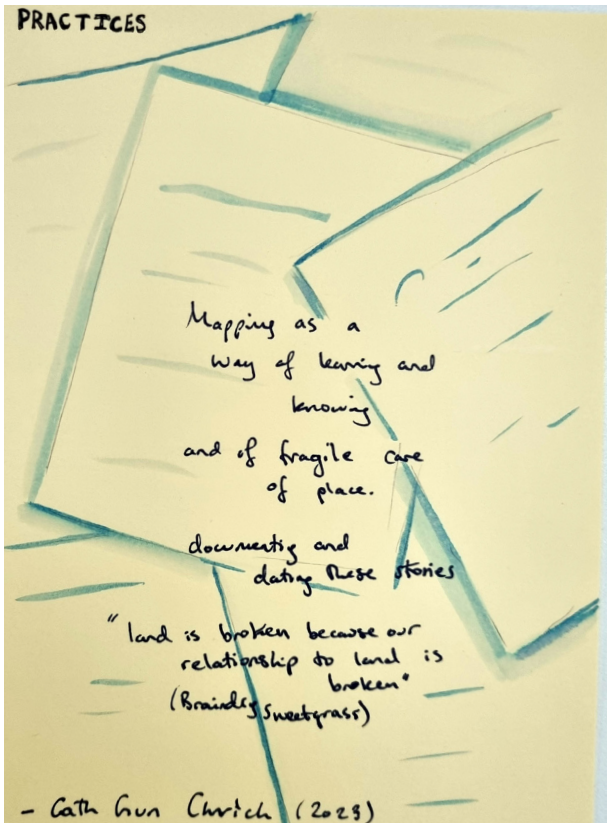
Data Collection and Analysis

Throughout the talks and discussions on day one, shared challenges, stories, examples, questions, needs and opportunities for enhancing landscape care were captured. The four overarching research questions (outlined on p.7) were colour coded and data was captured in accordance using small coloured cards (shown across). This allowed for visual codification at the point of collection and live thematic analysis throughout the event sessions. The cards were illustrated by Sophie Gardiner during this process.

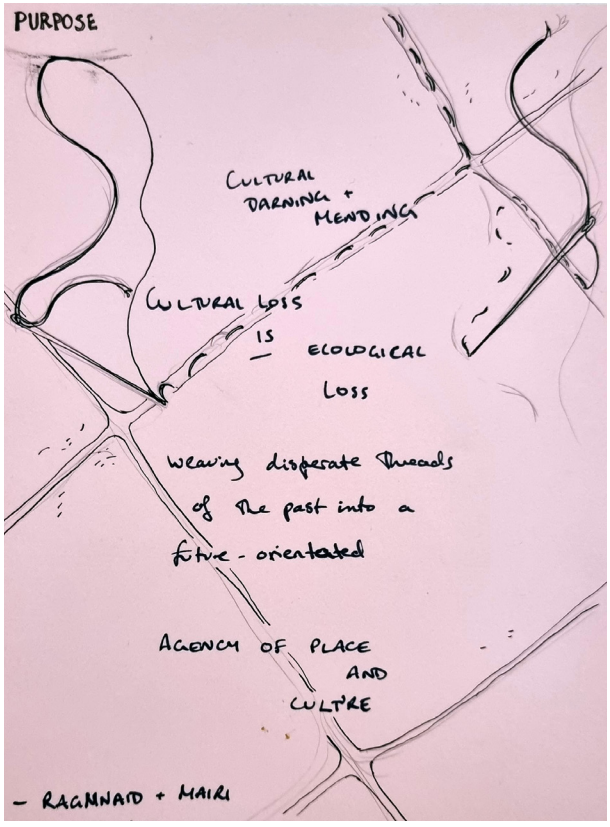
Tensions identified during the analysis signalled the transitional nature of embracing new and relational practices. These tensions were also visualised and used to facilitate the concluding discussion-led session (pictured above).



