Discursive mindscapes in regenerative agriculture

Exploring different interpretations of regenerative agriculture and implications for transformation

Discursive mindscapes in regenerative agriculture: exploring different interpretations of regenerative agriculture and implications for transformation

By Ethan Gordon

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Certificate of original authorship

I, Ethan Gordon, declare that this thesis is submitted in fulfilment of the requirements for the award of Doctor of Philosophy in Sustainable Futures at the University of Technology Sydney.

This thesis is wholly my own work unless otherwise referenced or acknowledged. In addition, I certify that all information sources and literature used are indicated in the thesis.

This document has not been submitted for qualifications at any other academic institution.
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Production Note:
Signature removed prior to publication.

Ethan Gordon

14 June 2023

For my Pa,

David John Sutherland Gordon

Pa and I would often exchange books and discuss big ideas in agriculture. “It’s good,” he would say, “because, Ethan, it gives me an idea of where you’re at.” Between the two of us, nearly every single page in the books we shared would be highlighted – alongside a list of pencil notations.

This thesis is dedicated to a memory that unfortunately never eventuated. One where we could have read this thesis together, critiqued it, improved upon the copious drafts, and enjoyed the excitement of doing agriculture differently. In this alternative version of our lives, we would have had the time to share all these moments.

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List of discourse artworks

List of vignettes

Acknowledgement of Country

> "I don't think Country is silent at all, but the witness. The longest relationship that we'll ever have is with this Country" (participant 22)

For Aboriginal people in Australia, Country is their origin place (Gammage and Pascoe, 2021) where ancestors still speak through mountains, rivers, plants, and animals (Deverell, 2018). Country is where everything actively emerges together in sentient, mutually caring and multidirectional ways – alongside the skies, grasses and waters, people are Country (Bawaka-Country et al., 2016). I would like to acknowledge and say thank you to the Country that reared me. This Country straddles the lands of the **Dunghutti, Anaiwan** and **Gumbaynggirr** people. Thank you to the place known as **Marlawgay Miilarl** or **Berarngutta**, and to the farm **Moffat Falls**. This thesis exists to extend my capacity to care for, and be a friend to, these places. I would like to acknowledge their Traditional Custodians. I pay my respects to the Elders past, present, and emerging. It is important that we recognise the long histories that the Dunghutti, Anaiwan and Gumbaynggirr people have with Country, and the care they have given to her for thousands of years. Sovereignty was never ceded. This always was and always will be Aboriginal land.

Image 1: Moffat Falls

To those who made this thesis possible

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Abstract

Agriculture occupies 38% of the planet's terrestrial surface and is dominated by a discourse that emphasises industrialism and productivism. This emphasis is signposted by large scale, capital-intensive and mechanised practices that unsustainably increase yields using fossil fuel inputs and artificial fertilisers, pesticides and herbicides supplied by multi-national corporations. Consequently, agricultural landscapes have been reshaped globally to drive unsustainable increases in profit and production. Unsustainable approaches to food production are contributing significantly to the degradation of planetary systems and the vulnerability of food systems. As such, agricultural transformation is essential for creating more sustainable food futures.

This thesis uses action-oriented practice-research to explore discursive transformation. A prominent discursive alternative to the status-quo is regenerative agriculture, which seeks to transform food production and repair ecosystems. Regenerative agricultural discourse is emergent and evolving. The study undertook a discourse analysis and literature review on 267 grey and academic texts related to regenerative agriculture. It found that regenerative agricultural discourse: situates agricultural work within nested, complex living systems; positions farms as relational, characterised by co-evolution between humans and other landscape biota; perceives the innate potential of living systems as place-sourced; maintains a transformative openness to alternative thinking and practice; believes that multiple regenerative cultures are necessary for deeply regenerative agriculture; and departs from industrialism to varying degrees. The thesis reviews three transformative opportunities for regenerative agricultural discourse—discourse coalitions, translocal organising and collective learning.

Building on these findings, the thesis proposes that regenerative agriculture is a storyline that binds diverse actors and discourses together into a discourse coalition. Consequently, multiple discourses contribute to the over-arching discourse of regenerative agriculture. A second discourse analysis was conducted on texts from ninety-six organisations and complimented by

twenty-two interviews in Australia and the USA. This analysis identified nine distinct discourses contributing to regenerative agricultural discourse: Restoration for Profit; Big Picture Holism; Regenerative Organic; Regrarian Permaculture; Regenerative Cultures; Deep Holism; First Nations; Agroecology and Food Sovereignty; and Subtle Energies. This thesis describes and examines these component discourses and discusses tensions that may make regenerative agriculture vulnerable to co-optation and greenwashing, diluting its transformative potential.

The discourse coalition that has formed around regenerative agriculture has diverse contributors that interpret the storyline differently. It is likely that this discursive diversity will not be retained as regenerative agriculture undergoes structuration (whereby a particular framing of the discourse becomes dominant in society) and consequently institutionalisation (whereby the discourse solidifies into institutions). Institutionalisation might be achieved by shedding the more transformative discursive elements of regenerative agriculture. As such, the thesis examines a volunteer led co-operative, the Institute of Ecological Agriculture (IEA), as a case study on how advocates of regenerative agriculture are pursuing transformation. Subsequently, it explores how these attempts might be effective amidst processes of discursive structuration and institutionalisation.

The thesis discusses the implications of this study for agricultural transformation on and beyond the farm through two themes. *(1) On the farm: more-than-human relationality in regenerative agriculture.* Agricultural transformation requires personal transformation in a farmer's way of being in the landscape. *Being* regenerative includes a more-than-human ethic of care and participating in decolonial processes that divest the logic and power of coloniality. *(2) Beyond the farm: sharing storylines whilst retaining place-sourced interpretations of regenerative agriculture.* Individual transformations can be communicated globally through translocal networks that contribute to structuring regenerative agricultural discourses. These networks support place-sourced interpretations of regenerative agriculture to exist – whilst also sharing common storylines globally.

Prologue: mystery of the spiders

My exploration of regenerative agriculture has been personal and practical as well as academic. I have been a practitioner of regenerative agriculture whilst conducting this research. The research is therefore shaped by my experiences as a practitioner and interlinked with that identity.

As such, this thesis will begin slightly unconventionally. I have started with a positionality section that sets a foundation for the normative reasoning behind my study. This chapter is an exploration of what has driven me to this research. It feels natural to open with this story, and make my motivations transparent, before stepping into the bigger picture of regenerative agriculture and transformation. I also believe this structure is a more honest reflection of my journey. Once this positionality is established, the thesis will move into a more traditional scholarly structure.

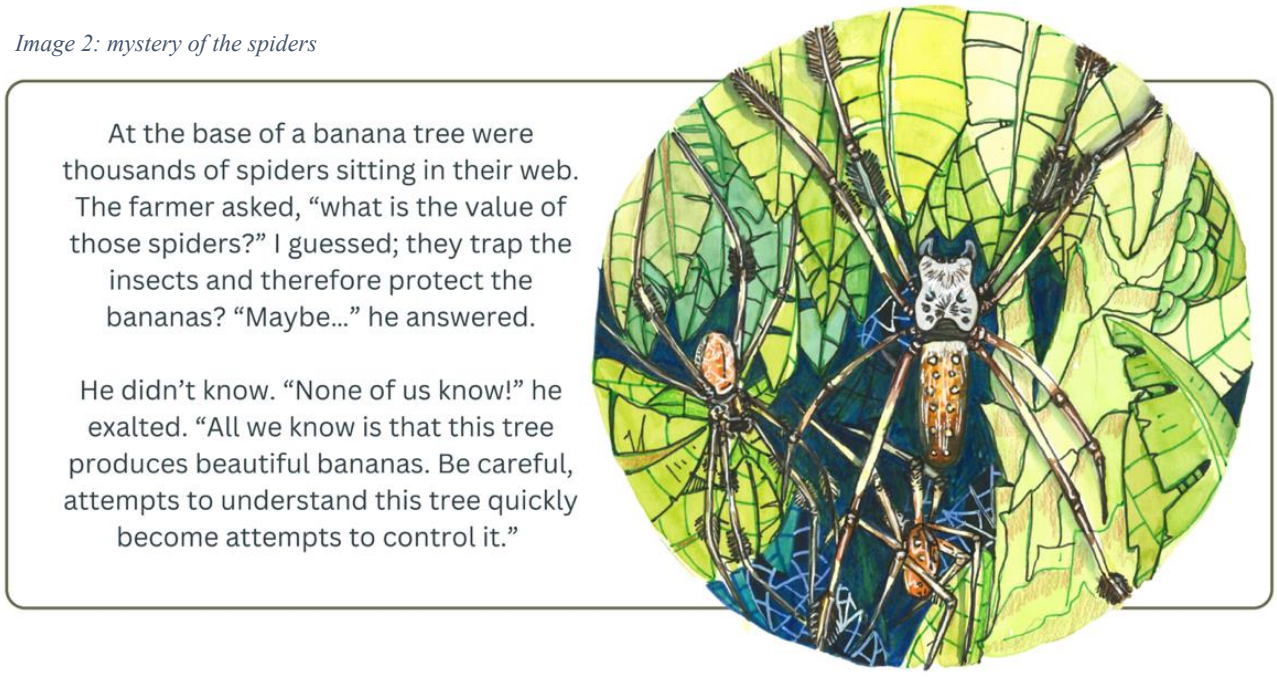
A narrow relationship to ecosystems

Whilst I could never articulate it, as a child I was uncomfortable with the rigid gender roles that formed the fabric of our rural lives. The industrial approaches that we and our neighbours valued (bigness, mechanisation, and the domination of nature) were intertwined with a hegemonic masculinity (Peter et al., 2000) that was unsettling to me. I noticed this because I had a soft and intimate relationship with the waters, grasses, and creatures of our farm. However, my personal connection with this place was juxtaposed with the act of farming itself. When farming, our relationship to the land was heteropatriarchal and followed the formula of how a heterosexual man might relate to a heterosexual woman.

In a heteropatriarchal context, men and culture are often correlated and positioned as superior to women and nature (Gaard, 1997); particularly when nature is feminised, e.g., mother nature (Massy, 2017). Ecofeminism demonstrates how nature has predominantly been constructed as "a force that must be dominated if culture is to prevail" (Gaard, 1997, p. 141). Consequently, the relationship between agri-'culture' and 'nature' becomes one of subjugation for the purpose of procreation. The land where we farmed was subject to the heteropatriarchy because as farmers, we felt the need to dominate it for the purposes of productivity, e.g., chemical control to increase yields (Kimbrell, 2002). This was considered a normative and 'natural' relationship. In this way, an appeal to the natural was simply an appeal to a socially constructed heterosexuality (Mortimer-Sandilands & Erickson, 2010). Gender and sexuality didn't just impact how we related to each other, but how we related to agroecosystems (Hird & Giffney, 2016).

A more expansive relationality in agriculture

Image 2: mystery of the spiders



Theis storyline of domination for production made me uneasy. The parable in *image 2* recounts an interaction I had in 2018. It is significant because the farmer invited us to accept the mystery

of the spider's role in the agroecosystem. This is a fundamental deviation from the gendered domination of agroecosystems. This farmer did not try and control, or even understand, the relationship between the banana tree and the spiders. He simply let them live into their specific ways of being. This reiterated to me how regenerative agriculture can entail a gendered shift in how farmers relate to agroecosystems (Leslie, 2017; Leslie et al., 2019).

As Haraway (2016, p. 58) notes, we (spiders, banana trees and farmers) are all co-becoming or "worlding-with, in company." This means bringing worlds into being through our relationships with each other (Collard et al., 2015). It is problematic when those relationships can only be defined in a particular and narrow way (as they were when I was growing up). Whilst there would be no place for spiders in a monocultural banana plantation, such relationality is valued in regenerative agriculture. As Leslie et al. (2019, p. 868) remark;

> "Agriculture has always been relational. We just haven't understood it that way – at least not recently. Heteropatriarchy captured the beast of capitalist agriculture and used it to enforce, and reinforce, its power inequalities. Part of that enforcement and reinforcement was envisioning food and agriculture as pure matters of production and consumption, and not as social, economic, and ecological arrangements."

The story of how farmers and agroecosystems might relate is completely retold by Berry (2012). He conceptualises the farmer and the land as dancing with each other, and always crossing between sexual poles. Depending on the season and the crop, the land is both mother and father. Berry (2012, p. 40) says, the land "is at one time receiver of seed, bearer and nurturer of young; at another, raiser of seed-stalk, bearer and shedder of seed. And in response to these changes, the farmer crosses back and forth from one zone of spouse-hood to another, first as planter and then as gatherer." This marks a transgression of gendered categories and boundaries in farming – it is queering[1] agriculture.

[1] The indefinability of the term queer has come to act as a type of definition, which points to its value in emphasising the transgression of categories and boundaries (McCann and Monaghan, 2020).

My ability to relate to agricultural landscapes in diverse ways had been suppressed by a heteropatriarchal view. Recognising this inspired my transition towards more ecologically sustainable approaches – such as regenerative agriculture. As Leslie et al. (2019, p. 854) remark, "achieving a socially just and ecologically sustainable agriculture demands understanding and re-orienting heteropatriarchal relations on farms." However, the heteropatriarchal view was also reinforced by colonisation (Leslie et al., 2019), which similarly attempts to, "erase distinct ways of bringing worlds into being" (Collard et al., 2015, p. 326). Colonisation and heteropatriarchy reinforce each other (Gaard, 1997) and prevent people and ecosystems from bringing mutually beneficial worlds into being.

The implications of managing stolen land and preventing First Nations people from worlding-with, in company

Colonisation is an ongoing, continuously unfolding process of oppression and exploitation that prevents the colonised from enacting socio-economic self-determination and maintaining their cultural integrity (Barker, 2012; Coulthard, 2014; Gram-Hanssen et al., 2021). Colonisation can also "be seen as a relationship of compulsory heterosexuality whereby the queer erotic of non-westernized peoples, their culture, and their land, is subdued into the missionary position – with the conqueror 'on top'" (Gaard, 1997, p. 149). It has participated in racial oppression and emptied landscapes of First Nations people (Gaard, 1997; Mortimer-Sandilands & Erickson, 2010). As TallBear (2018, p. 146) says, "growing the white population through biologically reproductive heterosexual marriage … was crucial to settler-colonial nation building."

As someone managing landscapes in Australia with a settler colonial ancestry, I am unintentionally implicated in preventing First Nations people from *worlding-with, in company*. This means continuing cycles of displacement that prevent First Nations people from being on Country. As a practitioner of regenerative agriculture, I do not believe that shifting towards a relational agriculture is enough without addressing what it means to manage stolen land. The

politics of land needs to be central to regenerative agriculture, which otherwise risks adopting and promoting Indigenous knowledge and practices without explicitly addressing issues of land ownership and historic land extraction. For me, this involves critically reflecting on my role in oppression and standing in solidarity with First Nations people (Land, 2015). Budden (2009, p. 6) says, "as Second Peoples[2] we cannot go elsewhere. We can do two things: tell the history as a broken and contested time, not just the story of successes and benefits; and wrestle with what it means to be guests on other people's land, rather than owners and occupiers who can do as they wish." This is particularly pertinent for those who are managing large portions of land – what does it mean to be on Country as Second Peoples?

The place where we farm

I was raised on a pastoral property in the New England highlands known as *Moffat Falls* (see *image 3*). The road follows the escarpment up to Point Lookout, which sits at 1,564m near the headwaters of the Styx and Serpentine rivers. Point Lookout is better referred to as *Marlawgay Miilarl* (sacred lightening place) amongst Gumbaynggirr people or *Berarngutta* (prohibited area) amongst Dunghutti people (see *image 4*).

The area is an edge territory where the humid wetlands, Gondwana rainforests and mountainous outcrops meet. As these bioregions overlap it has a curious effect on biodiversity. The creatures here cross in and out of ecosystems that are not their own, and so exist in contexts where they supposedly shouldn't belong. As any permaculturalist knows, it is the edges between systems that have the most diversity (Mollison, 1988). This place transgresses different bioregional identities and represents an in-between zone that is inherently queer. However, these are not the only boundaries that are transgressed in this landscape.

[2] Deverell (2018) refers to both First and Second Peoples in Australia, terminology that has been adopted by the Uniting Church (UCA, 2015). Second Peoples include all non-indigenous Australians.

Image 3: steers grazing at Moffat Falls

Image 4: Marlawgay Miilarl

This place also represents the cultural cross-over lands of the Dunghutti, Anaiwan and Gumbaynggirr people. There is a collection of granite standing stones close to our home where all three of these Nations once gathered. This site, "is generally regarded as a 'Bora ground' or initiation ground" (McBryde, 1963, p. 138). According to a local settler interviewed by McBryde (1963, p. 138), the site has not been used in its traditional capacity since before the eighteen-eighties. However, I recall the Dunghutti, Anaiwan and Gumbaynggirr Elders visiting the site separately when I was a child. The disuse of this site by Aboriginal people is a by-product of the colonial settlement of *Berarngutta* (prohibited area). Australian poet Judith Wright used to camp at Marlawgay Miilarl with her father Phillip Wright – something he had done with his mother. As Griffiths (2018, p. 33) recounts,

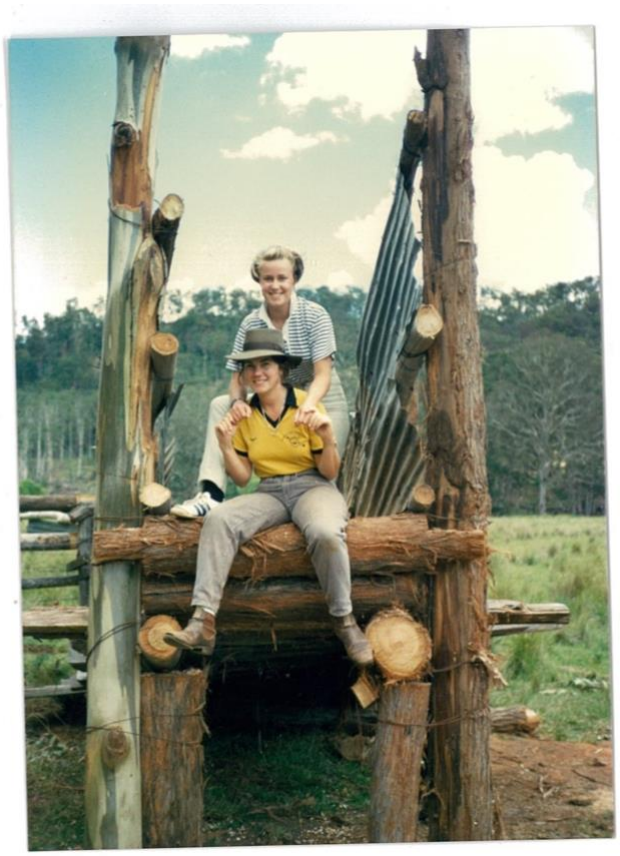
> "…to the north of Point Lookout, jutting out from the plateau and dropping in sheer cliffs into the thick rainforest below, is a place once known as Darkie Point. Wright's father told her the story of how it got its name: how, "long ago," a group of Aboriginal people were driven over those cliffs by white settlers as reprisal for spearing cattle."

Wright reflected on this event in her poem, *Nigger's Leap, New England* (1945). Much like my own complex relationship with this place, her love of the area was bound up with a sense that we live in haunted country – and carry with us a "creeping uneasiness about its past" (Griffiths, 2018, p. 33).

I am the fourth generation in my family to be connected to this place, before me came my mother Lorraine Gordon and aunt Joanne Scott (see *image 5*); my fierce and dearly missed grandmother Judith Smith; my great grandmother Alma Woodham and her sister (my great, great aunt) Valda Morgan. Our lineage in this place has been matriarchal, which is another subversion of the gendered expectations placed on us. My mother built the homestead where we all grew up (see *image 6*). In a recorded conversation, she talked to me about her own sense of belonging at Moffat Falls. She said,

"There is no question in my mind where I belong. I know where my home is. I'm one of the creatures that belong in this particular catchment. The personality of this place is that she will either embrace you and never let you go or throw you out; there is nothing in between. This is not a place you just live because that's where you happen to be – you've got to be in awe of what this place is and feel it. If you love her, she gives you energy and life."