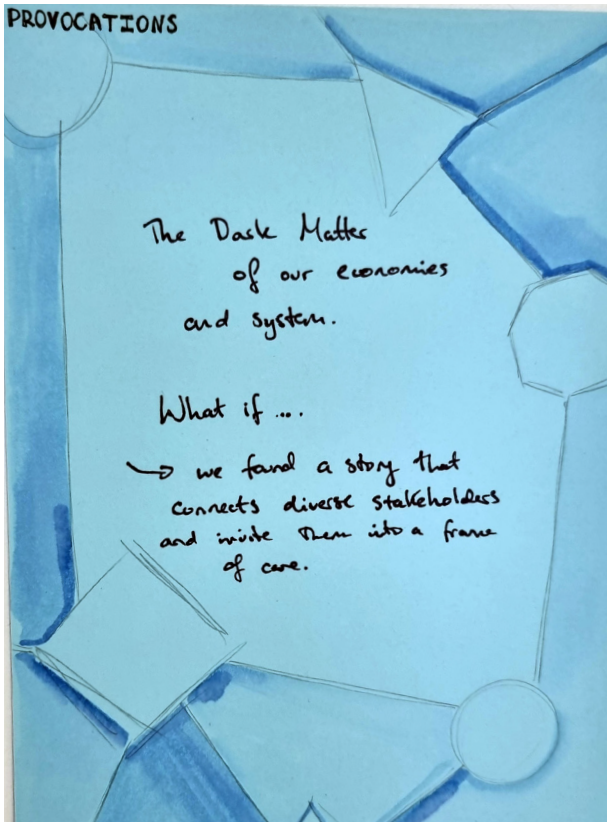
Place Partnerships



Practices

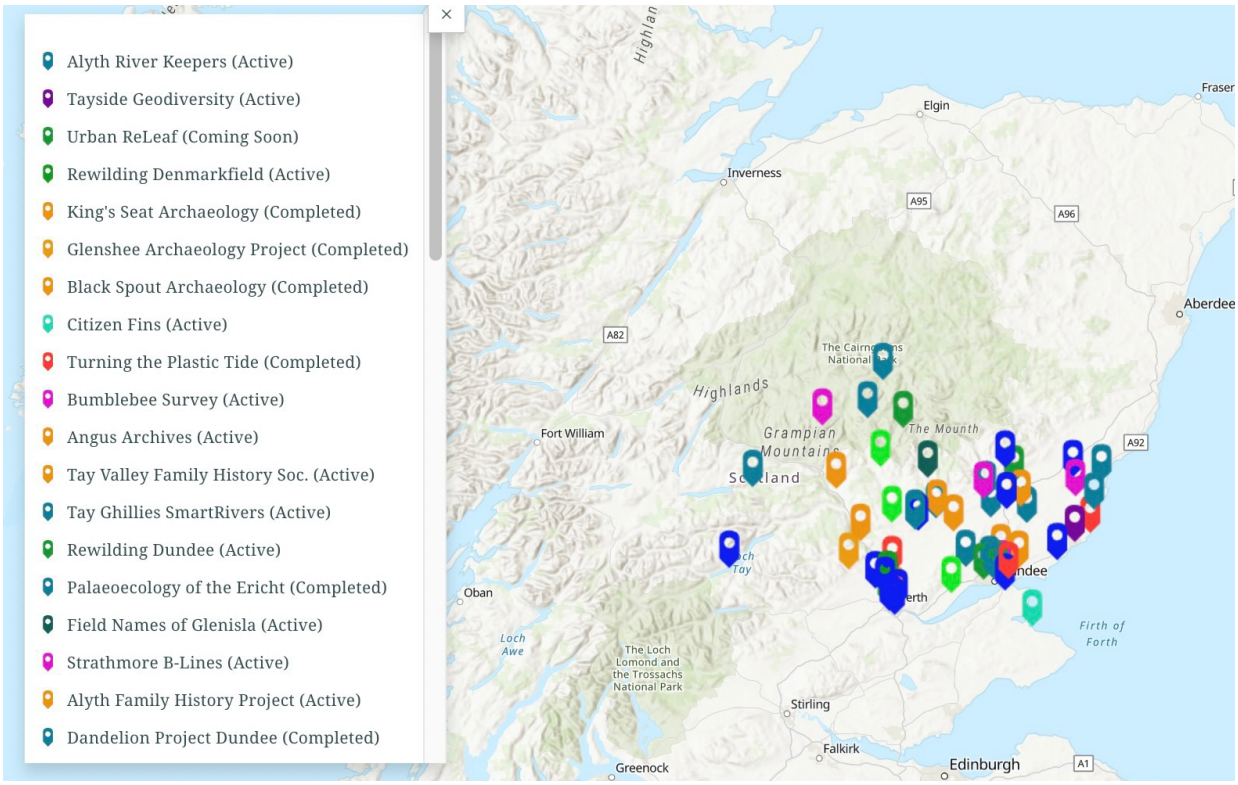


Purpose



Provocation

Caring at Landscape Scale



Map of Participatory Science Projects in Tayside Bioregion (Clare Cooper, 2024)

Bioregioning Tayside

A bioregion is a geographical area that is defined by its distinct ecological characteristics, such as plant and animal species or landforms, not human-designed political or economic boundaries. Bioregioning Tayside is a platform that unities communities through this concept of ecological interdependence across the Tay River catchment and enables collaborative regeneration of it's natural systems. Clare Cooper, co-initiator of Bioregioning Tayside, discussed three projects that demonstrate this approach in action…

Growing Bioregioning through Community Science (funded by NatureScot). This work facilitates community engagement in the monitoring of landscape changes. Many citizen and community science projects have already been mapped along with ecological data, human assets and resources. By encouraging and connecting community science activities, Bioregioning Tayside intends to reveal patterns and links through a visualisation of the wider Tayside system. This practice nurtures place-based knowledge while establishing governance structures for landscape-scale community-led stewardship.

Feeding Tayside through the Climate Crisis. Bioregioning Tayside recognises the need for a food system transformation to mitigate the impacts of climate change and provide accessible and healthy food economies. To achieve this, they are mapping community food growing activities, identifying and costing interventions to strengthen local growing and designing a delivery plan to initiate change.

The River Ericht Catchment Restoration Initiative (a Riverwoods Investment Readiness Pioneer project). Six organisations are driving community-led restoration of one of the most important Atlantic Salmon spawning grounds in Europe. This involves reversing deforestation, habitat fragmentation and peatland degradation in the face of increased flood and drought risk. Invasive species management is also needed to support biodiversity enhancement and wildlife resilience. The project will explore new blended financing mechanisms, beyond traditional grants, to secure commercial viability.

Bioregioning Tayside

Image Credit: Findhorn Watershed Initiative website

Findhorn Watershed Initiative

The Findhorn Watershed Initiative (FWI) is another leading example of an ecosystem restoration initiative operating at landscape scale in Scotland, coordinated with and led by the Findhorn, Nairn and Lossie Rivers Trust. Elle Adams, the Initiative's Strategic Lead, presented the vision, strategy and lessons learned when fostering cross-sectoral partnerships. Elle also discussed the practical challenges that nature restoration organisations face, such as staff burn-out and the pressure of securing long-term funding under tenuous circumstances.

Their collaborative programme focuses on ***habitat recovery***, fostering ***community connectedness*** with nature, and enabling the just transition to a ***regenerative rural economy***. Under these core aims they also deliver education programmes, citizen science and creative nature connection activities. All of which invites residents and organisations into an underpinning more-than-human worldview. The Initiative now seeks to develop a Nature Finance Strategy that will support ethical resourcing of restoration activities and stimulate nature-positive entrepreneurship across the 1,300km2 (321,000+ acres) of landscape.

FWI has been working with creative ethnologists, Raghnaid Sandilands and Dr Mairi McFadyen, to deliver a programme of ***human ecology research*** and community-engaged events that nurture connectedness and collective care for the watershed. FWI has also partnered with systemic design experts, Dark Matter Labs, to prototype an innovative ***Relationships Register*** that will map the bioregion's spatial data along with the human-nature relationships that demonstrate how communities and businesses interact with the river. The Register will bring into focus the value of multi-species connections while functioning as a tool to document evolving relationships with the watershed. It may also inform future governance mechanisms by representing these values within wider decision-making, such as investment and financing models.