Image 5: Lorraine (yellow shirt) and Joanne at Moffat Falls



Through memory this landscape recalls me to events and people that are important to my family's story. The waters here run through soils where my ancestors lay and then cycle into my living body, along with the rivers and the skies. Knowing this makes it difficult to differentiate between myself and the land around me. As Berry (2012, p. xv) remarks, "…we and our country create one another, depend on one another, are literally part of one another … our land passes

in and out of our bodies just as our bodies pass in and out of the land … all who are living are neighbours here, human and plant and animal … cannot possibly flourish alone."

Image 6: Moffat Falls Lodge in winter

The question that shadows my every decision (including the one to conduct this research) is: how do I live responsibly and in right relationship with this place? This means fostering relationships that emphasise respect, reciprocity and just actions (Gram-Hanssen et al., 2021). Colonial relations that support extraction and oppression must be uprooted for 'right relations' to take hold (Collard et al., 2015; Regan, 2010).

Acacia's work: living in right relations

Right relations is an assertion that uneven power dynamics can and should be changed (Gram-Hanssen et al., 2021). However, this term does not just refer to the power dynamics in our relationships with each other as humans, or as First and Second Peoples. It is about having right relations with everything that surrounds you. As Ross (2014) points out, we need to be in right

relations with the present, past, and future; with the physical world around us and with the spiritual world around us. Every moment is an opportunity to take responsibility for the relationships we have. As such, right relations "can be seen as an obligation to live up to the responsibilities involved when taking part in a relationship—be it to other humans, other species, the land or the climate" (Gram-Hanssen et al., 2021, p. 6).

The work of right relations is a way of being-with, that also results in doing. This was re-iterated to me in two volumes titled, '*The Spiritual Significance of Flowers*' (Alfassa, 2000). As the title suggests, these books detailed the spiritual significances of almost nine hundred plants in the south-east India region. Flicking through the pages I came across *Acacia auriculiformis*. This Australian native has been instrumental in regenerating the tropical dry evergreen forests of south-east India because it thrives in the lateritic soils and has nitrogen fixing abilities (Blanchflower, 2005). It is known for its spiritual significance as the 'work tree' (Alfassa, 2000; Blanchflower, 2005).

Whilst in this area I lived in a small arrangement of thatched huts and every day volunteers travelled out to plant work trees in the surrounding fields. However, it was the land directly encompassing the huts that experienced the most significant regeneration (not where the volunteers were planting, but where they were living). Run off from the kitchen fed banana trees, food scraps attracted wild animals, domestic animals roamed and sniffed. All of this created a hub of socio-ecological activity. The co-benefits of people in the ecosystem seemed to outweigh those of the work tree – a reminder that we are a keystone species (Salmon, 2000). So long as our way of being in the world fosters right relations, we can inadvertently have a regenerative impact. It was the lifestyle of the people living here that caused accelerated regeneration – as opposed to the regenerative act of planting trees. This is the difference between *being regenerative*, as opposed to doing regenerative things.

Silent moths in a time of double death

In the last four years our area has experienced a dramatic increase in natural disasters and general volatility. Approximately 300,000ha of land was burnt around our farm during Australia's 2019/20 black summer bush fires (see *image 7* and *8*). Moffat Falls was not spared, we lost kilometres of fencing, underground power cables and grey water systems. These fires were bookended by other disasters – drought, floods, landslides, mouse plagues, COVID-19, and financial uncertainty. We know that these kinds of disasters will only increase in frequency and severity as global ecosystems reach their tipping points (Rockstrom et al., 2009). Rose (2004) wrote about this as a time of double death – which refers to the uncoupling of life and death. This means that patterns of life cannot continue intergenerationally, and the process of decay cannot cycle energy back into the living world. This is the tragedy of whole ecosystems disintegrating in ways that lead to the disappearance of life-creating patterns.

Image 7: 2019/20 black summer bush fires at Moffat Falls

Double death is a tragedy that causes me despair or indifference – depending on how I choose to process these disastrous events. I am fearful about the impact this is having on the place I'm

responsible for. Again, it makes me question how to best live in right relations during this time. A single moth was humming against my window the other night. Its incessant tapping seemed suddenly desperate; like it was calling me away from my work. It took me a moment to appreciate how unfamiliar this moment was. I had not before experienced only a single moth tapping on the window at this time of year. In the past this window resembled a dense patchwork of moths. So where were they and when did this change? This single moth now seemed to take on the magnitude of double death in my mind. In an even more frightful moment, my reflections suddenly ceased when I noticed that the moth tapping was gone. Looking to the window, so was the moth. There was just an empty window.

Image 8: aftermath of 2019/20 black summer bush fires at Moffat Falls

How this story has influenced the research

Considering what it means to live in right relations during a time of double death is a daunting and life-redirecting task. For me, a part of this is about shifting away from thinking, practice, and

ways of being that are embedded in colonisation and heteropatriarchy. Amongst other things, this means reimagining how we relate to landscapes. My research has revealed the diversity of ways people can interpret regenerative agriculture and choose to relate to place. When farming is relational, it is context specific. Therefore, depending on the relationships that exist in each place, landscapes should have the freedom to create their own distinct ways of bringing worlds into being (Collard et al., 2015). The farmer, the spiders and the banana tree were in right relationship with each other. They were able to co-create their own unique way of being together – whilst each pursuing personal and mutual interests.

This parable paints an image of the biotic community (Leopold, 1949), which "suggests that humans belong to this greater community; humans are not 'outside' or 'other' to the natural world" (Sanford 2011, p. 292). This community has interdependence, mutuality, and reciprocity as well as complex interrelationships, competing allegiances and tensions (Sanford, 2011). I have very little control over what will happen to the world – or even my own biotic community. However, this parable helps me see that, "[hope] is not conviction that something will turn out well, but the certainty that something makes sense, regardless of how it turns out" (Havel, 1990, p. 181). It makes sense to be in right relations with the spiders and bananas of my own context.

This idea impacts all the decisions I make as a practitioner and researcher in regenerative agriculture. This is the reason I have integrated action-oriented practice-research into the work. The thesis is not just an intellectual pursuit. It has given me the knowledge and framework to advocate for change in the farming communities I am involved with. I make no apologies for the inherent belief that the current agricultural system needs to be radically transformed – which underpins this entire thesis. As Haraway (2016, p. 1) says, "our task is to make trouble, to stir up potent responses to devastating events, as well as to settle troubled waters and rebuild quiet places." This is my task on the farm, and my task with this research.

Introduction: outlining the research

This chapter will introduce the context of the research; central concepts in the thesis; the knowledge gap; research design; contributions to knowledge alongside their significance; and a thesis map.

Research context: moving towards and away from industrial-productivist agriculture

Diverse ways of managing landscapes and cultivating food have existed across different contexts and cultures. *Chagra* is an Indigenous agroforestry system in the Amazon that supplies subsistence food, medicinal products, and housing to communities (González & Kröger, 2020). Aboriginal Australians used totemic systems to protect habitats (Gammage & Pascoe, 2021) and moved grazing animals predictably via cultural burning (Gammage, 2011; Murphy, 2007). Traditional approaches in Asia used intercropping and polycultures (King, 2019; Knorzer et al., 2009). This was also the case for the Iroqouis and other North America tribes (such as the Pueblo Nations in the US South-West) who planted maize, beans, and squash together, referring to them as the 'three sisters' (Ngapo et al., 2021). In India farmers undertook organic husbandry, crop rotations and fostered soil health by leaving fields fallow for extended periods (Nelson et al., 2019; Patel et al., 2020). These examples demonstrate that for a long time, humans have had interdependent relationships with their environments and developed diverse systems of landscape management and food cultivation.

The post-1945 emergence of Green Revolution programs, alongside ongoing colonisation, meant that many of these systems were disrupted and replaced by a technology-intensive agriculture (Ahmed et al., 2021). As the global population increased, the Green Revolution aimed to alleviate

poverty and hunger through increased food supply (Harwood, 2018). The corporatisation of agricultural inputs led to new ways of growing food (Kumbamu, 2020). These inputs (fertilisers and pesticides) were transferred from global North to South alongside particular crop varieties, cultivation expertise and mechanisation (Harwood, 2018). This is sometimes viewed as a 'gift' from the North to the South in the pursuit of humanitarian goals; however, this ignores the substantial economic gains that accrued in the global North due to research intended for the South (Harwood 2018). It also ignores how many Green Revolution innovations originated in the global South first – such as the high-yielding varieties of wheat and rice (Harwood 2018). Far from simply being a humanitarian development initiative, the Green Revolution used scientific advancements from WWII (e.g. DDT) to drive corporate profits and exports (Shiva 2016a) and develop new seed varieties (Briggs 2009).

The productivity drive of the Green Revolution has in part been a failure, violently erasing sustainable and productive farming systems (Shiva 2016b) – such as those previously mentioned. New technologies meant the cost of farming was amplified alongside pressure on the land from monocultural production (Shiva 2016a). Whilst crop yields, total production, and food-per-capita increased (Harwood, 2019), the environment went into rapid decline and social inequity deepened (Harwood, 2020; Patel, 2013). The Green Revolution contributed to the unequal distribution of resources, poor post-harvest food handling, food distribution and lack of access to land (Ahmed et al., 2021). Taking India's experience as an example, farmers in India experienced more pests (John & Babu, 2021) alongside the use of pesticides (Bowonder, 1979; Nelson et al., 2019). Chemical residue remained in their food and environments (Abhilash P. & N., 2009; Rekha et al., 2006; Yadav et al., 2015). They experienced increased soil degradation and nutrient loss (John & Babu, 2021; Nelson et al., 2019); increased water consumption and air pollution (John & Babu, 2021); and increased farmer suicide rates alongside rising expenses (Nelson et al., 2019). Introduced rice and wheat varieties doubled whilst rice and millets indigenous to India declined, in some cases becoming extinct (Nelson et al., 2019).

Modern agriculture emerged from this tension between increased yields and socio-ecological strain. It is epitomised by two major qualities:

1. Modern agriculture utilises synthetic fertilisers (Pimentel, 2005; Pimentel et al., 1991), chemical control (Carson, 1962 (1972 repr.)), genome manipulation (Rowell, 2003), monocultural production (Knorr, 1984), tillage (Massy, 2013) and factory farming (Massy, 2013) or intensive animal husbandry (Knorr, 1984). These large scale, capital-intensive and mechanised practices signpost a connection to industrialism (Knorr, 1984). Consequently, modern agriculture can be referred to as *industrial* (Kimbrell, 2002).

2. Modern agriculture reshaped landscapes to maximise production (Gliessman, 2007; Lawrence et al., 2013; McKeon, 2015). This means unsustainably increasing yields (Anderson & Rivera-Ferre, 2021) by relying on industrial processes, monocultures, fossil fuel inputs and artificial fertilisers, pesticides and herbicides supplied by multi-national corporations (Horrigan et al., 2002; Kimbrell, 2002). Modern agriculture is based primarily on output and increased productivity (Lowe et al., 1993). Consequently, it can be referred to as *productivist* (Lang & Heasman, 2004).

I will refer to modern agriculture as *industrial-productivist* for the purposes of this thesis. Ironically, over-reliance on industrial practices to serve global markets is contributing to the vulnerability of food systems (Clapp & Moseley, 2020). The implementation and integration of these practices has, "simplified agricultural systems in ways that are having alarming consequences on the health of people and landscapes" (Provenza, 2008, pp. 277-278). Agriculture currently occupies 38% of the planet's terrestrial surface (Foley et al., 2011). Continued expansion and extraction is contributing significantly to the degradation of earth systems (Campbell et al., 2017; Rockstrom et al., 2009). Consequently, there have been moves away from the productivity-oriented, high-input and highly mechanised approaches of industrial-productivist agriculture (Holt-Giménez & Shattuck, 2011).

These include those Indigenous foodways already mentioned, which existed prior to industrial-productivist agriculture. Indigenous farmers have been farming interdependently with their environments for millennia (Rivera-Ferre, 2018). Organic and biodynamic agriculture also existed prior and evolved together (Brock et al., 2019; Paull, 2013). They were inspired by the work of Sir Albert Howard in India (1940, 2013), the trials of Lady Eve Balfour (1943), and the lectures of Rudolf Steiner (1993). Agroecology emerged from practices used by Indigenous farmers (Wezel et al., 2009) but only formed as a concept in Western science during the 1930s-60s (Francis et al., 2003). It adopted a political framework around food sovereignty (IPC, 2015) that directly challenged industrial-productivist agriculture (Catacora-Vargas et al., 2017) and corporate power in the food system (Chaifetz & Jagger, 2014). Other approaches have emerged post the rise of industrial-productivist agriculture. These include permaculture (Holmgren, 2007; Mollison, 1988); carbon farming (Toensmeier, 2016); natural farming (Fukuoka, 1978); keyline farming (Yeomans, 1993); holistic management (Savory & Butterfield, 2016); and regenerative agriculture – which will be the focus of this study.

Central concepts in the thesis

There are three central concepts in this thesis. First, regenerative agriculture is the focus of the study. Second, the need for agricultural transformations is the normative intent behind the study. Finally, discourse is the theoretical foundation for examining regenerative agriculture and its transformative potential.

Regenerative agriculture: the focus of the study

The term 'regenerative' was first used in an agricultural context around the late 1970's (Gabel, 1979) followed closely by the work of Robert Rodale (Francis & Harwood, 1985; Rodale, 1983, 1986) who coined the seven tendencies for regeneration with his daughter Maria (Rodale & Rodale, 1989). Harwood (1983) discusses the emergence of regenerative agriculture in the context of different organic and biodynamic approaches. This lineage was also the initial origins

of regenerative agriculture when it first emerged in academic literature (Francis et al., 1986). Whilst there was interest in the 1980's, mentions of regenerative agriculture virtually disappeared in public and academic domains until 2016 – 2020 when academic publications on the topic rose from seven to fifty-two (Giller et al., 2021).

Since 2016, regenerative agriculture has undergone a radical increase in popularity amongst farmers (Gosnell et al., 2019), celebrities (Kiss-the-Ground, 2021), consultancies (Terra-Genesis, 2022), universities (SCU, 2019) and corporations (Cargill, 2020; Mills, 2020; Patagonia, 2020). It has emerged as an umbrella term for any agricultural activity that enhances and restores ecological systems (Gosnell et al., 2019), and in some instances social systems (Soloviev & Landua, 2016). Regenerative agriculture integrates different approaches such as holistic management, keyline farming and permaculture (Duncan, 2015) to restore and realise the potential of damaged landscapes and associated communities (Francis & Harwood, 1985; Massy, 2013, 2017; Wahl, 2016).

Terms with broader scope than agricultural production are also becoming increasingly popular; e.g., regeneration (Hawken, 2021), regenerative food systems (Duncan et al., 2020), regenerative cultures (Wahl, 2016) and regenerative design (Haggard & Mang, 2016). It has been suggested that *regenerative* is the new *sustainable* (Gibbons, 2020). However, regenerative carries ethical connotations, "to effect a complete moral reform" (Massy, 2013, p. 23). Whilst sustainable systems must maintain the status quo and "their productivity and usefulness to society indefinitely" (Duesterhaus, 1990, p. 22), regenerative systems go a step further in restoring what has been lost and improving what is currently there (Rhodes, 2017). With corporations developing their own definitions, the interpretive breadth of regenerative agriculture increasingly makes it vulnerable to greenwashing (Giller et al., 2021). Some scholars have argued that this occurred with sustainability as the term became exhausted and unable to deliver transformation (Blühdorn, 2017).

Transformation: the normative intent behind the study

Continued agricultural expansion and extraction is contributing significantly to the degradation of earth systems (Campbell et al., 2017; Rockstrom et al., 2009) and displacing Indigenous communities (Levers et al., 2021). Biodiversity is threatened by monocultures and agricultural expansion (Horrigan et al., 2002), with more than 70% of the world's agrobiodiversity already lost (Holt-Giménez & Altieri, 2013). Biogeochemical cycles are collapsing (Steffen et al., 2015), particularly nitrogen and phosphorous cycles (Campbell et al., 2017). Human-induced changes to the nitrogen cycle have polluted the atmosphere, soils, marine waters, and watersheds (Howarth et al., 2011; Swaney et al., 2012). A third of the world's agricultural land has become degraded (Dudley & Alexander, 2017). This is from overgrazing, overcultivation, overuse of water, compaction from heavy machinery and the killing of beneficial organisms (Horrigan et al., 2002). Between 2007-2016 agriculture and forestry contributed 23% of global greenhouse gas emissions (IPCC, 2019). Transformation is consequently needed to prevent systems further breaking down (Linnér & Wibeck, 2020).

This thesis is underpinned by the belief that agricultural landscapes and mindscapes need to be transformed by central actors (e.g., farmers, consultants, educators, community leaders) to prevent further socio-ecological destruction. *Mindscapes* include the discursive constellations of meanings, assumptions and storylines that impact landscapes – the realm of inner transformations (Ives, 2020). This research takes the position that both interior and exterior transformations co-constitute each other and are required (Hedlund-de Witt, 2013). This involves 'seeing' agricultural land use differently (Campbell et al., 2009).

Roux-Rosier et al. (2018) point out that agriculture is a critical site for transformation because the re-organisation of land use and food production systems is essential to addressing ecological crises. As such, transformational adaptation in agriculture requires "major, purposeful action undertaken at the farm and supra-farm level in response to potential or actual climate change impacts" (Rickards & Howden, 2012, p. 240). Gosnell (2021) argues that agricultural

transformations cannot be understood without considering the interiority of farmers. She notes that a farmer's feeling of kinship with nature is an underappreciated leverage point for transformation. The interior lives of individuals have been identified as *deep* leverage points (Abson et al., 2017; Leventon et al., 2021; Meadows, 2008). This is because the values and emotions of people determine their motivations and decision-making (Ives, 2020).

For the purposes of this thesis, transformation is broadly defined as a radical shift in shared socio-cultural structures, as well as technological, economic, and ecological processes (Linnér & Wibeck, 2020). Regenerative agriculture has been promoted (Mills, 2020; Patagonia, 2020) and criticised (Jonas, 2021) as a transformative alternative to industrial-productivist agriculture (Gosnell et al., 2019). Regenerative agriculture's transformative potential is often critiqued by opponents that downplay its scalability, comparative yield, economic viability, and capacity to address climate change (Ahmed et al., 2021). Despite this rhetoric, regenerative agriculture continues to gain popularity (O'Donoghue et al., 2022). Its transformative potential therefore requires further study.

Discourse: the theoretical foundation for examining regenerative agriculture and its transformative potential

To examine the transformative potential of regenerative agriculture, I have drawn on discourse as a theoretical framework. Discourses are shared social practices or ways of speaking that inform behaviour and decision-making (Fairclough, 1989). They draw on systemic constellations of meanings, phrases, assumptions, and storylines (Dryzek, 2013; Hajer, 1995; Riedy, 2020) to shape these social practices. Discourses tell stories about the way the world is, and our relationship to it, that influences our behaviour (Riedy, 2020, 2022). In this way they form an implicit code of conduct, which impacts how we construct technologies, institutions, and practices. As such, discourses can open us up, or close us down, to opportunities for transformation—depending on the storylines associated with them. The adoption of regenerative agriculture not only entails, "a new way of doing agriculture; but a new philosophy,

a new worldview and a new ethics-values base," which will likely put regenerative farmers "at odds with peers, farming district and even family" (Massy, 2013, p. 231). This is because regenerative agriculture inhabits a different set of discursive storylines to industrial–productivist agriculture.

To make sense of how discourses and storylines influence regenerative agriculture and its transformative potential, I draw on the concept of discourse coalitions (Hajer, 1993). A discourse coalition is, "a group of actors that, in the context of an identifiable set of practices, shares the usage of a particular set of storylines over a particular period of time" (Hajer, 2006, p. 70). The political power of a storyline, "comes from its multi-interpretability" (Hajer, 1995, p. 61). That is, it has multiple interpretations. This is because discourse coalitions obscure disagreements and create, "the appearance of discursive unity, *as if* everyone were talking about the same thing" (Edenborg, 2021, p. 2). In this way, regenerative agriculture might bridge conflicting perspectives, which is a powerful "starting point for political action" (Edenborg, 2021, p. 2). These shared storylines are central to establishing alliances between actors participating in diverse discourses because they create perceived common ground (Hajer, 1995), therefore enabling communication between groups that might otherwise disagree (Edenborg, 2021).

Knowledge gap: the nexus of regenerative agriculture, transformation, and discourse

There are many definitions of regenerative agriculture that are often in conflict (Newton et al., 2020). This tension demonstrates the lack of theoretical depth and consistency in regenerative agriculture. For example, in Newton et al. (2020) only 17.4% of their reviewed journal articles (121) and 40.9% of their reviewed practitioner websites (22) mentioned improving the "social and/or economic wellbeing of communities" when defining or describing regenerative agriculture (2020, p. 5). Nonetheless, Soloviev and Landua (2016, p. 13) remark that, "deeply regenerative agriculture can exist only if it is completely interwoven into a thriving regenerative culture." There is ambiguity around whether regenerative agriculture includes the "mental/social aspects of people working on the land" (Hes & Rose, 2019, p. 10).

There are many other definitional inconsistencies. Some define regenerative agriculture as process-based, focussing on *how* you farm and the practices you use. Others are outcomes-based and unconcerned about practices so long as you're achieving the right results (Newton et al., 2020). Haslet-Marroquin says that the desire to define regenerative agriculture is a form of colonisation and that *not* defining it is fundamental for achieving regenerative outcomes (Loring, 2022). A wide and disparate variety of principles also exist. General Mills lists six principles that are all practice based; for example, "reduce soil disturbance," and "integrate livestock" (Mills, 2020). Others focus on the way farmers think – "make context-specific decisions" (Grelet et al., 2021, p. 15) or "express the unique and irreplaceable essence of each person, farm and place" (Soloviev & Landua, 2016, p. 19). Such ambiguity around definitions and interpretations reflects discursive ambiguity. The discourse in regenerative agriculture is disjointed and not well understood.

Given that regenerative agriculture integrates diverse farming practices and is informed by distinct bodies of literature (O'Donoghue et al., 2022), it is unsurprising that its discursive origins might be similarly diverse. Page and Witt (2022) identified three discursive typologies related to regenerative agriculture. *Regenerative* believes that farming does not require environmental control and science/technology alone cannot fix environmental issues. *Environmentally conscious* believes regenerative agriculture lacks adequate evidence but feels an obligation to protect the environment. *Productive* believes that farming does require environmental control but is interested to learn about regenerative agriculture. The most detailed study of discourse as it relates to regenerative agriculture is Massy (2013). Insights from this were later collated into a book, *Call of the Reed Warbler* (2017). Unlike the original study, this book does not focus explicitly on discourse. Massy (2013) conducted his research prior to the explosive popularity of regenerative agriculture. Whilst regenerative agriculture was an emergent theme in his work, it was not the initial focus of inquiry. It is plausible that significant discursive change has occurred since 2013. This research builds on Massy (2013) to look more closely at the discursive nuance in regenerative agriculture as it exists today.

This research sought to undertake a more comprehensive analysis on regenerative agricultural discourse than either Massy (2013) or Page and Witt (2022). Massy (2013) interviewed farmers in Australia. I did the same in this study, however, I also examined ninety-six international organisations talking about regenerative agriculture. Whilst Massy (2013) looked at farm management, this research goes further to discuss how regenerative agricultural discourses might respond to processes of structuration and institutionalisation in society. Massy (2013) articulated an emerging discursive mindscape in agriculture – which he refers to as transformative. This research delineates between nine diverse contributing discourses in regenerative agriculture – which may not have existed at the time of Massy's analysis. Page and Witt (2022) used Q methodology and their results cannot be generalised to larger populations. They only reflect the perspectives of the 28 participants involved. This research builds on their contribution and unpacks the structure of regenerative agricultural discourse, which has not been done anywhere in the literature. In unpacking this structure, the research also digs more deeply into tensions and potential common ground between regenerative agricultural discourses.

Discussions around transformation and regenerative agriculture are more common in the literature. Gosnell et al. (2019) explore zones of friction and traction occurring in personal, practical, and political spheres of transformation. These zones both challenge and facilitate a farmer's transition towards regenerative agriculture. Seymour and Connelly (2022) make a distinction between 'being regenerative' and the technical practice of regenerative agriculture. Being regenerative is a relational way of viewing the world that is transformative because it challenges dominant assumptions of how agriculture should operate. However, when this nexus includes the role of regenerative agricultural *discourse* in transformation the literature quickly becomes sparse.

There are discussions on regenerative narratives (Anderson & Rivera-Ferre, 2021) and typologies (Tittonell et al., 2022). However, Massy (2013) is the only one to explicitly touch on

transformation and discourse in regenerative agriculture. He uses the definition of Marshall et al. (2012, p. 1), which understands transformation similarly to this study – as "a switch to a distinct new system where a different suite of factors become important." As Riedy (2022) suggests, discursive transformation involves understanding how specific storylines and discourses are being created and performed. The literature currently has no clear understanding of these processes in regenerative agriculture. It is an important nexus to study because discursive ambiguity leaves regenerative agriculture vulnerable to co-optation and greenwashing (Giller et al., 2021). As such, this thesis seeks to address this knowledge gap.

Research design and contribution to knowledge

The over-arching goal of this research is to **understand the discursive characteristics of regenerative agriculture and the implications for transformation**. To address this goal, eight research questions were developed. These are presented in *table 1* alongside their methods and contributions to knowledge. The thesis was written by compilation, *table 1* illustrates which chapters are also academic publications. The three central concepts outlined make up the theoretical perspective of the thesis. These are: (1) regenerative agriculture, (2) transformations, and (3) discourse. This thesis is underpinned by the belief that agriculture need to be transformed to prevent further socio-ecological destruction. As both a practitioner of regenerative agriculture, and a PhD Candidate studying regenerative agriculture, I consider myself a central actor in transformation processes. Therefore, I am obliged to conduct my research with an action orientation so intervention and action can occur in tandem with the research (Bradbury & Divecha, 2020). This is important in a context where transformations are required (Linnér & Wibeck, 2020). The choice to undertake action-oriented practice-research towards transformations was further influenced by the right relations framing in my positionality (Gram-Hanssen et al., 2021). The need for a strong focus on discourse also emerged from my own practice as I came to recognise the discursive conflict and confusion that regenerative agriculture inspired. Chapter one includes more detail on the theoretical framework.

Table 1: research goal, questions, methods, and contribution to knowledge

Over-arching goal: to understand the discursive characteristics of regenerative agriculture and the implications for transformation.			
Research question	**Method and explanation**	**Contribution to knowledge**	**Chapter and academic publication**
#1: What are the discursive characteristics of regenerative agriculture?	**Thematic discourse analysis:** I started exploring the discursive characteristics of regenerative agriculture by undertaking a literature-based, thematic discourse analysis. This explored broad themes in historical, grey, and academic literature. 267 texts were included in this review. Six themes were identified that helped orient my understanding of the discourse. These became building blocks for undertaking more nuanced explorations of the discourse.	**Six discursive themes in regenerative agriculture:** (1) regenerative agricultural work is conducted within nested, complex living systems; (2) farms are relational, co-evolution occurs amongst humans and other landscape biota; (3) the innate potential of living systems is place-sourced; (4) openness to alternative thinking and practice is transformative; (5) multiple regenerative cultures are necessary for deeply regenerative agriculture; (6) regenerative approaches depart from industrialism to varying degrees.	**See chapter 2** Gordon, E., Davila, F. & Riedy, C. Transforming landscapes and mindscapes through regenerative agriculture. *Agric Hum Values* 39, 809–826 (2022). https://doi.org/10.1007/s10460-021-10276-0
#2: What transformative opportunities exist for regenerative agricultural discourse?	**Thematic discourse analysis:** in analysing the discursive themes, I explored common ground and tensions between them to understand how the transformative potential of regenerative discourses might be leveraged. Three opportunities for transformation were identified that reflected common ground and tension within the themes.	**Three leverage points for transformation in regenerative agriculture:** (1) leveraging transformative opportunities through discourse coalitions; (2) leveraging transformative opportunities through translocal organising; (3) leveraging transformative opportunities through collective learning.	**See chapter 2** Gordon, E., Davila, F. & Riedy, C. Transforming landscapes and mindscapes through regenerative agriculture. *Agric Hum Values* 39, 809–826 (2022).

			https://doi.org/10.1007/s10460-021-10276-0
#3: What tensions are apparent in regenerative agriculture that point to boundaries between underlying discourses?	**Discourse analysis and semi-structured interviews:** to understand the discursive landscape of regenerative agriculture better, the analysis needed to move beyond literature. A discourse analysis was conducted on texts from ninety-six organisations talking about regenerative agriculture. These were predominantly located in Australia and the USA. This data set was complimented by twenty-two semi-structured interviews conducted primarily in Australia, with three from the USA. Four tensions emerged across the texts that helped form criteria for establishing boundaries between discourses.	**Four major tensions that act as criteria for establishing boundaries between discourses contributing to regenerative agriculture:** (1) different genealogies and associated interpretations of holism; (2) emphasis on issues of equity and power in the food system; (3) differences in definition; (4) extent of departure from industrial-productivist agriculture.	**See chapter 3** Gordon, E., Davila, F. & Riedy, C. Regenerative agriculture: a potentially transformative storyline shared by nine discourses. Sustainability Science (2023). https://doi.org/10.1007/s11625-022-01281-1
#4: What discourses contribute to the emerging discourse of regenerative agriculture?	**Discourse analysis, semi-structured interviews, and illustration:** it became clear in the analysis that there were many discourses contributing to the over-arching discourse of regenerative agriculture. The four tensions evolved from the discourse analysis and interviews alongside nine discourses. The analysis was not linear, the tensions were not fully formed before the discourses were identified.	**Nine discourses contributing to regenerative agriculture:** (1) Restoration for Profit: restoring soil health to increase productivity and reverse climate change; (2) Big Picture Holism: making good management decisions that enhance quality of life; (3) Regenerative Organic: building on organic agriculture to regenerate soil health, animal welfare and social fairness; (4) Regrarian Permaculture: designing integrated farm systems to regenerate the	**See chapter 3 and 4** Gordon, E., Davila, F. & Riedy, C. Regenerative agriculture: a potentially transformative storyline shared by nine discourses. Sustainability Science (2023).

	The two co-evolved and informed each other as findings. The nine discourses were also interpretated visually to reflect on them in a less 'academic' setting. I partnered with artist Hannah Cox from *Nanny Potts Illustration* to undertake this artistic practice.	land; (5) Regenerative Cultures: a spiritually rich practice at the heart of place-based cultures; (6) Deep Holism: experiencing ecosystems as inseparable from yourself; (7) First Nations: practices that indigenous people have been using for tens of thousands of years; (8) Agroecology and Food Sovereignty: having people democratically involved in the food system; (9) Subtle Energies: working with the invisible dimensions of farming systems to restore energy imbalances.	https://doi.org/10.1007/s11625-022-01281-1
#5: What shared storylines are emerging that could support transformative discourse coalitions?	**Discourse analysis and semi-structured interviews:** it was important to understand how the discourses might rally around each other for transformation – or not. This is where the discourse coalition framework was used to make sense of how the discourses hang together. It was interesting to observe how these discourses might stay united as different groups attempt to institutionalise regenerative agriculture – likely splitting the coalition as some interpretations become privileged over others.	**The storyline of 'regenerative agriculture' that is shared between all the discourses broadly goes:** *let's work with nature to restore, revive, and renew our environments*. Because it has multi-interpretability, this storyline shape-shifts and expands depending on the discursive lens. The four tensions in regenerative agriculture emerge from the interpretive flexibility of this storyline.	**See chapter 3** Gordon, E., Davila, F. & Riedy, C. Regenerative agriculture: a potentially transformative storyline shared by nine discourses. Sustainability Science (2023). https://doi.org/10.1007/s11625-022-01281-1
#6: How are advocates of	**Case study, research through practice and thematic analysis:** I volunteered for three years with the	**Four themes illustrate the complexities of pursuing transformation in regenerative agriculture:** (1) the	**See chapter 5**

regenerative agriculture pursuing agricultural transformation in Australia?	Institute of Ecological Agriculture (IEA). We worked together in the pursuit of agricultural transformation, considering what type of transformation we were working towards and what the best pathway might be. This included designing and critically reflecting on an accreditation program for regenerative agriculture. This was a process of *research through practice*, where the act of practice itself became the research. In this sense, the practice of developing the accreditation alongside IEA members was a means to discern communicable knowledge about how advocates of regenerative agriculture are pursuing transformation.	importance of cultivating relational paradigms – not just standardising practices; (2) the importance of engaging with political ideas so that marginal voices are not lost; (3) the role of valuing multi-interpretability within relational ethics; and (4) re-imagining accreditation systems so they are potentially transformative.	Relationality for agricultural transformation: an action-oriented case study in regenerative agriculture This chapter will be submitted to Agroecology and Sustainable Food Systems.
#7: How effective are these attempts for generating agricultural transformations?	**Thematic analysis:** I conducted a thematic analysis to reflect critically on my research through practice and identified four themes (as stated above). These illustrate the complexities of pursuing transformation in regenerative agriculture. This analysis also contributed to discussion around the effectiveness of this process in transformation.	**Processes of structuration and institutionalisation:** IEA is a case study to explore how advocates of regenerative agriculture effectively navigate processes of discursive structuration and institutionalisation.	**See chapter 5** Relationality for agricultural transformation: an action-oriented case study in regenerative agriculture This chapter will be submitted to Agroecology and Sustainable Food Systems.

#8: What are the implications of this study for agricultural transformation on and beyond the farm?	**Discussion:** once my findings had been collated, I explored two major themes in the study around the implications for transformation on and beyond the farm. To do this I also reflected on my experience as a practitioner of regenerative agriculture using vignettes. These vignettes contributed to an experiential understanding of the themes and their role in transformation.	**Two over-arching themes with implications for agricultural transformation:** (1) more-than-human relationality in regenerative agriculture is transformative because it challenges dominant agricultural ideas and values in agriculture; (2) storylines are powerful symbols suggesting common understandings between groups whilst allowing for different discursive practices. This is transformative because it allows for situated knowledges and practices to lead regenerative agriculture by becoming translocal.	**See chapter 6** Discussing implications for transformation on and beyond the farm

Significance of contribution to knowledge

The contributions to knowledge listed in *table 1* are significant because they demonstrate how regenerative agriculture can be understood by researchers and practitioners without resorting to over-simplified definitions. Definitions and principles in regenerative agriculture all emerge from discursive lineages, as outlined in this thesis. These discourses dramatically shape what is emphasised in these definitions and principles. As such, it is important to go deeper and paint an image of the discursive landscape influencing the emergence of regenerative agriculture – which this thesis does. This is particularly significant when a discursive 'map' of regenerative agriculture does not currently exist (either in the literature or elsewhere).

These contributions also suggest that the multi-interpretability of regenerative agriculture might be transformative. It means that regenerative agriculture is capable of 'meeting people where they are at' in a way that other agricultural movements may not (e.g., organics or agroecology). In this sense, more people can be empowered by the storyline of regenerative agriculture – because it has interpretive flexibility. Perhaps the risk of greenwashing is too high for regenerative agriculture to remain so open. Nonetheless, this perspective is a significant contribution when the literature is concentrated on defining regenerative agriculture. Definitions tend to focus on the aspects of regenerative agriculture that are quantifiable in the scientific paradigm – see Seymour (2021). This practice-research highlights how this might be a barrier to transformation. This research demonstrates that it is possible to understand what regenerative agriculture is, and identify when greenwashing occurs, without having a single, explicit definition.

Some of the discourses are at risk of being marginalised, whilst others are becoming institutionalised. It is significant to identify marginal contributors to regenerative agriculture that may often get forgotten in transformation agendas. This research does not discern whether any of these discourses are 'good' or 'bad.' In fact, it assumes they are equally valid and useful to transformations work, depending on who the audience is. This was evident when working with a community organisation (the IEA) towards transformation, which

reflected the difficulty of managing theoretical idealism with agricultural reality. Future research should explore the power dynamics between these discourses. This is not something the research explicitly addresses.

Thesis map

This thesis is written by compilation. Chapter two is published in *Agriculture and Human Values* and chapter three is published in *Sustainability Science*. Chapter five will be submitted to *Agroecology and Sustainable Food Systems*. In *table 2* there is a detailed summary of the thesis structure.

Table 2: thesis map

Thesis chapter	Summary
Prologue Mystery of the spiders	I started with a positionality section that sets a foundation for the normative reasoning behind my study. This is an exploration of what has driven me to this research and makes my motivations transparent.
Introduction Outlining the research	This chapter introduces the context of the research; central concepts in the thesis; the knowledge gap; research design; contributions to knowledge plus their significance; and a thesis map.
Chapter 1 Research design and philosophical undercurrents	The chapter discusses the ontology (co-becoming) and epistemology (social constructionism) behind this research. It also introduces the theoretical perspectives of the research (regenerative agriculture, transformations, discourse) and the methods (discourse analysis; semi-structured interviews; illustration; case study; research through practice; thematic analysis).
Chapter 2 Literature review: transforming landscapes and mindscapes through regenerative agriculture	The literature review addresses research questions **one** and **two**. It is published in *Agriculture and Human Values*. It has been placed after the research design chapter because it also presents a thematic discourse analysis to illustrate key characteristics of regenerative agricultural discourses. As such, the theoretical and methodological context of the research is required before reading the literature review. The analysis finds that such discourses: situate agricultural work within nested, complex living systems; position farms as relational,

	characterised by co-evolution between humans and other landscape biota; perceive the innate potential of living systems as place-sourced; maintain a transformative openness to alternative thinking and practice; believe that multiple regenerative cultures are necessary for deeply regenerative agriculture; and depart from industrialism to varying degrees. The chapter concludes by reviewing three transformative opportunities for regenerative discourses—discourse coalitions, translocal organising and collective learning.
Chapter 3 Sharing a potentially transformative storyline between nine discourses	This chapter addresses research questions three, four and five. It is published with *Sustainability Science*. This chapter proposes that regenerative agriculture is supported by a shared storyline binding diverse actors and discourses together – a discourse coalition. A discourse analysis was conducted on texts from ninety-six organisations and complimented by twenty-two interviews in Australia and the USA. This analysis identified nine discourses contributing to regenerative agriculture: Restoration for Profit; Big Picture Holism; Regenerative Organic; Regrarian Permaculture; Regenerative Cultures; Deep Holism; First Nations; Agroecology and Food Sovereignty; and Subtle Energies. This chapter describes and examines these component discourses and discusses tensions that may make regenerative agriculture vulnerable to co-optation and greenwashing, diluting its transformative potential.
Chapter 4 Discursive mindscapes in regenerative agriculture	This chapter addresses question four. It is an extended description of each of the discourses, with illustrations, using more of my empirical data. Due to word count, these full descriptions could not fit in chapter three because it was written for submission the *Sustainability Science.* The nine discourses were also interpretated visually to reflect on them in a less 'academic' setting. I partnered with artist Hannah Cox from *Nanny Potts Illustration* to undertake this artistic practice.
Chapter 5 Relationality for agricultural transformation: an action-oriented case study in regenerative agriculture	This chapter addresses question six and seven. I plan to submit it to *Agroecology and Sustainable Food Systems*. This chapter examines a volunteer led co-operative, the Institute of Ecological Agriculture (IEA), as a case study on how advocates of regenerative agriculture are pursuing transformation. Subsequently, it explores how these attempts might be effective amidst processes of discursive structuration and institutionalisation.