FINDHORN WATERSHED INITIATIVE

Reciprocal Approaches to Landscape Care

Uisge Èirinn / River Findhorn map of rediscovered chaochain (Sandilands and McFadyen, 2024)

Doire Gheugach, A Fragile Correspondence. Fabric natural dyed and darned from the forest (Sandilands, 2023)

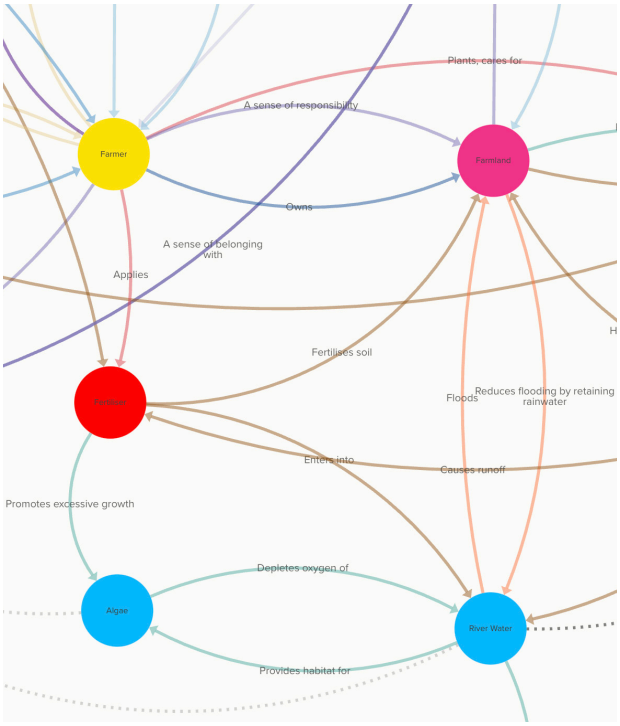
Cultural Darning and Mending

Creative Ethnologists Dr Mairi McFadyen and Raghnaid Sandilands have developed a practice that blends cultural anthropology and radical human ecology with socially engaged art. They call this ***cultural darning and mending***: a practice of "finding those disparate and disconnected threads from the past and weaving them back together with purpose; a ***future-oriented approach to land and culture***" (2021). Their work supports communities to explore just and hopeful futures through reconnection with place-based knowledges and intangible cultural heritage inside a framework of degrowth and decolonisation. Raghnaid and Mairi discussed the value of embracing an ethical agency of place through three key principles…

Firstly, that ***cultural loss is ecological loss***. Previous generations of humans across the Gàidhealtachd embraced reciprocal relationships with their surroundings. The act of remembering and renewing these practices can be viewed as both creative activism and a deepening of contemporary stewardship. This cultural-ecological restoration (Williams, 2023) takes a kinship-based and multi-generational approach that positions humans inside of, and not separate from, the ecological systems that surround them.

Secondly, that ***knowledge long of a place*** is the foundation of caring ecological relationships. The Gaelic language, embedded in place names and phenomena, offers a way of seeing the natural world through traditional and place-specific wisdom. ***Dùthchas*** is a Gaelic word that describes the ontological worldview of embracing ecological interrelation through human belonging and responsibility within natural systems.

And lastly that creative practice - ***song, music, poetry and stories*** - forges and strengthens connections of care. Mairi and Raghnaid have piloted human ecology research and engagement in the Upper Catchment of the Findhorn Watershed, using historic Gaelic place-names to collaboratively uncover stories of changed landscapes. They have mapped 86 instances of caochain (watercourses) that do, or once did, feed the Findhorn. They have further explored the role of place-based storytelling in A Fragile Correspondence as part of the Scotland+Venice partnership, Venice Biennale 2023.



Incomplete example of an entangled relationship map (Dark Matter Labs, 2024)

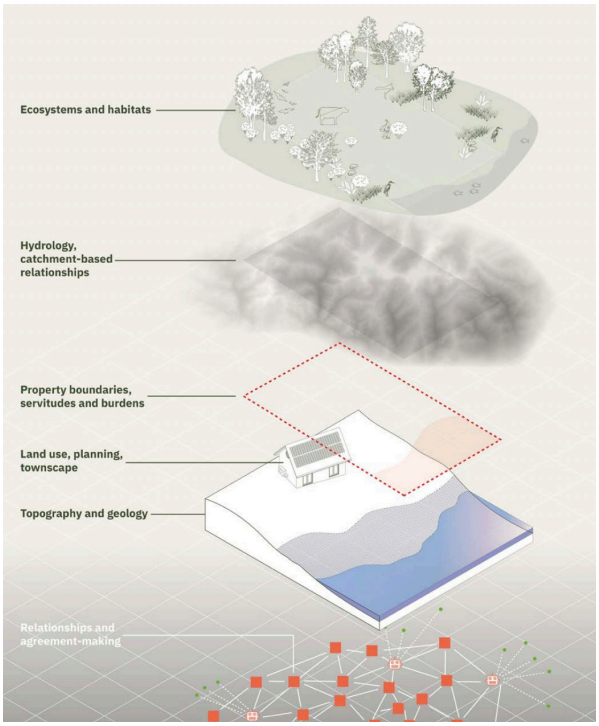


Diagram of layered data-sets involved in a Relationships Register (Dark Matter Labs, Scottish Land Commission, 2024)

Regenerative Economics & Dynamic Governance

Ecosystem regeneration requires the post-extractive transformation of current financing and governance models to enable long-term thinking and equitable benefits. To ensure restoration is producing the effective change needed to meet urgent climate change mitigation and biodiversity targets at scale, governance mechanisms, data capture, monitoring and evaluation processes are also required. In response to this problem, Emily Harris and Fang-Jui Chang from Dark Matter Lab's (DML) Next Economic Lab and Radicle Civics Arc have been exploring bioregional governances and currencies. They seek to create the dynamic systems needed to facilitate this transition at pace. Through their partnership with the Findhorn Watershed Initiative, they are co-developing a suite of relational decision making tools, which they shared as provocations for new bioregional economies.