Chapter 6 Discussing implications for transformation on and beyond the farm	This chapter addresses question **eight**. It explores the implications of this study for agricultural transformation on and beyond the farm through two themes. (1) more-than-human relationality in regenerative agriculture is transformative because it challenges dominant agricultural ideas and values in agriculture; (2) storylines are powerful symbols suggesting common understandings between groups whilst allowing for different discursive practices. This is transformative because it allows for situated knowledges and practices to lead regenerative agriculture by becoming translocal.
Conclusion: narrative of the thesis	The conclusion revisits the knowledge gap and ties together the narrative of the thesis. It returns to the contributions to knowledge. Subsequently, the significance of the contribution and implications for transformation are explored alongside the limitations of the study and opportunities for future research.

Chapter one: research design and philosophical undercurrents

This thesis is written by compilation. As such, specific methods are discussed in each relevant chapter (see chapters two, three, four and five). Whilst those methods will also be introduced here, they will not be replicated in substantial detail. The purpose of this chapter is to position those methods philosophically, demonstrate why they were chosen and discuss their coherence (how they fit together and align with each other in the thesis). This chapter will look at the ontology behind the research – what is assumed to exist; the epistemology – how knowledge is created (around what is assumed to exist); and the theoretical perspectives of the research – which guided data collection, analysis, and interpretation of findings (Moon & Blackman, 2014; Richards, 2014).

Ontology: co-becoming within more-than-human relational webs

My positionality as a practitioner of regenerative agriculture has shaped the ontology of this research. It is important to note that throughout this thesis some findings may run parallel to this underlying ontology. This is because, as a regenerative farmer myself, there is crossover between my worldview and the worldview of the regenerative farmers participating in this study. I placed my positionality at the beginning of the thesis to be clear about this similarity. It is also why I have presented a detailed explanation of my ontology here – which is completely intertwined with my positionality. There are three ontological positions that come

out of my experience as a regenerative farmer and consequently influence the framing of this study, the research design, and the analysis.

First ontological position: humans are primary actors for agricultural transformations in a more-than-human world with no culture-nature binary

More-than-humanism embeds humans within a web of interdependent relations, deconstructing anthropocentric thinking and human exceptionalism. It describes the physical, biological, and technological world that humans are interwoven with (Strong, 2015). As Blanco-Wells (2021, p. 2) points out, "a more-than-human world … challenges our ability as scientists to comprehend modes of existence that destabilize the boundaries of the self and the social, the organic and inorganic, the single and the multiple, and many more deeply rooted conceptual binaries." This includes the culture-nature binary. This research sits on the foundational belief that we humans, "need to shift from seeing ourselves as separate from nature to seeing ourselves as part of a co-evolutionary whole, in symbiotic relationship with the living places we inhabit" (Haggard & Mang, 2016, p. xiv). As Goethe says of nature, "who so cannot see her everywhere, sees her nowhere rightly" (Huxley, 1869, p. 9).

Despite the focus on more-than-human relations, this research does not adopt an entirely post-humanist perspective. Post-humanism is an umbrella term for a range of theoretical approaches that critique dualisms (e.g., culture/nature) and move "towards capturing the interdependencies of a relational ontology" (Blanco-Wells, 2021, p. 2). A post-humanist view is valuable in shifting research from only focussing on human agency and instead noticing what "regenerative possibilities [emerge] from the entanglement of life-forms in a specific space-time" (Blanco-Wells, 2021, p. 6). However, this research is more humanist in that humans are considered the primary actors for agricultural transformations. This is because non-humans do not necessarily have the capacity, or responsibility, to initiate agricultural transformations. Post-humanist frameworks have been critiqued for not acknowledging the power dynamics between humans and non-humans (Chagani, 2014).

Second ontological position: all beings are co-becoming into existence through relationship

Not only is the world more-than-human, but it is continually brought forth through relationships (Bateson, 1972; Maturana & Varela, 1992). In discussing the wholeness of nature, Bortoft (1996, p. 14) makes the point that, "we should not think about the whole as if it were a thing." Instead, he refers to the *coming into being* of the whole through mutual reciprocity with the parts. As Wahl (2016, p. 93) explains, "neither the whole nor the parts are primary. They co-arise. Nothing is outside the wholeness of nature, as it is not a thing, but a process of coming into being through relationship." He adds, "we are a *process of relating* in 'delicate reciprocity' with a living planet" (2016, p. 96). Macy (2007) refers to the Buddhist concept of *pattica samuppada* – the dependent co-arising of all phenomena. From this perspective reality appears as an interdependent process and "all factors, psychic and physical, subsist in a web of mutual causal interaction, with no element or essence held to be immutable or autonomous" (Macy, 1979, p. 39).

Dependent co-arising has overlap with Aboriginal Australian ontologies. Bawaka-Country et al. (2013) refers to an ontology of co-becoming that perceives all beings as coming into existence through relationships. They remark that, "human and more-than-human *beings* never *are* – not isolated, not static, not known – but only become as they constantly emerge together" (2013, p. 188). Like Bortoft (1996), this perspective sees a world of processes and entangled co-becomings rather than isolatable things. These co-becomings occur in/with/as Country. In this sense, "Country itself has agency, the winds have agency, people have agency, we act upon each other as we emerge together: like family, like and as kin" (Yandaarra-with-Gumbaynggirr-Country et al., 2021, p. 3). This position also acknowledges that we are co-becoming with a specific space-time, which requires regeneration amidst processes of anthropocentric crisis and reparation (Blanco-Wells, 2021).

Third ontological position: the material and the discursive are mutually implicated

Discourse is not a synonym for language or linguistic systems, nor is it descriptive or representational. Barad (2007, p. 146) remarks that, "discourse is not what is said; it is that which constrains and enables what can be said." Therefore, discursive practices determine

what statements get counted as 'meaningful' – this is not only defined by the words we speak. Discourses co-become with material worlds. This *material-discursive* co-becoming demonstrates how "the material and the discursive are mutually implicated" as opposed to existing externally from each other (Barad, 2007, pp. 151-152).

Material-discursive co-becoming is highlighted in what Massy (2013, p. 6) refers to as the vegie garden paradox. When visiting farms, he frequently observed healthy vegie gardens that were well-managed, organic, and chemical-free. However, outside the garden fence were sprayed out paddocks and monocultures with piles of chemical drums behind machinery sheds. These farmers were participating in two different agricultural discourses. The fence between the garden and the paddock was a material and discursive perimeter between two opposing patterns of interaction between humans and more-than-humans. These patterns were "produced and reproduced through an identifiable set of practices" (Hajer & Versteeg, 2005, p. 175) established as acceptable in each material-discursive reality. Discourses are entangled within "recurring or patterned interactions between humans, or between humans and responsive aspects of material reality (e.g., humans responding to traffic lights)" (Strong, 2015, pp. 15-16). This can include interspecies relationships via body language, specific calls, or whistles etc.

What are the implications of this ontology for research design?

As discussed in the prologue, I perceive Moffat Falls and Marlawgay Miilarl as more-than-human family members to whom I hope to be in right relationship with. The first ontological position places me and my research within a web of ongoing connections, active processes, and diverse beings with diverse ways of being – which are "always in the process of being made" (Massey, 2005, p. 9). Whilst this research adopts a social constructionist epistemology, this ontological position has pushed me to extend my concept of the 'social' to include other entities, "whether they are pigs or ancestors, spirits or machines, parasites or rocks" (Lien & Pálsson, 2019, p. 4).

However, this research does not fully embrace more-than-human research methods. More-than-humanism acknowledges that humans and non-humans can both be actors and actants,

whilst a humanist bend positions humans as more powerful in addressing crises (Seymour, 2021). Consequently, the focus of the discourse analysis remains predominantly on human actors. Whilst the discourses do not exist in human-only contexts, they powerfully impact agricultural landscapes through human actions.

The second ontological position emphasises the relationality of entangled togetherness. Bawaka-Country et al. (2013, p. 188) says that "this togetherness requires an attention to the ethical responsibilities of care that emerge when we live, think, act and attend as part of the world, rather than distinct from it." This directly relates to the right relations framework in my positionality (Gram-Hanssen et al., 2021). It is why I chose to include practice-research in the project. I am not distinct from a world that requires regeneration and transformation, therefore research without action struck me as irresponsible in my context.

The discourses in this research are not functioning in human-only contexts, nor do they emerge from human-only interactions. As Barad (2007, p. 150) remarks, "humans are neither pure cause nor pure effect but part of the world in its open-ended becoming." This challenges the idea that people are outside of the world, discursively representing it. Barad (2007, p. 133) sees discourse as a performative engagement with "the world in which we have our being." As such, this research was analysed from the perspective that actors could simultaneously be *performing* contradictory discourses depending on the contexts within which they were operating (e.g., garden verse paddock). As such, the third ontological position encouraged me to visit farms and understand how farmer and farm interactions were impacting discourse. I recorded my insights in analytic memos (Saldana, 2009). Unfortunately, Covid-19 meant that some interviews needed to go online.

Epistemology: meaning emerges through interaction

As Schwandt (2000, p. 189) remarks, "we are all constructionists if we believe that the mind is active in the construction of knowledge." Social constructionism explores "the relationality between people, institutions, material objects, physical entities and language, rather than the private sense-making activity of particular individuals" (Fletcher, 2006, p. 422). In contrast,

whilst construct*ivism* still considers socio-cultural context, it privileges individual subjective knowing (Bruner, 1990; Vygotsky, 1981). Constructivism can be traced back to personal construct theory (Raskin, 2002). Whereas social constructionism draws on Berger and Luckman (1966) and focusses on the "collective generation of meaning" (Schwandt, 1994, p. 127). As Creswell (2017) says, humans make sense of the world based on their socio-historical perspectives – "we are all born into a world of meaning bestowed upon us by our culture." The goal of the constructionist researcher is to interpret the meanings others hold about the world (Creswell, 2017) or in this case, regenerative agriculture.

The social constructionist approach to meaning-making

For social constructionists, there is no objective truth or meaningfulness waiting to be discovered (Crotty, 1998). It is constructed as people interpret the world and meaning emerges through interaction with reality. The world is "pregnant with potential meaning" (Crotty, 1998, p. 43). For social constructionists:

- *Knowing* means seeking to understand multiple 'truths' as opposed to a single Truth – with a capital 'T' (Wang, 2016). Different people construct meaning about the same phenomenon differently (Crotty, 1998).
- *Knowing* means constructing meaning over time "against a backdrop of shared understandings, practices and language" (Schwandt, 2000, p. 197).
- *Knowing* means understanding context and appreciating closeness, complexity, and locality (Thorpe, 2008). As de Montaigne (2003, p. 140) says, "what of a truth that is bounded by these mountains and is falsehood to the world that lives beyond?"

Social constructionism envelops both relativism and realism because it acknowledges that whilst multiple local and specific realities exist, they are constructed through political, cultural, and historical contexts that reproduce a material reality (Grandy, 2017). Meaning is co-constructed through the interactions between these realities; e.g., human beings and the world they are interpreting (Moon & Blackman, 2014). Consequently, the research is "shaped by one's experiences of self and self-in-relation-to-others" (Grandy, 2017, p. 174).

Extending the social: more-than-human constructionism

Social constructionists do not incorporate the physical environment into their theories (Bragg, 1996) but remain "within the sphere of social discourse" (Gergen, 1985, p. 271). However, shared meaning can also emerge through interaction within a multi-species community – e.g., the farm. As such, construction is also occurring in ways that are post-human (Hekman, 2010), which consequently decentre humans as meaning-makers (Strong, 2015). For example, when going for regular walks, a dog and her owner negotiate pace, what is worth stopping for and what is worth sniffing (Strong, 2015). Humans and non-humans co-construct relational routines. This can be viewed as a process of structural coupling (Maturana, 2002) whereby recurrent interactions lead to the congruence of the dog and the human. As Strong (2015, p. 20) points out, "in developing and recurring interactional routines our lives become interwoven with how relevant features of our social and material world respond to us, and how we respond to their responses." Regenerative farmers often remark that we need to work with nature (Massy, 2017) or the more-than-human world (Seymour & Connelly, 2022). These farmers recognise that the world is responsive and relational. The farm is a material-discursive co-construction that emerges through human and more-than-human interactions.

What are the implications of this epistemology for research design?

As a practitioner beginning this research, I perceived regenerative agriculture as an evolving movement with many groups interpreting it differently – a similar view to the constructionist perspective. As such, the way I set-up and interpreted my research goal was influenced by the constructionist lens – to understand the discursive characteristics of regenerative agriculture and the implications for transformation. In identifying discourses, I have maintained a radical openness to diverse ways that interviewees and other actors interact with, and interpret, the world. My friend and mentor at the Institute of Ecological Agriculture, Kerry Cochrane, advised me to "leave a shelf in your head, in your brain, and on that shelf, you'll always place things which seem so different, so obtuse and so rare, so

extraordinary, that you can't accept them. Allow them to sit there and you'll come across other readings and people who will confirm or deny the validity of that particular idea."

Social constructionist researchers also hold a responsibility to be reflexive about how their life experiences become interwoven with the process of inquiry (Grandy, 2017). Another reason why this thesis opened with my positionality – to demonstrate the context from which this inquiry emerged. The research analysed human-generated texts and interviewed human actors. However, it was clear from my experiences on the farm that social constructionism did not provide the full picture. Humans and more-than-humans are interwoven. Their interactions are not just constructive, "they are reciprocally transformative – we shape and are shaped by these interactions" (Strong, 2015, p. 3). This research prioritises humans as actors because non-humans do not necessarily have the power to initiate agricultural transformations. However, it recognises that they exist in more-than-human contexts. The influences of more-than-human actors are evident in the texts and interviews. To draw these connections out, interview questions explored the relationship between farmer and farm. For example, *how would you describe your relationship to the land?* They also included a farm tour, which helped contextualise farmer and farm interactions – recorded in analytic memos (Saldana, 2009). Unfortunately, Covid-19 meant that some interviews needed to go online. This interrupted the more-than-human aspect of the research design.

Theoretical perspective: exploring regenerative agricultural discourse through action-oriented practice-research

The theoretical perspective of this thesis is made up of the central concepts outlined in the introduction – (1) regenerative agriculture (focus of the study), (2) transformations (normative intent) and (3) discourse (theoretical foundation). As discussed in the section on transformations, this thesis is underpinned by the belief that agricultural landscapes and mindscapes need to be transformed by central actors to prevent further socio-ecological destruction. As both a practitioner of regenerative agriculture, and a PhD Candidate with the opportunity to study regenerative agriculture, I consider myself a central actor. Therefore, in this time of eco-social and anthropocentric upheaval, I am obliged to conduct my research

with an action orientation. The choice to undertake action-oriented practice-research was influenced by the right relations framing in my positionality (Gram-Hanssen et al., 2021) and the second ontological position outlined above. Being in right relationship with this research process includes taking responsibility to act towards transformations.

Action-oriented practice-research

To act and research simultaneously, I undertook a process of "research through practice, where the act of practice itself becomes the research" (Fazey et al., 2018, p. 62). This combines knowledge creation with simultaneous intervention so that "action is occurring in tandem with the research" (Bradbury & Divecha, 2020, p. 278). This approach involves a paradigm shift towards viewing *researchers as practitioners* (Hope, 2016) and breaking down the researcher-practitioner dichotomy. As researchers we are inevitably "embedded within, and not separate from, the systems [we] seek to observe" (Fazey et al., 2018, p. 56). In a context where transformations are urgently required (Blythe et al., 2018; Feola, 2015; Leventon et al., 2021; Linnér & Wibeck, 2020), action-oriented research aspires to help generate changes through the way we do research (Bradbury et al., 2019).

The role of discourse in the action-oriented practice-research

The need for a strong focus on discourse emerged from my own practice in regenerative agriculture. Increasingly, I came to recognise the discursive conflict and confusion that regenerative agriculture inspired. Throughout the thesis, my articulations of the discourses and tensions are partly formed through the simultaneous action and practice that I was undertaking. In practice-research cycles, discourse analysis became a useful methodology for surveying the discursive landscape whilst acting through the Institute of Ecological Agriculture (IEA) and practicing regenerative agriculture at Moffat Falls.

Discourses do not emerge from human-only interactions (third ontological position) nor do people exist outside of the world, discursively representing it (Barad, 2007). People are nevertheless central actors in the co-construction of discourse and in activating agricultural

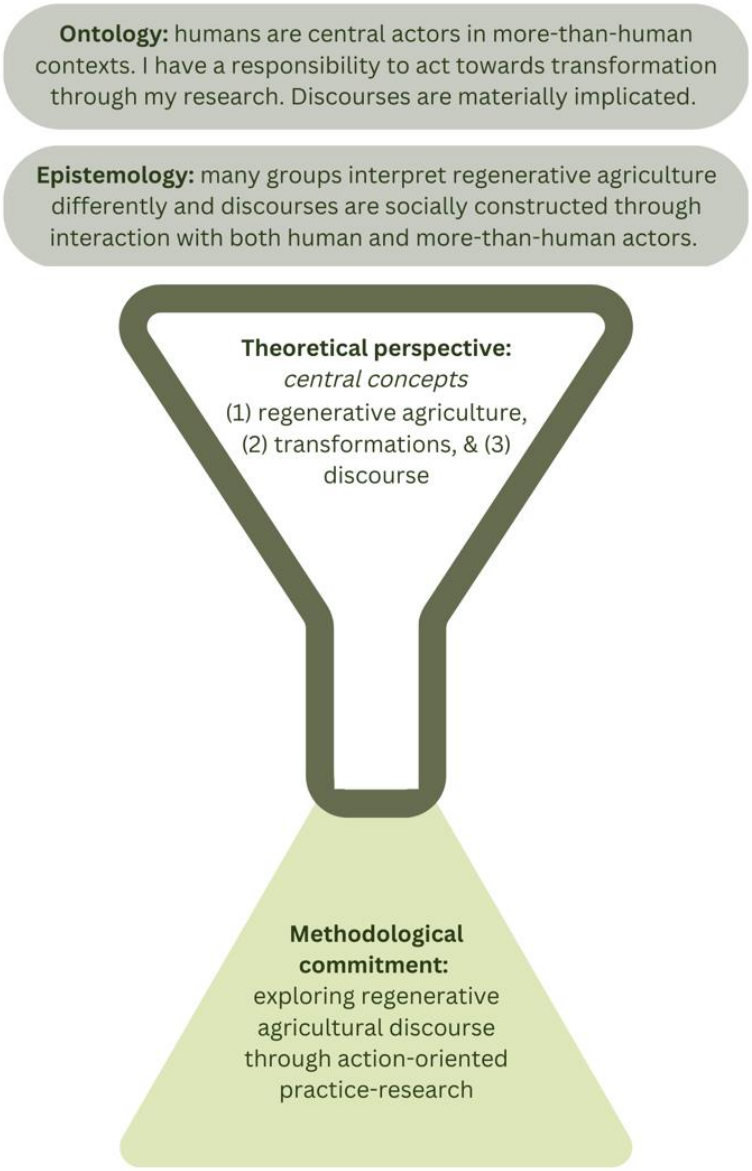
transformations (first ontological position). As such, this analysis acknowledges the more-than-human interactions of discourse whilst privileging human interpretation. I undertook training in narrative therapy to better appreciate discourse through a social constructionist lens. Bateson (1972, 2002) suggests all meaning-making requires interpretation that needs to be "fitted into the known pattern of events" (White & Epston, 1990, p. 2). Narrative therapy explores how people and communities construct meanings around specific events in their lives (Dulwich-Centre, 2022).

What are the implications of this theoretical perspective for research design?

This research was conducted in overlapping practice-research cycles. These were not conducted in a linear way but were often occurring simultaneously, horizontally influencing each other. Different methods were grouped together in different cycles. These cycles often addressed different research questions (as per *table 3*) and built on one another. Through this process my understanding of regenerative agricultural discourse and the implications for transformation *thickened* over time.

My positionality and consequent focus on transformation through regenerative agricultural discourse brings a particular frame to my thinking and analysis. Consequently, there may be an unconscious positivity toward regenerative agriculture as a pathway to agricultural transformation. This has been mitigated throughout the thesis by (1) creating a research plan in conjunction with my supervisors, who are not regenerative farmers; (2) structuring my questions so they are open and not leading, reviewing these with my supervisors for accountability; (3) ensuring that all texts are read in their context as per the discourse analysis approach; (4) using participant language in the write-up; and (5) sharing results back to participants. *Figure 1* shows the theoretical undercurrents of the research.