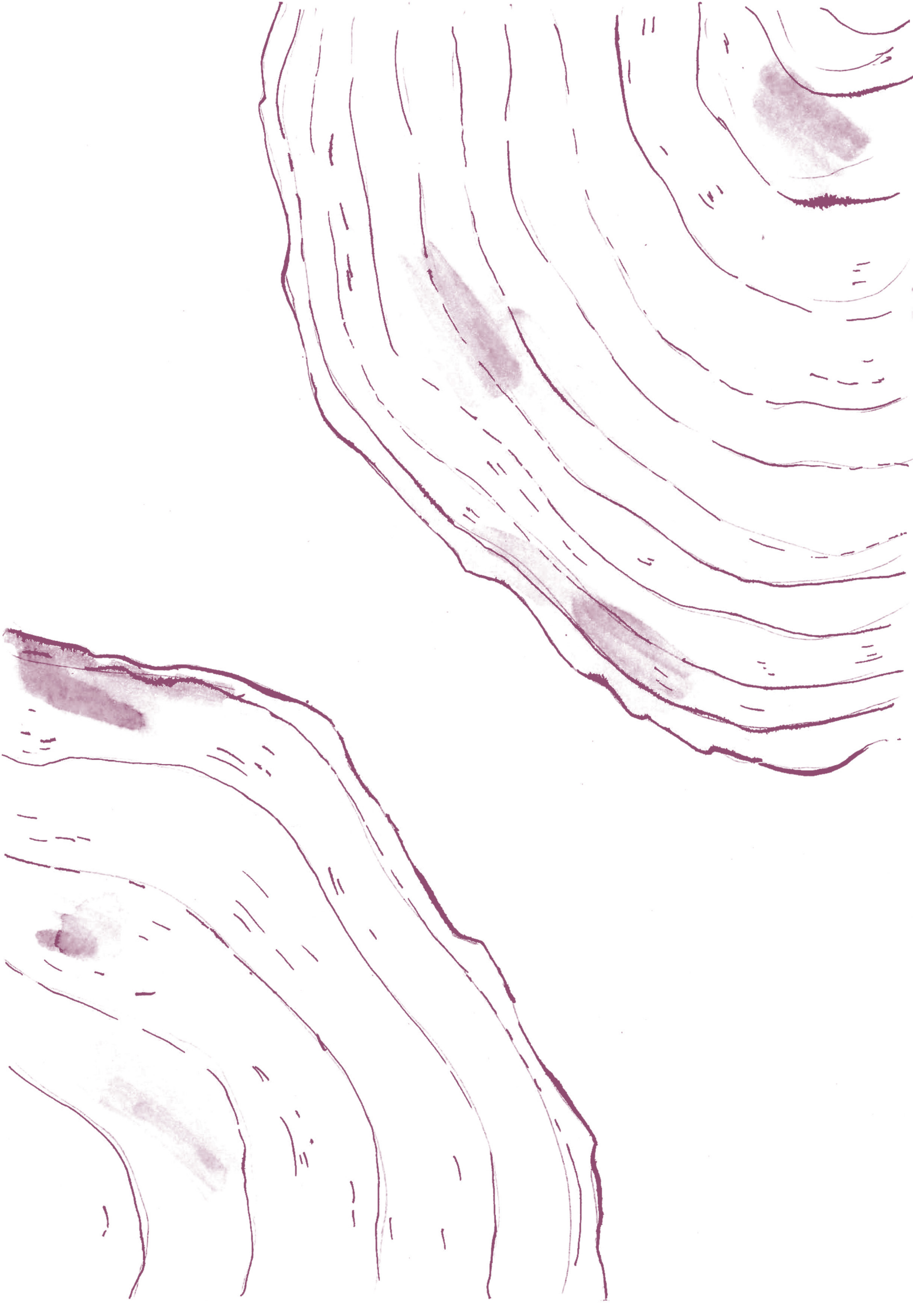
Relational mapping is the practice of uncovering the value of relationships between actors within a regional ecosystem. This begins with geological topology and extends to layered data-sets of built environments and qualitative social interactions. As a means to subvert notions of value away from extractive exchanges, towards the acknowledgement of plurality and interconnection, this forms the basis of wider ***relational decision making***, whereby consequences of actions and hierarchies of needs can be considered.

DML and FWI are currently testing a Relationship Register, as a tool for interacting with complex relationships and visualising trade-offs. For example, ***collective agreements and open ledgers of stewardship*** could encourage reciprocal and regenerative actions for individuals and business across the Watershed. ***Multivalent Currencies*** are also being considered as a tool to facilitate social agreements and as building blocks for holistic business cases, for example by giving form to unseen value exchanges and attracting appropriate investment. More provocations from Fang and Emily are framed within Land Governance Futures: Towards Common Relationships (2024), which DML co-authored with the Scottish Land Commission.

00
Dm

Ideas and Actions

Reciprocal relationships with nature in Scotland



A Taxonomy of Landscape Stewardship

Throughout the presentations and discussions of day one, a shared vision was outlined: that a just transition towards climate and bioregional security should help people and organisations view themselves within, and connect to, the ecosystems that surround them. Nature connectedness cultivates a Sense of Place (Duggan et al, 2023), which informs collective responsibility and relationships of care. As discussed by Mairi McFadyen and Raghnaid Sandilands, stories of caring relationships with landscape are held within the place names and histories that surround us. Stewardship therefore invites us to not only respond urgently to the realities of climate change with caring practices but to reflect upon our partnerships with place through renewed purpose. Indigenous cultures from around the world have maintained the demonstration of this value for millennia:

"It's not just the land that has been broken, the land is broken because our relationship to land is broken. Healing of land, yes, and resistance to forces of environmental destruction. But, fundamental to that at the deepest level is this notion of our collective psyche. It comes to world view, right back to stories that guide us into thinking about what is our relationship to place"
(Kimmerer, 2013).

Political ecologist and researcher Professor Mihnea Tănăsescu explores this transition of worldviews through the lens of political processes in his book Ecocene Politics (2022). While Anthropocene accurately labels the global impacts of human activity, Tănăsescu warns us not to adopt a human-centric perspective when considering notions of power and control: *"this does not mean that human agency is in the driving seat, deciding where larger natural processes and leading"* (p.90). Instead, to acknowledge the ever-changing and dynamic qualities of the ecological processes that truly shape our environments, and the shift in focus therefore required, an Ecocene (ecology-centric) alternative is proposed.

This transition framework, from Anthropo- to Eco- centricism, provided a structure on which to map the emerging tensions, provocations and practice examples that surfaced from the event discussions. The result is an evolving Taxonomy of Landscape Stewardship, which invites us to reorientate ourselves in the direction of ecological awareness.

The following pages explore the skills and processes that are required to support this transition and embed foundations of stewardship within ecosystem restoration practices. The quotes and concepts included were kindly shared by the event contributes, who have been credited throughout.

Anthropocene		Ecocene	Provocations	Practice Examples
Ownership	>	**Stewardship**	“People belong to places, rather than places belonging to people” (Newton, 2019; shared by Sandilands and McFadyen)	Open ledgers of stewardship
Capital	>	**Value**	“What would a future economy look and feel like if it was rooted in the recognition of the full web of life, grounded by a non-bounded theory of value?”	Multivalent currencies (Harris and Chang, Dark Matter Labs)
Power	>	**Agency of Care**	“Caring is not abstract. The circle of ecological compassion we feel is enlarged by direct experience of the living world” (Kimmerer, 2020)	Relational mapping, creating interfaces of care (Adams, Findhorn Watershed Initiative)
Biodiversity	>	**Bioregionality**	“Bioregioning requires those kinds of human cultural practices as much as it requires knowledge and understanding of biogeographical certainties”	Connecting participatory community science (Cooper, Bioregioning Tayside)
Ecological loss	>	**Cultural loss**	“These names carry knowledge; of life growing, animals and birds, description of colour. Everything is an echo, that resounds, if we listen.”	Cultural darning and mending, human ecology, creative ethnology (Sandilands and McFadyen)
Static governance	>	**Dynamic governance**	“What if we found a story that connects diverse stakeholders and invited them into a frame of care... to explore bioregional economies?”	Relationships Register (Harris and Chang, Dark Matter Labs; Adams, Findhorn Watershed Initiative)
Commercial benefit	>	**Community benefit**	“Change happens at the pace of trust” (Adams, Findhorn Watershed Initiative)	Social agreements, river charters, finance strategies, regenerative economics
Expertise	>	**Knowledges**	“How can a closer relationship between land and language help us be more attuned to the environment in which it operates?”	Renewing knowledge of place, Gaelic place names and embracing Dùthchas (Sandilands and McFadyen)
Rights	>	**Responsibilities**	“The holders of land rights... acting as stewards of Scotland’s land resource.”	Land Rights and Responsibilities Statement (Scottish Government, 2022)

Skills and Processes for Nature Care

Three cross-cutting themes demonstrate renewed and emerging skills and processes that foster nature care at bioregional scales. They are presented here through the lenses of our initial questions and considerations (p. 7): place partnerships, purposes, practices and provocations.

1. Embracing New Economies

Place Partnerships

Event contributors acknowledged the rapid growth of new natural capital and carbon offsetting markets. They also discussed the need for infrastructure and decision-making that will mitigate further extraction. New investment and financing practices in this context must be carefully managed and monitored to ensure local benefits are prioritised.

To ensure green transitions are both effective and just (The Scottish Government, 2021), place partnerships that reject the commodification of nature require equal exploration. It was proposed that nature restoration initiatives should seek to undo the tokenism of natural capital frameworks and create opportunities for community agency, nature-positive local entrepreneurship and mutual benefits. This perspective embraces the rights and responsibilities of humans within local ecosystems and places emphasis on stewardship over ownership.

Purpose

Financing ecosystem restoration requires a rebalancing of purpose; one that emphasises regeneration over continued models of extraction. Life Enobling Economics (LEE), is a conceptual framework introduced by Emily Harris (Dark Matter Labs, 2024) as a propositional vision and call to action that invites us to reconsider institutional value frameworks. LEE is built on the wisdom of many brilliant thinkers such as Ruth Wilson Gilmore's life-affirming institutions (2022). It proposes critical shifts in concepts of capital, away from accumulations of financial wealth towards social contracts, stewardship agreements and treaties of respect.

Practices

Practical tools and processes are needed to enable organisations to explore alternative financing and regenerative economics. As discussed by both Dark Matter Labs and the Findhorn Watershed Initiative (p.16 and 18), new mechanisms are already being piloted and tested. This includes 'multivalent currencies' as cultural and economic pathways to equating and measuring bioregional care. Currencies in this context are proposed not as trading mechanisms but as tools to mark social connections, to engage with landowners and managers, and represent embodied indicators of ecosystem qualities such as air quality or species population.

Provocations

The subject of financing nature restoration is particularly provocative. Partially this is due to a lack of appropriate resourcing, which leads to reliance on fractional staff and volunteers, putting strain on wellbeing and progress. It is also because the multiplicity of emerging financing models are accompanied by an array of complexities and conditions. Some of which continue extractive practices, such as planting trees simply to increase the sale of carbon credits; while others prioritise return on investment for investors over holistic ecosystem restoration and community benefits. In such cases, the data and variables associated with measuring the value of nature unitarily can also increase project resourcing costs, which again limits the potential for delivering local benefits. Ecosystem restoration initiatives are therefore questioning...

- *Which is the right approach to finance our activities while protecting ecosystem and community interests?*
- *What skills and processes are required to fund ourselves appropriately and sustainably?*

2. Shaping Relational Governance

Place Partnerships

There was a shared desire to ensure restoration activities provided opportunities for nature connection and caring relationships for all. The power dynamics of land ownership and use in Scotland, however, were viewed as significant barriers for collective and dynamic working across bioregions, for example when engaging with multiple landholders to negotiate decisions. Bioregional action, such as invasive species management for example, requires large-scale joined-up action to prevent wasted efforts. Rhododendron seeds will blow from one unmanaged landholding into the next, out-competing native plants and destroying neighbouring native habitats.