Figure 1: philosophical and theoretical undercurrents of the research



Methods

As this thesis is written by compilation, the details of each method are discussed in the relevant chapter (see chapters two, three, four and five). As mentioned, the purpose of this chapter is to position the methods philosophically, demonstrate why they were chosen and discuss their coherence (how they fit together and align with each other in the thesis). This section will introduce the methods as bundled within practice-research cycles. This gives a sense of the temporal flow in the research and will provide better context for why each

method was chosen at particular points in the process. I have also noted when specific chapters and/or academic publications emerged amidst the practice-research cycles.

Cycle one: critical reflection on practice and literature

My practice as a regenerative farmer was occurring continuously throughout the research and acts as a foundational undercurrent to the whole thesis. This practice inspired ideas, reflections, and interactions with others in regenerative agriculture that would not have otherwise been possible. As part of this practice, I underwent training in regenerative approaches with the Regenesis Institute of Regenerative Practice; Inside Outside Holistic Management; Resource Consulting Services and the Permaculture Research Institute. This gave me a detailed, contextual understanding of different communities of practice associated with regenerative agriculture. This practice also involved ongoing engagement with a particular more-than-human community (Moffat Falls), that my family and I are in constant dialogue, collaboration, and tension with. Insights from my own interactions with more-than-human actors on the farm also informed my research process and analysis. These interactions feature strongly in the discussion to compliment the findings of the thesis.

Farming and researching simultaneously was a rich context for both starting and continuing my thesis journey. I began with critical reflection on my practice whilst undertaking the literature review. This period was a melting pot of personal experience and theoretical ideas. As mentioned in the theoretical perspective, the need for a strong focus on discourse emerged from my own practice in regenerative agriculture. Increasingly, I came to recognise the discursive conflict and confusion that regenerative agriculture inspired. This was particularly the case as I underwent those different trainings, which articulated regenerative agriculture very differently. Apart from Massy (2013) there was no mention of regenerative agricultural discourse in the literature – or even, the impact of discourse on regenerative agriculture. As such, through reflection on both practice and literature, I identified some challenges that I felt needed further research, via discourse analysis. Discourse analysis became a useful methodology for surveying the discursive landscape of regenerative agriculture.

Cycle two: thematic discourse analysis on grey and academic literature

To understand which discourses are associated with regenerative agriculture, I conducted a discourse analysis. Waring (2018, p. 9) defines discourse analysis as closely reading the "use of language along with other multimodal resources for the purpose of dissecting its structures and devising its meanings." I looked for common ground and tensions in regenerative agricultural discourse that might point to boundaries between contributing discourses. Common ground reflects the clear, united strengths shared within and between discourses. Tensions demonstrate either uncertainty or differences within and between discourses. The capacity to *think*, *act* and *communicate* is influenced by conceptual systems that are predominantly metaphoric (Lakoff & Johnson, 2008). As such, I also examined metaphors as an indicator of discourse.

Examining metaphor use was a helpful way of understanding the relationships farmers have with the more-than-human (and thus the material and more-than-human participants in discourse). This is because a farmer's subconscious constructions exist through interaction with their living world (as per ontology and epistemology). Farmers interviewed by Massy (2013, pp. 195-196) said the soil makes things fat and keeps them well fed, "feeding earthworms." This suggests the soil has *agency* and the term "fat" suggests abundance. The relationship with more-than-human nature was collaborative or supportive, e.g., "nature gives you a tailwind." Nature was personified as a *sentient being* with specific *body parts* – e.g., "lungs." These denote different landscape roles, e.g., riparian zones create oxygen. Nature was relational, undertaking *sentient interactions* – "laughing," "shrugging things off" and "needing comfort."

The first discourse analysis cycle was conducted on grey and academic literature. However, I was not satisfied that this provided the necessary level of detail. There was much more to understand about the discursive landscape of regenerative agriculture. As such, a second phase of the discourse analysis was conducted in cycle three.

Research output

Chapter 2: transforming landscapes and mindscapes through regenerative agriculture

Gordon, E., Davila, F. & Riedy, C. Transforming landscapes and mindscapes through regenerative agriculture. *Agric Hum Values* 39, 809–826 (2022). https://doi.org/10.1007/s10460-021-10276-0

Cycle three: continuing discourse analysis alongside semi-structured interviews

The second phase of discourse analysis was conducted on ninety-six international organisations talking about regenerative agriculture (see appendix B). Until this point, I had only looked at academic literature, and non-academic texts that were foundational to the regenerative agricultural movement. There was a discursive gap here because neither of these necessarily reflected the dynamics of the discourse beyond academia and farmer philosophy. However, the role of these organisations in the discourse provided more nuanced data. It was also important to get the perspective of farmers themselves, and so twenty-two semi-structured interviews were conducted during this cycle.

Participants included farmers, consultants, trainers, and community leaders in regenerative agriculture. Two participants were Aboriginal Australians, one was indigenous to Aotearoa (New Zealand). There were nine women, eleven men, and two non-binary participants. Three of the participants were from the USA, and the remaining lived in Australia (see *table 7* in chapter three for further demographic information). The goal of the interviews was to answer questions arising in the discourse analysis that could not be addressed with desk research. It was also to determine how the discourses were embodied in more-than-human contexts – e.g., on farms.

The interviews were conducted with people most likely to shed light on tensions between texts in the discourse analysis. Questions were designed around tensions and aimed to determine how texts related to practitioner experiences. Interviews averaged an hour in length either on farms or over zoom. They were recruited via email. After each interview, the lead author created recorded reflections whilst observations were fresh. This was useful as

extra data and acted as analytic memos (Saldana, 2009), which helped document observations on each participant's more-than-human context. Interviews were transcribed and used to refine discourse analysis findings.

Research output

Chapter 3: sharing a potentially transformative storyline between nine discourses

Gordon, E., Davila, F. & Riedy, C. Regenerative agriculture: a potentially transformative storyline shared by nine discourses. *Sustainability Science* (2023). https://doi.org/10.1007/s11625-022-01281-1

Cycle four: reflection on analysis and research as artistic practice

The above cycles of research painted a detailed picture of discursive mindscapes in regenerative agriculture. Once the discourse analysis and semi-structured interviews were completed and the data was analysed, I partnered with artist Hannah Cox to illustrate each of the discourses. This cycle was an opportunity to pause and reflect in a less 'academic' setting. It was a hybrid process of research through/as practice (Hope, 2016). Research through practice involves examining a question through the practice of making and doing (Frayling, 1994). In this sense, the practice of illustrating the discourses. However, unlike research through practice in later cycles of the practice-research, this was also a process of *research for (as) practice*. This is because the artistic practice itself is also the research outcome. The collaborative processes and thinking of Hannah and I are embodied in the illustrations, these are the final outcomes of the research through/as practice. Hope (2016, p. 82) says, "in researching through practice and also for (as) practice, the artist is having to stand outside the artefact (to communicate it) and within it (to make it)."

This was a collaborative process. Hannah and I had multiple meetings, reading through my research and discussing how the findings (specifically the nine discourses) might be visually represented. Hannah was a great collaborator because she brought fresh, interpretive eyes to the findings from a different discipline. The initial purpose of this was to better communicate the distinctions between discourses. However, the process also acted as a layer

of analysis. The goal of visually representing the discourses challenged us to articulate their central themes. We did this via hours of discussion, drafting different images that emphasised different discursive aspects. Hannah and I reflected on the material and more-than-human manifestation of the discourses. *Who are the more-than-human actors co-constructing the discourse?* As such, the illustrations intentionally reflect different material-discursive realities.

Research output

Chapter 4: discursive mindscapes in regenerative agriculture

Nine illustrations reflecting different material-discursive realities contributing to regenerative agriculture. Each are displayed alongside discourse descriptions, complimenting the text.

Cycle five: case study – Institute of Ecological Agriculture – and research through practice

The diversity of discourses uncovered through the discourse analysis raised questions about the ability of actors carrying these diverse meanings to act together for transformation. This naturally led to a focus on how prominent actors are seeking to popularise regenerative agriculture. I wanted to identify a case study where my research and positionality could contribute legitimately to processes of transformation (as per my second ontological commitment). Cresswell (1998, p. 61) defines a case study as "an exploration of a 'bounded system' or a case (or multiple cases) over time through detailed, in-depth data collection involving multiple sources of information rich in context." My practice and reflection as a regenerative farmer (practice-research cycle one) led me to become involved with the Institute of Ecological Agriculture (IEA). IEA is a volunteer-led co-operative that advocates for ecological thinking in food, farming, and forestry (IEA, 2022f). I was invited to join this co-operative by their President, Kerry Cochrane.

The goals of IEA are more reflective of regenerative farmers (compared with corporate organisations or other entities) because they are a grassroots co-operative made up mostly of farmers. As a volunteer organisation, people are involved for reasons that are closer to

their hearts – as opposed to back pockets. This is a strong foundation for exploring the role of discourse in pursuing transformation. However, it is not the core reason why I chose IEA as a case study. IEA is the only community group in Australia to play a central role in the pedagogical institutionalisation of regenerative agriculture. They wrote the Bachelor of Science (Regenerative Agriculture) at Southern Cross University. This is the first regenerative agriculture degree in the world (SCU, 2019). When I became involved, the group was considering further opportunities for institutionalising regenerative agriculture through accreditation. This was fertile ground for exploring how advocates are pursuing transformation.

As my discourse analysis evolved (IEA was one of the organisations included), it became clear that IEA participated in a marginal regenerative agricultural discourse (Deep Holism). As such, they have a unique perspective on the need for transformation because their interpretation of regenerative agriculture is not necessarily shared by adherents to more popular, and potentially less radical, discourses. The positionality of IEA was unique because of this tension between their influence on pedagogical institutionalisation and their marginal view, which is at risk of being lost. As such, I undertook research through practice alongside IEA. As mentioned in cycle four, this involves examining a question through the practice of making and doing (Frayling, 1994). In this sense, the practice of developing the accreditation alongside IEA members, and critically examining its transformative potential, was a means of discerning communicable knowledge about how advocates of regenerative agriculture were pursuing transformation.

Through parallel research for other chapters in this thesis, I brought many ideas to the IEA that were incorporated into their approach to accreditation. In return, the IEA community also shaped my experience of regenerative agriculture. Thus, undertaking this research has had a mutually transformative impact on both me and the IEA. To reflect on and document this process, I kept field notes and wrote analytic memos (Saldana, 2009). Field notes included my written observations and personal interpretations of the process and goals of accreditation (summarising the process and insights). Analytic memos were devoted to analytic reflection and thinking critically about what IEA was doing and why (reflecting and expounding upon insights). Both field notes and analytic memos were interlinked and

functioned as, “a site to ‘dump your brain’ about the participants, phenomenon, or process under investigation by thinking and thus writing and thus thinking even more about them” (Saldana, 2009, p. 44).

Cycle six: critical reflection on research through practice using thematic analysis

To analyse field notes, analytic memos, and other data points in the practice-research I followed *themeing the data* in Saldana (2009). A theme is an “extended phrase or sentence that identifies what a unit of data is about and/or what it means” (Saldana, 2009, p. 199). The themes are shaped by the primary questions, goals and frameworks being used (Saldana, 2009). The first discourse analysis I undertook (chapter two) was also essentially thematic.

Whilst I considered themes at the semantic level in this analysis (in the *content* of what was being said), I principally searched for themes at the latent level. This considers the *form* used to express insights (Braun & Clarke, 2006). For example, a farmer discussing resilience may say that nature is able to *laugh* or *shrug things off* or that native grasses *don’t mind being eaten off* (Massy, 2013). At the semantic level this can be taken at face value – the landscape is resilient. However, the farmer’s metaphor use suggests that themes at the latent level may include a belief in ecological *agency* or *animacy*. This was the final practice-research cycle. *Figure 2* shows the timeline of each cycle in the period of practice-research, and which cycles were occurring simultaneously – thus influencing each other.

Research output

Chapter 5: relational paradigms for agricultural transformation: an action-oriented case study in regenerative agriculture. Planned submission to Agroecology and Sustainable Food Systems.

Figure 2: timeline of practice-research cycles

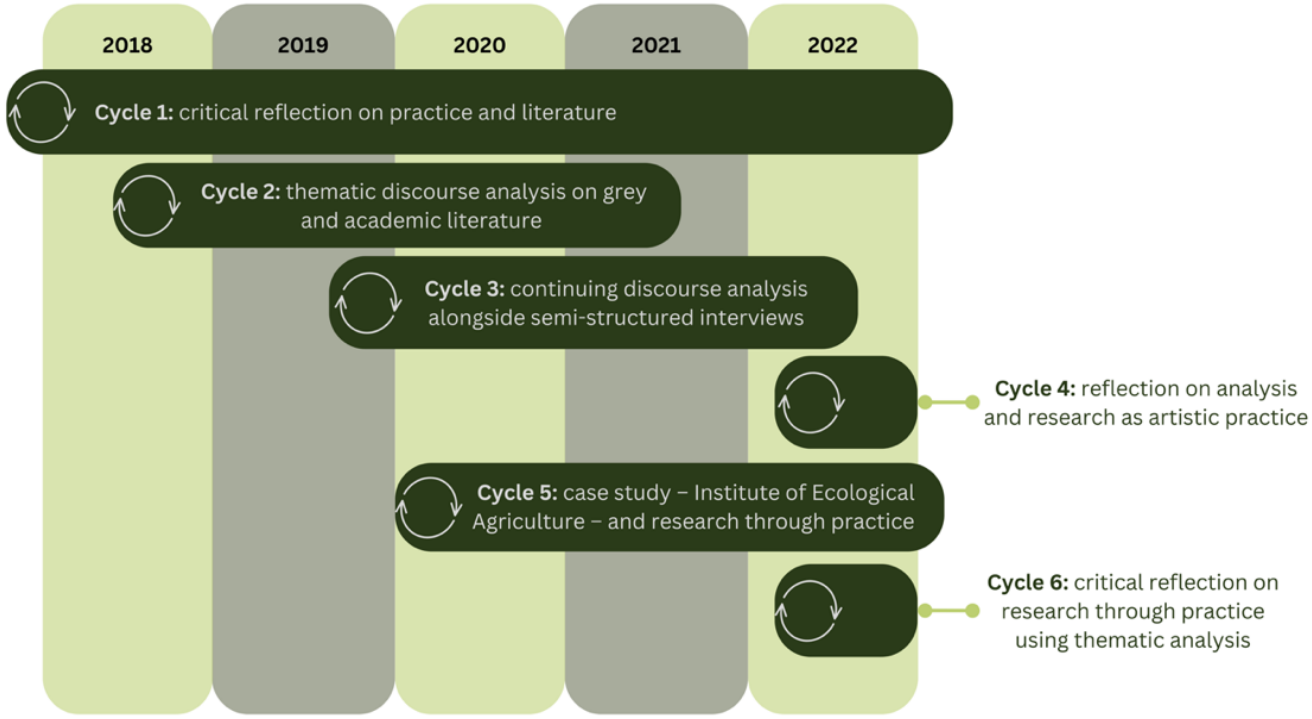


Table 3 shows each research question, the practice-research cycles and methods and philosophical / theoretical influences.

Table 3: research questions, practice-research cycles, and their ontological, epistemological, and theoretical influences

Ontology: humans are central actors in more-than-human contexts. I have a responsibility to act towards transformation through my research. Discourses are materially implicated. **Epistemology:** many groups interpret regenerative agriculture differently and discourses are socially constructed through interaction with both human and more-than-human actors. **Theoretical perspective:** regenerative agriculture, transformations, and discourse. Exploring regenerative agricultural discourse through action-oriented practice-research.		
Research questions and where to find them	**Practice-research cycles and methods**	**Timeline**
Chapter 2: (1) What are the discursive characteristics of regenerative agriculture? (2) What transformative opportunities exist for regenerative agricultural discourse?	**Cycle 1 and 2:** Critical reflection on practice and literature; thematic discourse analysis	2018-2021

Chapter 3 and 4: (3) What tensions are apparent in regenerative agriculture that point to boundaries between underlying discourses? (4) What discourses contribute to the emerging discourse of regenerative agriculture? (5) What shared storylines are emerging that could support transformative discourse coalitions?	**Cycle 3 and 4:** Discourse analysis; semi-structured interviews; research as artistic practice	2019-2022
Chapter 5: (6) How are advocates of regenerative agriculture pursuing agricultural transformation in Australia? (7) How effective are these attempts for generating agricultural transformations?	**Cycle 5 and 6:** Case study; research through practice; thematic analysis	2020-2022
Chapter 6 (discussion): (8) What are the implications of this study for agricultural transformation on and beyond the farm?	**Cycle 1 and 6:** Reflection on personal regenerative agricultural practice; thematic review of research findings	2022

Research ethics

This research was identified as low risk and has been approved by the University of Technology Sydney – Application ID: ETH227029. All methods explained above were approved as part of this application. There was limited disclosure associated with the application, as interviewees were not aware that their metaphor use was being observed. Knowing this would have changed their responses and impacted the quality of the data.

Participant information and identity remains confidential in this thesis. In any use of the data for thesis, book, paper, electronic publication, media etc., names will be replaced with numbers. This will be the case with any other publications going forward, unless permission is granted from the participant for this information to be disclosed. Interviews were audio

recorded and transcribed. All participants signed a consent form to confirm they were comfortable with being recorded. The original data includes electronic recordings and associated transcripts. Only the Data Manager (Ethan Gordon) has direct access. Supervisors (Chris Riedy, Federico Davila) have access through the Data Manager. Original data is stored offline, in a secure, digital file on two devices to ensure that no data is lost if one device fails. Files are password protected.

Flow of the thesis

As this thesis is undertaken by compilation, some of the introductory and contextual content will be repeated in the article-based chapters (chapters two, three and five). Chapter four also builds on the discourse descriptions in chapter three. Consequently, there is some repetition throughout the thesis. This was hard to avoid and may interrupt the readability and flow.

Chapter two: transforming landscapes and mindscapes through regenerative agriculture

This literature review is published in *Agriculture and Human Values*. It has been placed after the research design chapter because it uses a thematic discourse analysis of grey and academic literature to illustrate key characteristics of regenerative agricultural discourses. As such, the research design chapter has implications for how the literature review was undertaken. Grey literature incorporates materials published outside of academic peer-review. This includes texts such as reports, farmer biographies, working papers, government documents and white papers. The literature review addresses research questions one and two.

- What are the discursive characteristics of regenerative agriculture?
- What transformative opportunities exist for regenerative agricultural discourse?

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Transforming landscapes and mindscapes through regenerative agriculture

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Abstract
Agriculture occupies 38% of the planet's terrestrial surface, using 70% of freshwater resources. Its modern practice is dominated by an industrial–productivist discourse, which has contributed to the simplification and degradation of human and ecological systems. As such, agricultural transformation is essential for creating more sustainable food systems. This paper focuses on discursive change. A prominent discursive alternative to industrial–productivist agriculture is regenerative agriculture. Regenerative discourses are emergent, radically evolving and diverse. It is unclear whether they have the potential to generate the changes required to shift industrial–productivist agriculture. This paper presents a literature-based discourse analysis to illustrate key thematic characteristics of regenerative agricultural discourses. The analysis finds that such discourses: situate agricultural work within nested, complex living systems; position farms as relational, characterised by co-evolution between humans and other landscape biota; perceive the innate potential of living systems as place-sourced; maintain a transformative openness to alternative thinking and practice; believe that multiple regenerative cultures are necessary for deeply regenerative agriculture; and depart from industrialism to varying degrees. The paper concludes by reviewing three transformative opportunities for regenerative discourses—discourse coalitions, translocal organising and collective learning.

Keywords Regenerative agriculture · Regenerative discourses · Transformations · Regenerative development · Discourse coalitions

Introduction: transforming the dominant, industrial–productivist agriculture

Without significant change in the agricultural sector worldwide, human activities will continue to overstep planetary boundaries (Rockström et al. 2016; Campbell et al. 2017). Having entered a new epoch known as the Anthropocene (Steffen et al. 2007, 2011; Crutzen 2002, 2016), humans are now the leading drivers of change to earth systems (Rockstrom et al. 2009a). Agriculture occupies 38% of the planet's terrestrial surface (Massy 2013; Zhang et al. 2007; Foley et al. 2011), making it a dominant driver of change in global ecosystems. According to Campbell et al. (2017), human agricultural activity contributes significantly to actual or projected overstepping of several planetary boundaries, including biogeochemical flows, biosphere integrity, land-systems change, freshwater use and climate change. As such, the agricultural sector has a role to play in preventing further oversteps and bringing humanity back within planetary boundaries (Gerten et al. 2020; Springman et al. 2018; IPCC 2019).

Modern agriculture operates on an industrial scale, relying on fossil fuel inputs, multinational companies and artificial fertilisers, pesticides and herbicides to grow output (McNeill 2000; Kimbrell 2002; Knorr 1984). It is inherently productivist (McKeon 2015; Argent 2002; Gosnell et al. 2019; Lawrence et al. 2013), defined by Lowe et al. (1993, p. 221) as committed "to an intensive, industrially driven and expansionist agriculture with state support based primarily on output and increased productivity." As Gliessman (2007)

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points out, the dominant mode of agriculture is obsessed with the maximisation of profit and production. Its industrial character is extractive (Anderson and Revera-Ferre 2021), signposted by large scale, capital-intensive and mechanised practices (Knorr 1984). These include synthetic fertiliser use (Pimentel et al. 1991; Pimentel 2005), chemical control (Carson 1962 (1972 repr.)), genome manipulation (Rowell 2003), monocultural production (Knorr 1984), tillage (Massy 2013) and factory farming (Massy 2013) or intensive animal husbandry (Knorr 1984). The implementation and integration of these practices has, "simplified agricultural systems in ways that are having alarming consequences on the health of people and landscapes" (Provenza 2008, pp. 277–278). Due to its mass uptake, industrial agriculture has become synonymous with the term 'conventional.' However, the use of chemicals and synthetic fertilisers is a post-war phenomenon (Zimmer 2000). Ironically, relative to the period of time that humans have been practicing agriculture, it's these *conventional* approaches that are still new on the agricultural scene.

For the purposes of this paper, the dominant mode of agriculture will be referred to as 'industrial–productivist' because of its aforementioned commitment to increased production, profit and mechanisation. COVID-19 illustrated the weaknesses of industrial–productivist agriculture as the economic fallout resulted in a swift disruption of food production, processing, distribution and consumption (Van der Ploeg 2020). This agricultural model also degrades socio-ecological systems (Campbell et al. 2017; Horrigan et al. 2002). Table 1 summarises this degradation using landscape processes as a heuristic tool for illustrating the challenges of industrial–productivist agriculture. These processes were originally articulated by Savory (2016) and further contributed to by Massy (2013). They provide a useful framework for organising evidence that suggests the industrial–productivist model needs to be transformed.

Agricultural transformation must deal with the structural and systemic drivers eroding agricultural systems (Vermeulen et al. 2019). Transformation is defined as a, "deep and sustained, nonlinear systemic change, generally involving cultural, political, technological, economic, social and/or environmental processes" (Linnér and Wibeck 2020, p. 222). This definition demonstrates that transformation is not limited to change in material systems and landscapes; it also involves change in shared socio-cultural structures (Linnér and Wibeck 2020). While there are many ways to describe the socio-cultural world, a common focus is on discourses—the shared cultural structures that influence how we perceive and construct technologies, institutions and practices (Linnér and Wibeck 2019; Fazey et al. 2018; Riedy 2020). Discourses shape the way people conceptualise reality (Dryzek 2013), making up a collective 'mindscape' that interacts with the material world. As such, *shifting mindscapes* has been identified as a possible, and perhaps necessary, transformative intervention towards sustainability (Linnér and Wibeck 2020; Scrutton et al. 2020; Meadows 2008).

The aim of this paper is to explore opportunities to transform the industrial–productivist discourse that currently dominates agricultural mindscapes. Specifically, we examine one of the most prominent emerging discursive alternatives—regenerative agriculture. It is important to note that regenerative discourses go beyond agriculture and reflect shared patterns for understanding the process of regeneration. However, this paper is concerned with the manifestation of regenerative discourses in an agricultural context. We are aware that broader regeneration work might impact how the discourses manifest within regenerative agriculture and this informed our analysis. We identify the thematic characteristics of regenerative agricultural discourses and assess whether these offer opportunities for transforming industrial–productivist agriculture. The next section outlines the discursive commitments of regenerative agriculture in more detail.

Regenerative agriculture as a possible alternative

Given the negative impacts of industrial–productivist agriculture, there is an urgent need to explore alternative agricultural approaches that can support transformations (Van der Ploeg 2020; Bene 2020). Many alternatives have been documented, such as agroecology (Gliessman 1990, 2001, 2007; Altieri 1995; Iles 2020; Conway 1985, 1987), permaculture (Mollison 1988; Holmgren 2007), carbon farming (Baumber et al. 2019, 2020; Toensmeier 2016; Ridinger 2016), natural farming (Fukuoka 1978), keyline farming (Yeomans 1993), organic agriculture (Howard 2013, 1940; Leu 2020), biodynamic agriculture (Steiner 1993), Indigenous land stewardship (Gammage 2011; Pascoe 2014; Romero-Briones et al. 2020), climate smart agriculture (Codur and Watson 2018) and holistic management (Savory and Butterfield 2016, 1999; Savory 1988; Gosnell et al. 2020b) or adaptive management (Hodbod et al. 2016; Teague and Barnes 2017; Teague and Kreuter 2020). These alternatives have developed their own discourses, communities of practice and underlying philosophies that challenge extractive food systems. Another prominent and growing alternative has emerged in the thinking and practice of *regenerative agriculture*.

Regenerative agriculture seeks continual renewal of agricultural systems, from soil through to people (Hes and Rose 2019). It is committed to restoring damaged landscapes and realising their innate potential (Massy 2017, 2013; Francis and Harwood 1985). However, there is variation in *how* this shared discursive commitment is pursued (Grelet

Table 1 Degradation through industrial–productivist agriculture

Landscape processes as identified by Savory and Butterfield (1999, 2016); contributed to by Massy (2013)	Consequence of industrial–productivist agriculture on landscape processes
Soil–mineral cycle: the cyclical pattern of minerals and nutrients being used and reused by living organisms (particularly implying a biologically active soil)	The soil–mineral cycle is degraded by poor farming practices (Oldeman et al. 1991). These include overgrazing, overcultivation, overuse of water, compaction from heavy machinery and the killing of beneficial organisms (Horrigan et al. 2002). The unsustainable use of soil in this way can result in desertification and the subsequent loss of arable land (Horrigan et al. 2002; Oldeman et al. 1991; Wood et al. 2000). Agricultural expansion also indirectly contributes to such losses, particularly when involving deforestation (Horrigan et al. 2002). Such ecosystem modification, land clearing and the consequential loss of carbon sinks directly contributes to climate change (Campbell et al. 2017; Houghton 2018)
Water cycle: the fixed amount of water available that cycles through landscapes, oceans and the atmosphere	The water cycle is degraded through the unsustainable overuse of fresh water (Gleick 2003; Postel 1996; Campbell et al. 2017) and the nutrient contamination of waterways; e.g. nitrogen, chemicals, silt, animal waste (Campbell et al. 2017; Horrigan et al. 2002). Agriculture is the largest global consumer of freshwater (Campbell et al. 2017). Human-induced changes to the nitrogen cycle have had implications for water flows (Campbell et al. 2017; Moffat 1998). These include biodiversity loss and pollution as nitrogen is carried through the atmosphere, soils, marine waters and watersheds (Swaney et al. 2012; Howarth et al. 2011)
Community–ecosystem dynamics: the ever-changing patterns in how a collection of organisms (that exist in a particular locality), relate to one another	Community–ecosystem dynamics are degraded through the loss of biodiversity (Lindenmeyer 2007; Green et al. 2005; WRI 2005; Pimm and Raven 2000; Fowler and Mooney 1990; Rockstrom et al. 2009a, 2009b; Foley et al. 2005), specifically functional and genetic diversity (Steffen et al. 2015; Campbell et al. 2017). The development of protected areas is not preventing biodiversity loss (Pimm et al. 2014; Watson et al. 2010). Degradation also occurs due to monocultures, the conversion of land for agriculture (Horrigan et al. 2002), and the contamination of waterways—particularly nitrogen runoff (Horrigan et al. 2002; Moffat 1998; Campbell et al. 2017). Climate change and habitat fragmentation are facilitating the spread of invasive species, which also contributes to ecosystem degradation (Thomas et al. 2004; Campbell et al. 2017)
Solar-energy flow: the cycle of energy from the sun into all living and non-living things, through a plant's capacity for photosynthesis	Solar-energy flow is degraded through increasing energy consumption (Foley et al. 2005) and unsustainable energy use (Pimentel and Pimenel 1996). This contributes to climate change (Campbell et al. 2017). It includes the extractive and unsustainable use of past solar energy (fossil fuels) for production, processing, transport, retail and waste (Campbell et al. 2017; Horrigan et al. 2002). The conversion of grain into meat (particularly using cattle) results in large losses of food energy (Horrigan et al. 2002). The photosynthetic capacities of farming ecosystems are often hampered by poor crop, pasture and livestock management (Massy 2013, 2017). In particular, overcultivation and overgrazing (Horrigan et al. 2002). These can create low plant density (Savory and Butterfield 2016) and desertification (Horrigan et al. 2002). This means less energy can be converted from sunlight into edible forms (Savory and Butterfield 2016)
There is acknowledgement that agriculture is a social and cultural activity that both shapes and is shaped by landscapes (McIntyre et al. 2009). Whilst *community–ecosystem dynamics* does recognise this, Massy (2013) believed it should be separately represented. Therefore *human–social* processes constitute a fifth category	Degradation in the physical health of human beings can be linked to animal-based food (Horrigan et al. 2002; DHHS 1988; Massy 2013); pesticide, chemical and fertiliser use (DHHS 1988; Horrigan et al. 2002; Albrecht 1975 (2005); Brussaard et al. 2007; Massy 2013); malnutrition (De Onis et al. 1993) and overnutrition (Horrigan et al. 2002); as well as factory pollution and food-borne pathogens (Horrigan et al. 2002; DHHS 1988; Massy 2013). The mental and physical wellbeing of farmers is threatened by environmental and community change or crisis (Ellis and Albrecht 2017; Albrecht 2007; Perceval et al. 2018a, 2018b); isolation; animal suffering; and the unavailability of services (Perceval et al. 2018a)

Table 2 Reigning and alternative ideas in agriculture. Adapted from Massy (2013, pp. 182–184)

Reigning industrial–productivist ideas in agriculture	Alternative ideas in regenerative agriculture
Man dominates nature: "…that 'man' can dominate and control nature which is not revered"	*Collaborate with ecological systems:* an agriculture that respects, animates and works with ecological systems
Agrarianism: "…a mal-adapted agricultural approach to the … environment"	*Regenerate:* a co-evolved approach that regenerates the diversity, resilience and health of the environment
Economic utilitarianism-rationalism: "…an implicit belief … in land-use decisions being based on narrow economic criteria"	*Landscape health:* a belief in basing decisions on diverse, interrelated phenomena; including overall landscape health
Science and technology rules: "…a powerful faith in technology and industrial science which holds that 'man' can know everything in order to dominate and control nature, thereby further separating 'man' from nature"	*Holism:* a transdisciplinary approach that is comfortable in ambiguity—not everything can be known or controlled; all phenomena is unbelievably complex and part of an interrelated whole
Aggressive language: language is "…reductionist, masculine, aggressive, mechanistic, technical, quantitative, prescriptive, extractive, humanistic and interventionist" (Massy 2013, p. 194)	*Nurturing language:* language is "…feminine, cooperative, collaborative … giving … nurturing, organic, sympathetic, loving, non-mechanical … holistic … less reductionist, less humanistic … less egotistically focussed, less interventionist … more passive … less technocratic" (Massy 2013, p. 194)
Control metaphors: 'conquering nature,' 'nature as machine' and 'God as divine lawgiver,' whom bestowed upon humanity 'dominion over nature' (Lent 2017). Even 'steward of nature' is a metaphor that reinforces ideas of control (Lent 2017)	*Mother metaphors:* landscapes are more akin to the 'nurturing mother' (Massy 2013). This aligns with early Indigenous metaphors, which perceived 'mother nature' as the 'giving parent' (Lent 2017)

et al. 2021). Different aspects from alternative agricultural approaches are integrated into regenerative farming systems (Wahl 2016). For example, Taranaki Farm in Australia includes aspects of holistic management, keyline farming and permaculture (Duncan and Savory 2015; Duncan 2015). This is because regenerative agriculture, "does not preclude any particular practice if it is needed to facilitate the transition of the agroecosystem to a state of increased health" (Grelet et al. 2021, p. 7). As such, rather than being prescriptive about using particular practices or processes, regenerative agriculture is generally *outcomes focussed* (Grelet et al. 2021). Some process-based definitions also exist (Newton et al. 2020); which are more inflexible with what constitutes 'regenerative.' These conflicting definitions demonstrate the lack of theoretical depth and consistency in regenerative agriculture.

The relevance of different agricultural practices to regenerative agriculture depends on the context of each farm (Grelet et al. 2021). Soloviev and Landua (2016, p. 4) suggest that, "each community of practitioners in each bioregion of the world has the opportunity to regenerate the eco-cultural meaning of regenerative agriculture. They will do so in a way that is unique to their place, history and whole living ecosystem." As such, whilst regenerative farmers around the world are managing landscapes in an integrated way (Scherr et al. 2012), context specifies which practices and philosophies are included.

Regenerative agriculture shares discursive elements with regenerative development: a practice that seeks to align human activities with the continuing evolution of living systems (Mang and Reed 2012; Benne and Mang 2015; Haggard and Mang 2016; Muller 2020; Plaut and Amedee 2018). Regenerative development emerged in design and architecture (Svec et al. 2012; Plaut et al. 2012; Lyle 1994; France 2008; Dias 2015; Cole et al. 2012, 2013; Cole 2012a). Whilst not originally agricultural, it has influenced the approach of some farming communities, such as the consultancy *Terra Genesis International* (Soloviev and Landua 2016). This is an example of how regenerative agriculture is situated within a broader circle of discourses, which span multiple sectors (Wahl 2016). These discourses include urban design (Zari 2012, 2015; Gou and Xie 2017), regenerative economics (Fullerton 2015; Morseletto 2020), regenerative businesses (Sanford 2017, 2011), regenerative sustainability (Hes and du Plessis 2015; Gibbons 2020) and regenerative health (United 2020).

Regenerative has been conceptualised as the 'new sustainable' (Gibbons 2020). However, for many practitioners, the concept carries greater ethical connotations, "to effect a complete moral reform" (Massy 2013, p. 23). Whilst sustainable systems must maintain the status quo and "their productivity and usefulness to society indefinitely" (Duesterhaus 1990, p. 22; Tilman et al. 2002), regenerative systems go a step further in restoring what has been lost and improving what is currently there (White 2020; Rhodes 2017, 2012; Schreefel et al. 2020). Participants of regenerative discourse believe that it is not enough to sustain dysfunctional approaches to landscape management (Gosnell et al. 2019). Despite this assertion, it remains unclear whether regenerative approaches can shift the discursive power of industrial–productivist agriculture. The clear ideological differences between these approaches (see Table 2) indicate that a shift to regenerative agriculture would indeed be transformative. However, just listing these differences

tells us little about regenerative agriculture's transformative potential. Before turning to our methods for exploring the discursive characteristics and transformative potential of regenerative agriculture, the next section provides further detail on the conceptual framework for the paper.

Discourse as a conceptual framework for agricultural transformations

Discourses are, "a shared way of apprehending the world" (Dryzek 2013, p. 5). What is being shared is a complex network of meanings, phrases, practices and institutional structures that form a restrictive or expressive code of conduct. They tell a story about the way the world is, and our relationship to it, that influences our behaviour (Riedy 2020). As such, discourses can open us up, or close us down, to opportunities for transformation—depending on the storylines associated with them. The adoption of regenerative agriculture not only entails, "a new way of doing agriculture; but a new philosophy, a new worldview and a new ethics-values base," which will likely put farmers "at odds with peers, farming district and even family" (Massy 2013, p. 231). This is because regenerative discourses inhabit a different set of storylines to industrial–productivist agriculture.

Dryzek (2013) introduces four elements of discourse: agents and their motives; basic entities whose existence is recognised or constructed; assumptions about natural relationships; metaphors and other rhetorical devices. One such rhetorical device is the use of shared storylines that bind participants together in discourse coalitions (Hajer 1995). These elements of discourse are mobile—ideas, metaphors or storylines move from mind to mind within and across discourses. For example, unquestioned agricultural practices and assumptions that influence how we perceive, relate and think about landscapes can persist across discourses. In this paper, we identified key themes within regenerative agricultural discourses.

A theme is an, "extended phrase or sentence that identifies what a unit of data is about and/or what it means" (Saldana 2009, p. 199). It is helpful in revealing the, "psychological world of beliefs, constructs, identity development and emotional experiences" (Saldana 2009, p. 200). Whilst we considered themes at the semantic level—in the *content* of what was being said (Braun and Clarke 2006), we principally searched for themes at the latent level (Saldana 2009). The latent level considers the *form* used to express insights (Braun and Clarke 2006). For example, a farmer discussing resilience may say that nature is able to *laugh* or *shrug things off* or that native grasses *don't mind being eaten off* (Massy 2013). At the semantic level these comments can be taken at face value—the landscape is resilient. However, the farmer's metaphor use suggests that themes at the latent level may include a belief in ecological *agency* or *animacy*. In discussing transformative opportunities, we explored common ground and tension between the themes of regenerative discourses identified in this paper.

In discussing the transformative opportunities of regenerative discourses, we looked for common ground across our themes because a discourse is by definition *shared*. As such, common ground in this paper reflects the clear, united strengths shared within and between discourses. These are points of connection, where allies might rally around shared storylines. We also looked at areas of tension within the themes, because this can indicate how the discourse might be changing. Tensions demonstrate either uncertainty or differences within and between discourses. They can also provide creative points of productive, agonistic dialogue and mutual learning.

Common ground and tension offer insight into leveraging regenerative discourses for transformation. The transformative opportunities discussed in this paper are 'deep' leverage points; as explored by Abson et al. (2017) and Tourangeau and Sherren (2020), based on the foundational work of Meadows (2008). This is because discourses include the goals, norms, values and narratives of a system; existing in its ontological and epistemological realms (Davila et al. 2021). They are the, "individual and collective ideas … which are in turn inherited, formed, transformed, negotiated or fought for" (Obrien 2018, p. 157). Points of common ground and tension have strong leverage potential because if common ground shifts, the whole discourse shifts. Likewise, tensions can either trigger shifts or cause new discourses to splinter off. Identifying how points of common ground and tension might be leveraged is one way of exploring whether regenerative agriculture offers opportunities to transform industrial–productivist agriculture.

Methods

The main method used in this paper was a literature-based discourse analysis. There have been systematic reviews of regenerative agriculture (Newton et al. 2020; Schreefel et al. 2020); which focussed on *definitions*. Our literature review complements these existing reviews, as we apply a discursive lens to regenerative agriculture. We did not seek to *define* regenerative agriculture, but rather to identify discursive characteristics and transformative opportunities. This advances the conceptual clarity of the discourses and their transformative potential.

The initial literature was sourced from agricultural practitioners through the recommendations of farmer networks in Australia, specifically, the *Regenerative Agriculture Alliance* and *Institute of Ecological Agriculture*. This was a starting point for the review. We wanted to understand what

regenerative farmers saw as the key texts underpinning their discourse. The goal was to include the texts farmers actually use in their practice. Their recommendations included a diverse range of historical and grey literature, which act as the theoretical and philosophical foundation for many regenerative farmers.