More dynamic and relational governance that could prioritise mutual respect and shared outcomes was viewed as a necessity; particularly when attempting to deliver change at scale and pace. The tools and processes required to quantify this form of decision making, however, are less clear. Again, many emerging ideas are being piloted but filtering through new knowledge is resource-heavy. As is deciphering the appropriateness of different options to meet specific challenges.

Purpose

Adaptive Governance was introduced by Bioregioning Tayside as collaborative, flexible and learning-based. This approach focuses on connecting actors and institutions at multiple organisational levels to enable ecosystem stewardship in the face of uncertainty. Discussing this purpose in practice, Dark Matter Labs proposed a reframing of 'governance' from noun (static) to verb (dynamic) such as to consider governance structures as tools for enabling acts of participation. Along this journey towards dynamic, adaptive governance there is a desire to "get people to see the system" (Fang and Harris, Dark Matter Labs) through mapping and understanding local landscapes' needs for care.

Practices

It was suggested that a bioregional 'digital twin' could be used as a tool to explore the complexities of decision making for specific bioregions. A Bioregional Twin for action learning purposes is already being developed across a seagrass meadow in Casco Bay, Maine (US) to understand the potential impacts of different actions.

Quantifying relational decision making through social contracts, Memorandums of Understanding (MOUs) and stewardship agreements was also discussed. The Relationships Register, in development with the Findhorn Watershed Initiative and Dark Matter Labs (p.16 and 18), seeks to create an interface for care that would invite community members and businesses into stewardship practices and agreements. It was suggested that new emerging processes should seek to align with existing mechanisms, for example by leveraging Local Place Plans, which are used at the council level in Scotland to outline community aspirations. Bioregioning Tayside have also explored the role of digital to align needs and practices across their area. They have created a community science and nature monitoring platform through participatory mapping (p.15). Now they required further support to manage and validate data capture.

Provocations

New relational governance practices are rapidly developing and demonstrate potential to significantly scale restoration activity. Mairi McFadyen and Raghnaid Sandilands proposed convivial reunions and creative storytelling as a mechanism for demonstrating this to legislators. This leaves us to consider...

- *What type of decision making activities should be used when? What models, tools and process are most appropriate and how do we use them effectively?*
- *How might we provide representation and accountability for decisions through creative and relational practices?*

3. Forming Roles and Awarenesses

Place Partnerships

Throughout the two-day event, the intersectional challenges of rural living were also discussed. The wellbeing and resilience of communities, particularly in Highland and Island contexts, requires access to stable and attractive employment opportunities and affordable, energy efficient homes. As a provocation, many began to question if bioregioning activities, through the lens of a wellbeing economy, could also create job prospects and deliver infrastructure for healthy living. ***Growing a culture of nature connectedness*** within communities was understood as a foundational first step in this journey.

Purpose

To embrace bioregioning as an established practice, a new sector or even field of mainstream education, it was recognised that new perspectives on work to be done should be fostered. This would require future generations to be invited into such purposes and perspectives of care. For example by identifying native trees as seed sources for the future; considering flood prevention and species management as necessary skills and career paths. This change in culture may require interdependence as a mindset and long term legacy as a tool to question purposes and power. ***Skill sets for bioregioning futures*** might therefore need new principles to be embedded within our educational frameworks.

Purpose

Teaching people to have the right skills for bioregioning practices is an instrumental task. The group highlighted the value of creative practices to do so and of ***celebrating the knowledges of past generations and historic practices***. To stimulate the growth of these awarenesses, ***new apprenticeships*** were proposed; to be framed as desirable and valuable work.

A need for new, cross-disciplinary practices was highlighted. For example, to attend to the reality of short-term funding and long-term thinking required for ecosystem restoration, bioregioning roles require both ecological and economic knowledge. Regenerative economic structures, designed to support long-term nature restoration, could establish dedicated spaces for these roles.

While the need to define and nurture bioregioning skills has been prioritised, contributors also discussed the importance of recognising and acknowledging what already exists. This will take observing the growing movement of bioregioning initiatives globally, identifying emerging or resurfacing roles, and creating the conditions for them to thrive. ‘River Restorers,’ ‘Fibre Shedders,’ and ‘Ecosystem Data Mappers’ could be just some of the many jobs of the near future, but these gaps and growths must first be identified and celebrated.

Provocations

A stepped and layered approach to fostering new skills, roles and awarenesses follows these questions...

- *What would it take to translate bioregioning activities into a new wave of job prospects and practices? How might this be supported through embracing new economies?*
- *How do we teach people to have the right skills for bioregioning practices?*
- *How do we think and act beyond the constraints of project and funding models and timelines?*
- *How might we expand the notion of a rural economy and bring diverse human experiences and people together to define this?*

Creative Nature Connections

During the final round table discussion, Dr James Oliver (Associate Professor at the School of Design, RMIT), expanded discussions about the intersection between Gaelic place-based language, belongings with landscape and creative imagination.

"Dùthchas is that ontological dynamic of embodied experience and emplacement ('on the ground'), and complex entanglement ('in the mind') with relationships of belonging and dwelling, heritage and inheritance, a human ecology with 'place' (including, where relevant, land). It is something like the ontological ethics of what the anthropologist and poet Renato Rosaldo refers to as 'the cultural force of emotions.' This sense of belonging and responsibility, when conceived of as praxis, as emplaced ethical relations, 'is political, social and cultural imagination in action."

(Dr James Oliver, 2021)

Returning to the role of creative practice, the design research team have asked ourselves ***how do we support regenerative livelihoods and relationships that care for nature?*** The insights that emerged from the Land and Nature in Scotland event, understood through the lenses of place partnerships, purposes and practices, have identified three themes that underpin caring relationships at bioregional scales:

- Embracing New Economies
- Shaping Relational Governance
- Forming Roles and Awarenesses

Across these themes, ecosystem restoration initiatives who are already facing resourcing challenges may need dedicated support to identify and adopt appropriate skills, tools and processes. For creative practices and participatory design, there is a role to filter through emerging skills and processes in these areas and provide guidance for organisations seeking to engage with them.
This may include…

- ***Producing a directory of new and renewed skills and practices to guide initiatives towards selecting approaches.***
- ***Co-designing blueprints for community-led nature-positive entrepreneurship, supported through indicators (e.g. of stewardship), monitoring and evaluation methods.***
- ***Providing creative decision-making methods to support accessible participation within relational governance.***
- ***Advocating for new bioregional skills and awarenesses within education.***

Beyond these proposals, is the need to support nature-connected worldviews and experiences for current and future generations. This may be renewed through a conscious dedication to cultural darning and mending (Mairi McFadyen, Raghnaid Sandilands, 2021). Creative storytelling and participatory practice in this context, as demonstrated by the contributors, is understood to help diverse and multicultural audiences explore their own relationships to the environment that surrounds them. Creative nature connections, can therefore craft shared visions of regenerative relationships and nature-positive economies belonging to place. As Raghnaid Sandiland's (2020) describes: "a story that belongs to a place is an invite; an invite to take cultural ownership of the environment around you."

Of future work we stipulate a guiding framework for action in which: caring partnerships with place becomes the aim; purpose is understood through people's individual ways of connecting with the natural systems that surround them; practices put knowledge and care for place into action; and provocations are enacted upon through creative and collaborative imagination.

References

Akama, Y., Light, A. and Kamihira, T. 2020. Expanding participation to design with more-than-human concerns. In *Proceedings of the 16th Participatory Design Conference 2020-Participation* (s) Otherwise. 1, pp. 1-11.

Bastian, M. 2016. *Towards a more-than-human participatory research.* Routledge.

Dark Matter labs. 2024. *Introducing Life Enobling Economics*.

Duggan, J., Cvitanovic, C., and van Putten, I. (2023). Measuring sense of place in social-ecological systems: a review of literature and future research needs. *Ecosystems and People*, 19(1).

Gaziulusoy, A. İ. and Ryan, C. 2017. Shifting Conversations for Sustainability Transitions Using Participatory Design Visioning. *The Design Journal*, 20.

Gaziulusoy, A. İ. and Öztekin, E., E. 2019. Design for Sustainability Transitions: Origins, Attitudes and Future Directions. *Sustainability*, 11(13).

Gilmore, R.W. 2022. *Abolition geography: Essays towards liberation*. Verso Books.

IPCC. 2023. *AR6 Synthesis Report: Climate Change 2023*.

Irwin, T. (2015). Transition Design: A Proposal for a New Area of Design Practice, Study, and Research. *Design and Culture*, 7(2), pp. 229–246.

Kimmerer, R. 2013. *Braiding sweetgrass: Indigenous wisdom, scientific knowledge and the teachings of plants*. Milkweed editions.

McFadyen, M. and Sandilands, R. 2021. On 'Cultural Darning and Mending': Creative Responses to Ceist an Fhearainn / The Land Question in the Gàidhealtachd. *Scottish Affairs*. Edinburgh University Press. Vol 30 (2)

Oliver, J. 2021. Acknowledging relations: dùtchas, seanchas and ethical emplacement. In E. Nicolson and G. Meilkle (eds), *The Comonplace Book of ATLAS*. Portree: ATLAS Arts.

Oliver, J. and MacKinnon, I. 2021. Scotland's Gàidhealtachd Futures: an introduction. *Scottish Affairs*, 3(2). Edinburgh University Press.

Raworth, K., 2018. *Doughnut economics: Seven ways to think like a 21st century economist*. Chelsea Green Publishing.