Recognising the potentially eclectic nature of the recommended literature, we supplemented it with a systematic search of recent literature. Regenerative agriculture has radically increased in popularity, hype and ideology within the last 5 years (Stuart and Clemens 2018). It was important that relevant items had not been overlooked from that period, from 2016 to 2020. As such, a search in Google Scholar was conducted for academic articles with 'regenerative agriculture' in the title, published between 2016 and 2020. 59 items were identified in the Google Scholar search. We recognise that Google Scholar ranks search results in priority order, using an algorithm that is unknown but appears to make heavy use of citation counts and words in the title. It also doubled up on papers occasionally or was missing references. Given these limitations, we augmented Google Scholar with an additional search using Web of Science. We used the same search criteria in both searches; Web of Science returned 16 items. Of these four were missing from our literature collection, as such we subsequently included them in the review (Francis 2016; Hartle 2016; Sayre 2019; McDonald 2017).

Finally, we explored the citations in papers and used the 'cited by' function in Google Scholar and Web of Science to find further related articles on regenerative agriculture. 97 texts were identified this way. Three papers that were not included were also suggested by anonymous reviewers (Tourangeau and Sherren 2020; Tourangeau et al. 2019; Gosnell et al. 2020a). After identifying texts from these sources, 267 items were included in the review overall—104 from farmer networks, 59 from Google Scholar, 4 from Web of Science, 97 from citations and three from reviewer suggestions.

Analysis was undertaken iteratively as the body of literature expanded. Our research question asked: what are the *discursive characteristics* of regenerative agriculture? We were aware that such a question would shape the kind of knowledge we generated (Saldana 2009), so kept it front of mind throughout the analysis. We gathered information about the context that shaped the literature. This was recorded in analytic memos throughout the analysis period. These included insights from interactions with farmers who had suggested texts. This helped us document the context and its influence on the discourse. Before texts were analysed, we read and annotated them actively, which further informed analytic memos. Whilst annotating, we paid close attention to how rhetoric was being employed to put down any oppositional arguments or elicit a particular response from readers. This was a way of validating whether regenerative discourses were a departure from industrial–productivist agriculture.

Because the aim of the research question was to characterise the discourses, we predominantly looked for similarities and contrasts across texts. To achieve this, we drew on *themeing the data* in Saldana (2009). As mentioned, we principally identified themes at the latent level (Saldana 2009). This level better expresses phenomenological insights of the life-world; what it is like to be, have and live (Saldana 2009). As such, this approach better suited our research question. Themes were reviewed by:

- Comparing them with the original data extracts to ascertain whether integrity has been maintained throughout the process.
- Considering whether themes made sense in the context of the broader data set. This involved re-reading the literature and adding additional data that might have been missed.

Findings: what is regenerative agricultural discourse?

This review identified six themes, which express the characteristics of regenerative agricultural discourses.

Theme one: regenerative agricultural work is conducted within nested, complex living systems

Regenerative farmers increasingly adhere to principles of resilience, design and systems thinking (Mann et al. 2019; Gosnell et al. 2019). They believe, "that a healthy, non-degraded or regenerating ecological system has a self-organising propensity which drives or inclines that system to greater complexity, greater interdependence, greater diversity and thus greater resilience" (Massy 2013, p. 252). As such, "regenerative agriculture is deeply rooted in enabling the expression of nature's capacity for self-organisation" (Massy 2013, p. 24). This concept can be linked with *symmathesy*, which occurs when a system internally and externally engages in context specific, mutual learning through ongoing interaction (Bateson 2015). The systems are complex, interrelated and exhibit emergent behaviour, which is hard to predict (Provenza et al. 2013). The novel patterns and properties that emerge (Goldstein 1999) are unpredictable because the identity and nature of the interactions are creative (Provenza 2008) and unknown.

There is general consensus that complex living systems and their interrelated, self-organising inclinations must be understood holistically (Savory and Butterfield 2016; Haggard and Mang 2016). The work of Smuts (1973)

and Koestler (1967) have been foundational in shaping such approaches, particularly within holistic management (Savory and Butterfield 2016). However, not everyone considers holism to be a prerequisite for regenerative agriculture. This is reflected in the distinction identified by Gosnell et al. (2020a) between 'managed grazing' as described in Hawken (2017) and 'regenerative ranching.' Both of these are included in regenerative agriculture, however regenerative ranching is the only one that infuses managed grazing with holistic decision-making. As such, it cannot be presumed that managed grazing and holistic decision-making always co-exist in regenerative agriculture. Some authors avoid being associated with holism all together. Instead of holistic grazing or holistic management, they have deferred to terms like 'multipaddock adaptive grazing,' or 'adaptive management' (Hodbod et al. 2016; Teague and Kreuter 2020; Teague and Barnes 2017; Park et al. 2017; Becker et al. 2017). These differences are semantic, but in many cases regenerative farmers also have different applied understandings of holism. For example, the holistic decision-making framework steps back from the parts to see the whole (Savory and Butterfield 2016), whereas adherents to Goethe's approach go into the parts to see the whole (Bortoft 1996). There are also holarchic or nested approaches to holism (Wilber 2001; Haggard and Mang 2016; Benne and Mang 2015). These terms—holarchic and nested—are often used interchangeably, denoting that, "all living systems are made of smaller systems nested within larger systems … all of these levels of systems are whole and distinct from one another, and at the same time, they are dynamically interdependent and inseparable" (Haggard and Mang 2016, p. 45). This gives self-organisation an expansive quality; as if overlapping, interrelated systems were interacting and evolving ever-outwards.

In simplifying production systems we have suppressed nature's capacity to self-manage, leading to less resilient landscapes (Haggard and Mang 2016; Provenza 2008). However, Australian farmer Colin Seis let ecological systems self-organise because he could no longer afford the rising costs associated with chemical inputs, pasture seed, increasing salinity, reducing fertility and dying trees (Hes and Rose 2019; Massy 2017). Initially, "the wheels fell off everything, and our production crashed for seven or eight years" (Massy 2017, p. 196). Once Seis overcame this period and associated doubts, a natural grassland evolved. The farm began enjoying more biodiversity and sequestering higher rates of carbon, which improved the soil's water holding capacity, crop yields, available fodder and animal production. Many input costs were no longer necessary because the landscape was self-healing (Hes and Rose 2019; Massy 2017). He says, "the closer I work to nature … the easier it becomes, and the more profitable it becomes, and there's less costs, a lot less risk, and certainly a lot less work" (Massy 2017, p. 202). Seis also experienced a discursive shift; his thinking became more ecological and he developed a desire to continually evolve this through ongoing learning (Hes and Rose 2019; Massy 2017).

Gosnell et al. (2020a) point out the nested nature of systems, where farmers are constrained by interacting social and ecological variables. In order for agricultural landscapes to function regeneratively, farmers must understand the interrelated and nested systems within which they conduct their work—precisely because it is these systems that will begin to regenerate (Haggard and Mang 2016; Soloviev and Landua 2016). Such understanding is a prerequisite to *managing* the systems regeneratively, and both understanding and managing these systems can be challenging for someone transitioning from industrial–productivist agriculture (Gosnell et al. 2020a).

Theme two: farms are relational; co-evolution occurs amongst humans and other landscape biota

The self-organising and interacting nature of living systems supports the description of farming offered by Gosnell et al. (2019); that the farm is a *process of becoming*. They say, "becoming is an outcome of dynamic networks comprised of heterogeneous relationships and actors existing and exerting agency at multiple scales and across time" (2019, p. 5). In other words, regenerative farmers understand that their farm is *relational*. They are therefore in constant *becoming*, or *co-evolution*, with their farm system and structurally coupled with its ecology. Structural coupling refers to the local and recurrent interactions between organisms in an environment, which leads to their congruence (Maturana and Varela 1992, 1980; Maturana 2002; Capra and Luigi Luisi 2016). As interdependence increases between human and non-human organisms on the farm, co-evolution can happen at multiple levels across cultural and ecological systems. This might be through language, epigenetics, diet, behaviour and experience (Provenza 2008; Lipton 2005; Maturana and Varela 1992).

When farmers and their ecosystems are structurally coupled it is an enablement of what Mang and Reed (2012) term *co-evolving mutualism*—"the increasing and mutually beneficial integration of human and natural systems that supports their co-evolution" (Mang and Reed 2012, p. 34). They refer to this as a process of *progressive harmonisation*. Many regenerative farmers animate nature as a nurturing mother (Massy 2013). This suggests a newfound intimacy and trust that would progressively harmonise the recurrent interactions between them. The mother that biologically births and sustains you is treated differently from an industrial commodity. Such relationality is a reminder that, "we too are ancient animals who co-evolved in landscapes and became genetically and physiologically hard-wired for

dynamic biogeochemical interaction with these landscapes" (Massy 2017, p. 311). Regenerative agriculture requires never-ending creative interactions with other lifeforms (Provenza et al. 2013) and a constant co-evolution in land and thinking (Soloviev and Landua 2016). This is because the unique places we inhabit are dynamically interacting with us (Provenza 2008).

Theme three: the innate potential of living systems is place-sourced

A key premise of regenerative development is that, "co-evolution among humans and natural systems can only be undertaken in specific places, using approaches that are precisely fitted to them" (Haggard and Mang 2016, p. 36). The concept of *place* represents the ecological and cultural context from which higher levels of order can emerge. Mang and Reed define it as, "the unique, multi-layered network of living systems within a geographic region that results from the complex interactions, through time, of the natural ecology … and culture" (2012, p. 28). Regenerative farmers develop a deepened pattern understanding of their place (Drengson 1985; Mollison 1988), and subsequently the *place essence* associated with those patterns (Soloviev and Landua 2016).

Essence can be understood as, "the true nature or distinct character that makes something what it is; the permanent versus the accidental element of being" (Haggard and Mang 2016, p. 48). Discerning the essence of a place begins with recognising, "that each place is a dynamic entity with its own unique history and future – growing and evolving, forming and decomposing, continuously influenced by the larger system in which it is embedded" (Mang and Reed 2012, p. 31). Based on their unique essence, places have "an inherent potential to which they are moving toward or away, depending on their state of integrity and vitality" (Mang and Reed 2012, p. 30). This potential defines the *vocation* of that place. It is the place's capacity for adding value to the broader ecological and cultural whole within which it is nested (Mang and Reed 2012).

Haggard and Mang (2016) provide a good example of this theme. The National Park Service wished to restore a 100-acre farm that had supplied produce to the historic Hubbell Trading Post in the Navajo Nation at Ganado, Arizona. To make Hubble Farm economically viable, they suggested leasing it to produce alfalfa hay. However, the alfalfa hay did not express what was unique about Hubble Farm, nor its potential for creating new value for the larger whole within which it was nested. At that time, locals wanted to promote traditional crops, the hospital was running an anti-diabetes project and the high school was reviving threatened Churro sheep. These groups came together and managed the farm collaboratively. It provided pasture for the sheep, native crops for the diabetes program, hedgerows were created for traditional plants and the sheep provided high-quality wool and lamb. For farmers, working regeneratively requires considering the unique essence and potential of the living systems that form their place (Soloviev and Landua 2016). This often involves participation in reconciliation initiatives that address the trauma experienced by places and their Indigenous people, at the hands of settler colonialism (Brewer 2019).

Theme four: openness to alternative thinking and practice is transformative

The first principle of regenerative food systems as identified by Duncan et al. (2020, p. 5) is to, "acknowledge and include diverse forms of knowing and being in the world." Regenerative farmers demonstrate a radical evolution in thinking with their willingness to learn and openness to alternative ideas or practice (Gosnell et al. 2019). Like Seis, many have proclaimed that the transformation they experienced left them addicted to ongoing learning (Hes and Rose 2019; Massy 2017). This means constantly questioning their assumptions, beliefs and feelings in order to let their own complex, psychological systems self-organise in sync with structurally coupled landscapes (Massy 2013). In this sense it has freed them from cultural norms and patterns constraining the potential for self-actualisation (Boyd 1991) in themselves and their farm ecosystems. This theme builds intuitively on the findings of Gosnell et al. (2019); that ongoing learning, enthusiasm and positive feedback associated with ecological monitoring leads to greater regenerative potential and higher levels of awareness over time. They demonstrate how certain activities, experiences or perceptions can, "support self-amplifying feedback loops that involve ongoing experiential social learning and increasing consciousness which plays out on the landscape and in surrounding communities" (Gosnell et al. 2019, p. 11). As such, a sense of constant discovery is enticed, which leaves regenerative farmers indefinitely open to transformation.

Accepting different ways of knowing that are potentially contradictory to previous experience is a quality that Massy (2013) associates with transdisciplinary inquiry. This involves a level of synthesis within an individual that helps them better empathise with the thought processes of others, that is absent in traditional disciplinary thinking (Max-Neef 2005). Such thinking draws from but transcends disciplinary boundaries and paradigms (Bernstein 2015; Gibbs and Beavis 2020; Nicolescu 2002). Massy (2013) believes regenerative farmers demonstrate such an approach and form their own integrated knowledge cultures by questioning dominant assumptions and forms of knowledge that marginalise other ways of knowing. This adheres to the transdisciplinary discourse of *transgression* (Klein 2015) and aligns with the

non-prescriptive features of regenerative agriculture (Grelet et al. 2021).

For some, this openness makes attempts to 'define' the concept and practice of 'regenerative' agriculture counter-intuitive (Newton et al. 2020). The two words have opposite meanings, with the Latin origins of the former denoting, "bring to an end" (Soloviev and Landua 2016). There is a reluctance to define regenerative agriculture because it is perceived as something that should continually evolve with the ongoing learning of farmers (Newton et al. 2020). The definition itself needs to constantly be *regenerated* (Soloviev and Landua 2016). Further, definitions tend to create boundaries and exclude minority interpretations; whereas regenerative agriculture is generally inclusive of diverse forms of knowing and being (Duncan et al. 2020). As such, some in the movement are, "understandably averse to adopting a single definition for strategic, political, or conceptual reasons as their thinking on this relatively new topic continues to evolve" (Newton et al. 2020, p. 6). It has been suggested that individuals and organisations have an understanding specific to their own context and purpose (Newton et al. 2020), which can freely evolve through engagement with other practitioners.

Theme five: multiple regenerative cultures are necessary for deeply regenerative agriculture

While there are important exceptions (Hintz 2015b, 2015a; Kearnes and Rickards 2020; Sherren and Kent 2017; Mann and Sherren 2018; Mann et al. 2019), most descriptions of regenerative agriculture do not focus on the "mental/social aspects of people working on the land" (Hes and Rose 2019, p. 10). This is demonstrated in Newton et al. (2020). Only 17.4% of their reviewed journal articles (121) and 40.9% of their reviewed practitioner websites (22) mention improving the "social and/or economic wellbeing of communities" when defining or describing regenerative agriculture (Newton et al. 2020, p. 5). Another example is the description by California State University (CSU) Chico (2017), which identifies benefits to soil, water, biodiversity and carbon; but not people. Silence on regenerative agriculture's social dimension is replicated in many articles (Elevitch et al. 2018; LaCanne and Lundgren 2018; Lal 2020; Quarles 2018; Colley et al. 2019; Gopal et al. 2020; Soto et al. 2020). However, the important role of human–social processes is increasingly recognised and discussed. For example, the work of Gosnell et al. (2020b) explores multiple facets of holistic management, which span the human–social rather than just the biophysical. Massy (2013, 2017) goes into substantial socio-cultural depth, actually coining the term 'human-social' in the context of the Savory and Butterfield (2016) landscape processes. For many practitioners, regenerative agriculture is not simply a new suite of climate smart tools but a dynamic and discourse-shifting approach to landscapes that re-embeds their cultural significance (Cross 2013; Gosnell et al. 2019).

Soloviev and Landua (2016, p. 13) remark that, "deeply regenerative agriculture can exist only if it is completely interwoven into a thriving regenerative culture." On an individual level, farmers are developing their own regenerative farm cultures. This comes through in their communities of practice (Cross and Ampt 2017), holistic-complex systems thinking (Massy 2017), changed financial planning (Gosnell et al. 2020b), ongoing learning (Gosnell et al. 2019) and openness to diverse ways of knowing and being in landscapes (Duncan et al. 2020). However, more industrial–productivist discourses still permeate outside the farm and its associated regenerative community (Lawrence et al. 2013). As such, regenerative agriculture operates within nested systems of other dominating discourses, which influence its capacity to function regeneratively. For example, a regenerative farm will still suffer the consequences of human-induced climate change. As such, regenerative agriculture works to its fullest capacity if the economic, political and social systems within which it is nested, are also regenerative (Soloviev and Landua 2016; Wahl 2016).

This is why it has been suggested that regenerative agriculture needs to remain connected with broader regenerative movements, such as regenerative development (Hes and Rose 2019). Soloviev and Landua (2016, p. 14) comment that, "agriculture becomes a central set of annual rituals and ceremonies that is integral to the ongoing regeneration of culture." Wahl (2016) asserts that regenerative cultures can be designed from the overlapping cultural and ecological systems of individual bioregions. Hence, there is not a single regenerative culture, but numerous depending on the uniqueness of different places. Regenerative agriculture would similarly express itself differently depending on the cultural and ecological systems of its place (Grelet et al. 2021).

Theme six: regenerative approaches depart from industrialism to varying degrees

Industrialism, and all of the ideologies that have been associated with it, ignored and suppressed the environment (Dryzek 2013). As Dryzek suggests, "if what we now call environmental issues were thought of at all, it was generally in terms of inputs to industrial processes" (2013, p. 14). Hence, like all environmental discourses, regenerative discourses are *departures* from industrialism, but the degree of departure can vary. This allows regenerative agriculture to be championed by what many consider opposing sides of the food and agriculture debate—NGO's and civil society, as well as major multi-national companies (Giller et al. 2021).

Companies such as General Mills, Patagonia and Cargill have developed regenerative agriculture programs that

Table 3 Key themes of regenerative agricultural discourses

#	Theme	Explanation
1	Regenerative agricultural work is conducted within nested, complex living systems	Farms are nested within socio-ecological systems that self-organise and interact unpredictably across scales. Farmers need to understand *how* these systems function in order to manage them regeneratively
2	Farms are relational; co-evolution occurs amongst humans and other landscape biota	Regenerative agriculture requires never-ending creative interactions with other lifeforms because the unique places farmers inhabit are dynamically interacting with them
3	The innate potential of living systems is place-sourced	Places have a unique essence and inherent potential to which they are moving toward or away. This informs a farmer's capacity for adding value to the broader socio-ecological whole
4	Openness to alternative thinking and practice is transformative	Farmers need to question their assumptions, beliefs and feelings to allow for transformative, self-actualisation in themselves and their farm ecosystems
5	Multiple regenerative cultures are necessary for deeply regenerative agriculture	A plurality of regenerative cultures can emerge from the socio-ecological systems of different bioregions. Deeply regenerative agriculture requires the socio-economic systems within which it is nested to also be regenerative
6	Regenerative approaches depart from industrialism to varying degrees	Regenerative agriculture departs from industrialism to varying degrees and thus includes diverse ways of 'doing' agriculture

nevertheless maintain productivist thinking. Cargill has 155,000 employees operating across 70 countries, moving countless products around the world via roads, rail, rivers and oceans (Cargill 2020a). They aim to, "advance regenerative agriculture practices across 10 million acres" (Cargill 2020b) and "build long-term economic viability" (Cargill 2020c). This maintains the industrial-globalised landscape but partners it with 'regenerative practices.' Nevertheless, the language of these organisations explicitly critiques industrial–productivist approaches. Patagonia says on their website, "growing food and fibre with industrial techniques has devastated our climate" and that "big agriculture is broken" (Patagonia 2020). General Mills even identifies the need for *transformative change* (Mills 2020). This departure may only be semantic, but it still disassociates them from extractive agricultural narratives.

These companies have been criticised for confusing regenerative principles with basic practices that do not require a shift away from industrial–productivist thinking (Gordon 2021). General Mills lists six principles that are all practice based; for example, "reduce soil disturbance," and "integrate livestock" (Mills 2020). By contrast, other widely supported regenerative principles focus on the way farmers think, as noted above. For example, "have the capacity for continuous, transformative learning" (Gordon 2021, p. 5), "make context-specific decisions" (Grelet et al. 2021, p. 15), or "express the unique and irreplaceable essence of each person, farm and place" (Soloviev and Landua 2016, p. 19). These tensions exist because each group advocating regenerative agriculture has departed from industrialism to varying degrees.