Rice, L. 2017. Nonhumans in participatory design. *CoDesign*, 14(3), pp. 238–257

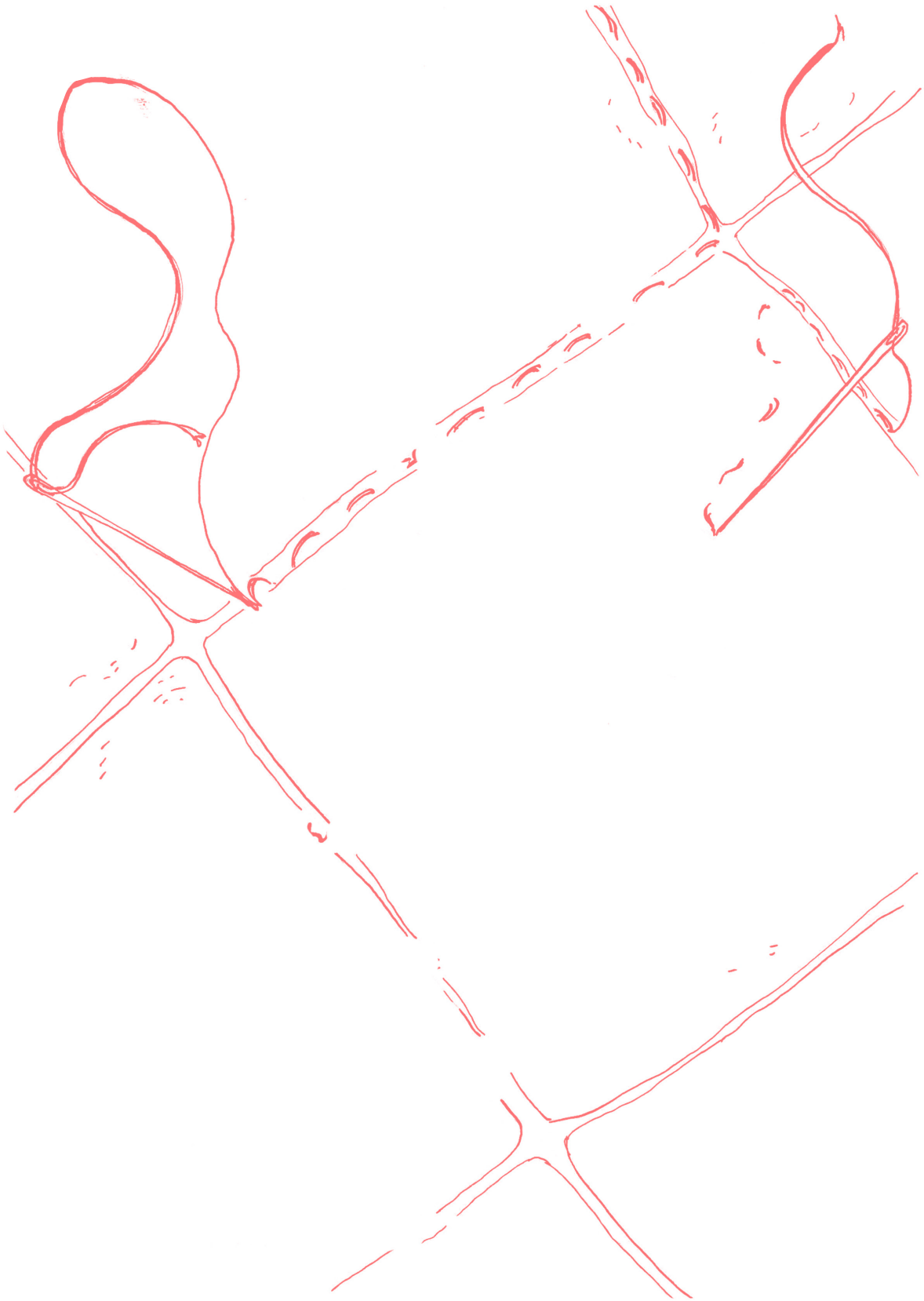
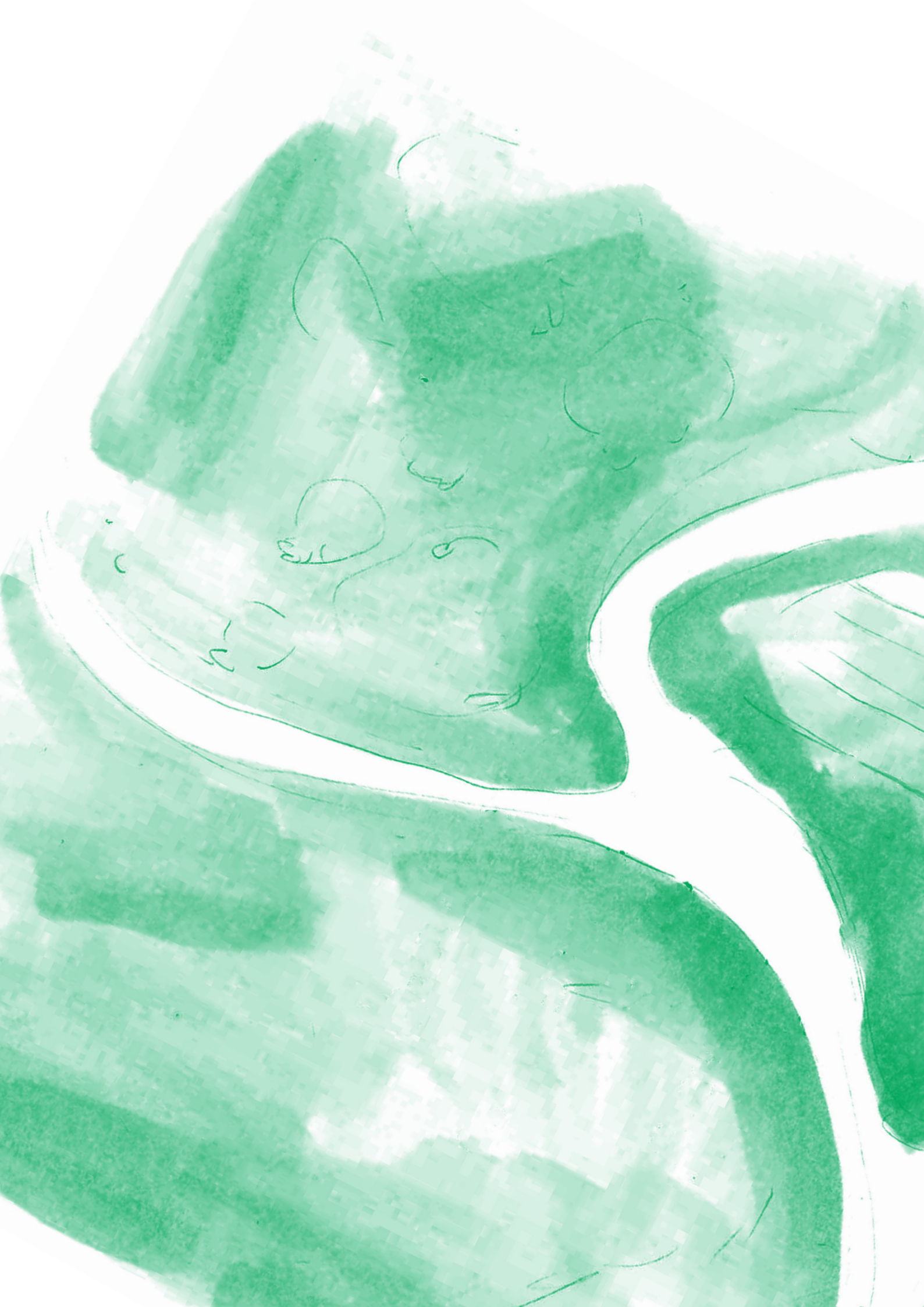
Sandilands, R. (2020). *Tobar an Dualchais: in praise of B-road studies*. West Highland Free Press, 9 May 2020.

Tanasescu, M. 2022. *Ecocene Politics*. Cambridge, UK: Open Book Publishers.

The Scottish Government. 2021. *Just Transition - A Fairer, Greener Scotland: Scottish Government Response*.

The Scottish Government. 2022a. *Biodiversity Strategy to 2045: tackling the nature emergency draf*t.

The Scottish Government. 2022b. *Land Rights and Responsibilities Statement*.

The Scottish Government. 2023. *Interim Principles for Responsible Investment in Natural Capital*.

Williams, L. 2023. From Indigenous philosophy in environmental education to Indigenous planetary futures: what would it take?. *Australian Journal of Environmental Education*, 39(3), pp.320-335.