Increasingly, regenerative groups are First Nations led; such as the *Regenerative Songlines Australia* Network (Poelina et al. 2021). These perspectives reflect the most significant departure (Pascoe 2014; Gammage 2011; Murphy 2007; Salmon 2020, 2000; Sutton and Walshe 2021). Whilst it has been recognised that cultural (Angarova et al. 2020) and ecological (Graham and Bartel 2017) reconciliation is necessary for deeply regenerative agriculture, not everyone acknowledges this. As such, regenerative agriculture has been criticised for borrowing practices from Indigenous cultures, whilst leaving out their worldviews and hence erasing their history and contributions (Angarova et al. 2020; Romero-Briones et al. 2020). As Romero-Briones et al. (2020, p. 9) suggest, "both systems should be acknowledged and can work together," but the differences in how they know and explain the world should be recognised.

The above findings are summarised in Table 3. In the next section, we discuss points of common ground and tension between the six themes. These provide insight into how transformative opportunities within regenerative discourses might be leveraged. Such leveraging can help shift the industrial–productivist discourse currently dominating agricultural mindscapes.

Discussion: leveraging the transformative potential of regenerative discourses

The six themes provide insight into whether regenerative discourses have the potential to transform industrial–productivist agriculture. Three opportunities for transformation

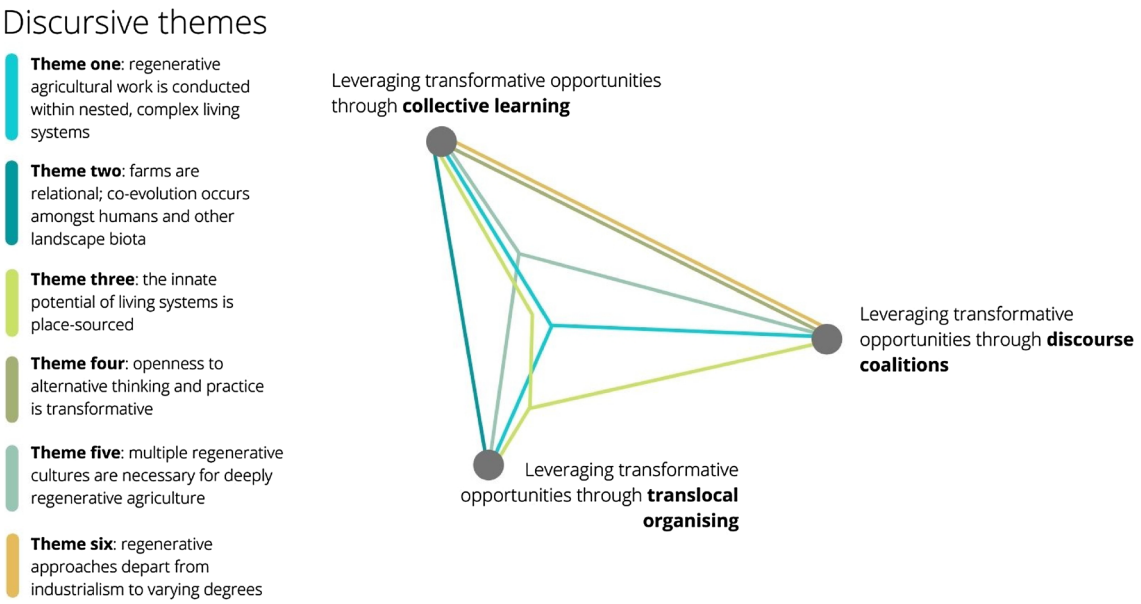

Fig. 1 Leveraging regenerative discourses for transformation

have been identified that reflect common ground and tension within these themes. Figure 1 visualises how these opportunities relate to the six themes as per our conceptual framework.

Leveraging transformative opportunities through discourse coalitions

Both theme four and previous studies demonstrate that regenerative agriculture often includes ongoing reflection and learning in relation to practice (Gosnell et al. 2019; Massy 2013, 2017). This involves being open to, and including, alternative views; whilst nevertheless holding fast to personal ecological vision. The focus on landscape and community potential in theme three also speaks to this openness as does the pluralism of theme five. In being open, inclusive and potential-oriented regenerative agriculture displays much common ground. It also creates room for numerous tensions, which demonstrate how regenerative agriculture is unsettled and contested.

The themes reflect variations in how regenerative agriculture is understood, practiced and discussed. For example, the nuanced differences to holistic thinking reflect variations in theme one as does the emphasis on, or exclusion of, human–social processes by some regenerative practitioners in theme five. Themes three and five demonstrate how regenerative agriculture can manifest differently across socio-ecological contexts. This includes differences in how it relates to bioregionally specific regenerative cultures. In theme four, if definitions remain vague in an attempt to be inclusive, regenerative agriculture could be co-opted by industrial–productivist agendas (Newton et al. 2020). However, if definitions are too restrictive they could exclude key allies in shifting industrial–productivist approaches. That no agricultural practice is necessarily precluded raises tensions between different departures in theme six—particularly when industrial practices are used, e.g. chemical inputs (Flynn 2020), or Indigenous practices are de-contextualised (Angarova et al. 2020). These tensions position regenerative agriculture well for discourse coalitions. Such alliances naturally create space for diverse interpretations to be included.

A discourse coalition consists of diverse agents collectively drawn to certain storylines; who then reproduce those storylines (Riedy 2020). In this case, agricultural alternatives increasingly find resonance with the umbrella or boundary narrative of regenerative agriculture. Meanwhile, their agricultural practice can include *any* activity focussed, "on enhancing and restoring holistic, regenerative, resilient systems supported by functional ecosystem processes and healthy, organic soils" (Gosnell et al. 2019, p. 4). As such, there is enough common ground in regenerative agriculture to feel included in the community, but also enough space for interpreting it in your own way. Thus, regenerative agriculture constitutes a boundary community that is integrative of multiple agricultural discourses. If those who seek more transformative departures from industrialism can strengthen their discourse coalition around regenerative agriculture, rather than abandon the term; then they might re-empower alternatives to industrial–productivist agriculture.

Leveraging transformative opportunities through translocal organising

Themes one, two, three and five suggest the discourses co-evolve with specific localities and integrate relevant approaches (Grelet et al. 2021). The Savory Institute applies the same paradigms, principles, decision-making framework and testing questions to diverse locations or 'hubs' all over the world (Savory 2020). This reflects some uniformity by contrast; however the specific decisions that subsequently emerge still depend on local contexts. The place-based nature of regenerative agriculture could limit its transformative potential because each particular community will be place-bound and unable to share lessons with a wider (national or international) network. While recognising that any expression of regenerative agriculture must be local and context-dependent, the potential for transformation will grow if each regenerative community can find enough common ground to band together in translocal networks (Loorbach et al. 2020), expanding their power.

For example, in some cases agricultural transformation has been successful thanks to communities of practice that are not place-based (Cross and Ampt 2017). Whilst hubs (such as those initiated by the Savory Institute) that promote, disseminate and offer trainings in regenerative agriculture have emerged; these were not established and available to the early innovators. In fact, early agricultural innovators were ridiculed by local communities (Massy 2017). This ridicule remains a tension for the transformative potential of regenerative agriculture. It therefore makes sense that early innovators found common ground by organising and connecting across geographies. Ironically, this ability was made possible by an industrial-globalised agricultural landscape.

If regenerative agriculture is widely adopted, "it could be argued that communities of practice are also communities of place: adapting to local circumstances, using local resources, and feeding local people" (Cross and Ampt 2017, p. 596). In the meantime, transformative organising will still need to share characteristics with both place-based and industrial-globalised approaches (Cross and Ampt 2017). Hence becoming translocal and providing communities with diverse opportunities for common ground; particularly with increasing technological resources and literacy.

Leveraging transformative opportunities through collective learning

Gosnell et al. (2019) and Massy (2013) demonstrate that farmers have transformative experiences in their individual departures from industrial–productivist agriculture. This is also documented by farmers themselves (Anderson 2019; Brown 2018; White 2008) and reflected in themes one, two and four. Since regenerative agriculturalists have been through a transformative learning process, they are well-placed to share their experiences and help others learn.

To be transformative, regenerative discourse—or discourse coalitions—can't just focus on their own regenerative practice (or the different departures in theme six). They need to engage in outreach and advocacy that influences oppositional discourses. Dryzek (2013, p. 234) suggests discourses are needed that, "facilitate and engage in collective learning in an ecological context." If regenerative approaches are to successfully transform industrial–productivist agriculture, they will need to constructively engage with those who have oppositional beliefs. This is not to say that oppositional discourses are encouraged, but they are nevertheless worked with. This particularly includes 'conventional' farmers who are threatened and annoyed by the "holier than thou philosophy" (Henly 2021, p. 77) of regenerative agriculture.

As implied by themes three and four, regenerative agriculturalists must continue questioning their own assumptions, beliefs and feelings to remain open and focus on the collective potential of diverse discourses. This leverage point doesn't 'convert' farmers to regenerative agriculture. It is an opportunity to *transcend paradigms* (Meadows 2008) and facilitate a co-evolution between discourses. The shift occurring within the competing discourse will be semantically and practically different, but nevertheless transformative for the individuals involved. Change will not be experienced in every situation, but continually trying to bring in new perspectives is important for this transformative opportunity. This kind of pluralism is foundational to theme five and can be achieved through outreach. The effectiveness of outreach will depend on the kind of language that regenerative discourses use to tell their stories; "thinking differently requires speaking differently" (Lakoff 2014, p. xiii).

Everything people do and say is filtered by metaphorical building blocks (Lakoff and Johnson 2008). For example, "a healthy ecosystem is the 'engine' behind a regenerative farm; it 'charges' your soil and 'drives productivity.'" This does not articulate an ecosystem in the same way that regenerative discourses perceive it. Rather, it subconsciously reinforces the conceptualisation of an ecosystem that already exists in industrial–productivist agriculture. When speaking about regenerative agriculture, it seems logical to use familiar language. This comes laden with the pre-established ideas of the dominant discourse. As Lakoff says, "you should say what you believe using your language, not theirs" (2014, p. xiii). Regenerative agriculture cannot be understood differently if the language still frames it within the conceptual confines of industrial–productivist thinking. Metaphor awareness can help people recognise the influence of conceptual realities; and if desirable, rebuke them. This empowers individuals and organisations to opt-out of extractive narratives.

Conclusion

Industrial–productivist agriculture has contributed to the simplification and degradation of human and ecological systems. As such, agricultural transformation is essential for creating more sustainable food systems. A prominent discursive alternative to industrial–productivist agriculture is regenerative agriculture. The purpose of this paper was to illustrate thematic characteristics of regenerative agricultural discourses and identify whether these offer opportunities for transforming industrial–productivist agriculture.

Six themes have been presented that illustrate regenerative agricultural discourses. Firstly, regenerative agricultural work is conducted within nested, complex living systems. Therefore, ecological systems are encouraged to self-organise towards greater complexity, interdependence, diversity and resilience. Secondly, farms are relational; co-evolution occurs amongst humans and other landscape biota. Farmers are constantly *co-evolving* with farm ecosystems. Thirdly, the innate potential of living systems is place-sourced. Places have unique socio-ecological qualities that can be integrated with farming systems. Fourthly, openness to alternative thinking and practice is transformative. Engaging with diverse forms of knowing and being ensures that mindscapes are also regenerating. Fifthly, multiple regenerative cultures are necessary for deeply regenerative agriculture. Regenerative agriculture works to its fullest capacity if the economic, political and social systems within which it is nested, are also regenerative. Finally, regenerative approaches depart from industrialism to varying degrees. Regenerative agriculture therefore includes diverse ways of 'doing' agriculture.

It remains unclear whether regenerative discourses can shift industrial–productivist agriculture. We contribute to filling this research gap with three transformative opportunities. Firstly, regenerative discourses can be leveraged for transformative potential by creating common ground through shared storylines. Regenerative agriculture represents a growing discourse coalition that could significantly disrupt industrial–productivist agriculture if strengthened. Secondly, leveraging can occur through translocal organising; ensuring that regenerative farmers are well connected and supported. Thirdly, leveraging can occur by facilitating collective learning in an ecological context, particularly with oppositional discourses. This includes sharing personal stories of transformation using intentional language that does not cognitively support industrial–productivist ideas.

The transformative potential of regenerative agricultural discourses has only been marginally explored in the literature. This paper creates a foundation for exploring regenerative agricultural transformations through the discourse lens. Future research can build on this review in a variety of ways; but two gaps in particular offer opportunities for deeper insight. Firstly, this was an initial discourse analysis identifying key thematic characteristics of regenerative agricultural discourses. A deeper discourse analysis could go beyond themes and illustrate the specific agricultural discourses connected with regenerative narratives. This should draw on empirical work with farmers in addition to grey and academic literature on agricultural systems and narratives. Secondly, this research has identified three transformative opportunities that could be further explored through action research. These create a theoretical foundation for working with farmer networks aiming to shift industrial–productivist systems. There is also a role for designing, testing and evaluating discursive interventions for transformation with industrial–productivist farmers.

In an anthropocentric world, where agriculture contributes to the degradation of planetary systems; these findings reflect the urgent need for shifting industrial–productivist discourses. As a possible alternative, regenerative agriculture offers some promising transformative opportunities. Regardless of whether these are realised, new agricultural landscapes and mindscapes are required that embody deeply restorative discourses.

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Chapter three: sharing a potentially transformative storyline between nine discourses

This chapter is published in *Sustainability Science.* Whilst the literature review identified discursive themes in regenerative agriculture, this chapter builds on that by going deeper into the nuance of the discourse. It paints a more detailed picture of the discursive landscape in regenerative agriculture. The chapter addresses research questions three, four and five.

- What tensions are apparent in regenerative agriculture that point to boundaries between underlying discourses?
- What discourses contribute to the emerging discourse of regenerative agriculture?
- What shared storylines are emerging that could support transformative discourse coalitions?

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ORIGINAL ARTICLE

Regenerative agriculture: a potentially transformative storyline shared by nine discourses

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Abstract
Modern agriculture is underpinned by a colonial, industrial and productivist discourse. Agricultural practices inspired by this discourse have fed billions but degraded socio-ecological systems. Regenerative agriculture (RA) is a prominent alternative seeking to transform food production and repair ecosystems. This paper proposes that RA discourse is supported by a shared storyline binding diverse actors and discourses together—a discourse coalition. Consequently, multiple discourses contribute to the over-arching discourse of RA. A discourse analysis was conducted on texts from ninety-six organisations and complimented by twenty-two interviews in Australia and the USA. This analysis identified nine discourses contributing to RA discourse: Restoration for Profit; Big Picture Holism; Regenerative Organic; Regrarian Permaculture; Regenerative Cultures; Deep Holism; First Nations; Agroecology and Food Sovereignty; and Subtle Energies. This paper describes and examines these component discourses and discusses tensions that may make RA vulnerable to co-optation and greenwashing, diluting its transformative potential.

Keywords Regenerative agriculture · Discourse · Transformations · Discourse coalitions · Regenerative storylines

Introduction: transformation and regenerative agriculture (RA)

Modern agriculture has reshaped landscapes to maximise profit and production (Gliessman 2007; Lawrence et al. 2013; McKeon 2015). It is an extractivist activity that unsustainably draws on human, material and natural capital to increase yields (Anderson and Rivera-Ferre 2021). These yields rely on fossil fuel inputs, artificial fertilisers, pesticides and herbicides supplied by multi-national corporations (Horrigan et al. 2002; Kimbrell 2002). Modern agriculture values agricultural expansion, which continues the displacement of First Nations people and the annihilation of ecosystems (Levers et al. 2021). This expansion is encouraged by neoliberal economic storylines (Clapp and Moseley 2020; Lawrence et al. 2013), which are staunchly committed to economic growth, leading to overconsumption and exploitation (Riedy 2020). Modern agriculture is contributing significantly to the vulnerability of food systems (Clapp and Moseley 2020) and the degradation of earth systems (Campbell et al. 2017; Rockstrom et al. 2009). Consequently, transformation is needed to prevent these systems breaking down (Leventon et al. 2021).

For the purposes of this paper, transformation is defined as a radical shift in shared socio-cultural structures, as well as technological, economic and ecological processes (Linnér and Wibeck 2020). Adherents to modern agriculture have attempted to invalidate the transformative potential of alternative agricultural models by downplaying their performance regarding yield, economic viability and capacity to address climate change (Ahmed et al. 2021). One such alternative is regenerative agriculture (RA), which has nevertheless seen a radical increase in popularity amongst farmers (Gosnell et al. 2019), celebrities (Kiss-the-Ground 2021) and corporations (Gordon et al. 2022). RA integrates different farming approaches (Duncan 2015) to restore and realise the potential of damaged landscapes (Francis and Harwood 1985; Massy 2013, 2017; Wahl 2016).

Given that RA integrates diverse practices and is informed by distinct bodies of literature (O'Donoghue et al. 2022),

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we anticipated that its discursive origins would be similarly diverse. As Gordon et al. (2022) point out, the transformative potential of RA discourses has only been marginally explored in the literature: foremost by Massy (2013) and Page and Witt (2022). This paper brings further clarity into this knowledge gap by identifying discursive contributions to the broader discourse of RA. It examines these component discourses and discusses tensions that may dilute RA's transformative potential. First, we introduce discourse coalitions as a conceptual framework and outline our methods. Two sets of findings are presented: (1) four tensions in RA; (2) nine discourses contributing to RA discourse. Finally, the discussion positions these findings within the broader literature and explores implications for transformation.

Discourse coalitions as a conceptual framework

Discourses are shared social practices or ways of speaking (Fairclough 1989) that draw on dynamic configurations of meanings, phrases, assumptions and storylines (Dryzek 2013; Hajer 1995; Riedy 2020). To make sense of how discourses influence RA, we draw on the related concept of discourse coalitions (Hajer 1993). A discourse coalition binds diverse actors together around shared storylines (Hajer 1995; Riedy 2020). It is "a group of actors that, in the context of an identifiable set of practices, shares the usage of a particular set of storylines over a particular period of time" (Hajer 2006, p. 70). These shared storylines are central to establishing alliances between the actors participating in diverse discourses because they create a perceived common ground (Hajer 1995), therefore, enabling communication between groups that might otherwise disagree (Edenborg 2021). The growing popularity of RA could be partly explained by the formation of a discourse coalition; yet, there has been limited work on this subject.

To understand which discourses and storylines are associated with RA, we conducted a discourse analysis. Waring (2018, p. 9) defines discourse analysis as closely reading the "use of language along with other multimodal resources for the purpose of dissecting its structures and devising its meanings." We looked for tensions in RA discourse that might point to boundaries between contributing discourses. The capacity to *think*, *act* and *communicate* is influenced by conceptual systems that are predominantly metaphoric (Lakoff and Johnson 2008). As such, we also examined metaphors as an indicator of discourse.

In addition to identifying the discourses contributing to RA discourse, we explored the transformative potential of the discourse. A discourse with many unresolved tensions may be vulnerable to co-optation and greenwashing that dilutes its transformative potential (Gordon et al. 2022). As explained by de Jong and Kimm (2017), discursive co-optation is a process whereby non-adherents to a discourse appropriate, dilute and reinterpret it for their own political purposes. The discursive concepts embedded in a movement are adopted, but their intent is subverted. Similarly, greenwashing is the act of misleading people regarding the environmental benefits of practices, products or services (de Freitas Netto et al. 2020). Some scholars argue that sustainability discourse became unable to deliver transformation in this way (Blühdorn 2017). As Riedy (2022) suggests, discursive transformation involves understanding how specific storylines and discourses are being created and performed. This paper addresses this knowledge gap for RA with three research questions:

(1) What tensions are apparent in RA that point to boundaries between underlying discourses?

(2) What discourses contribute to the emerging discourse of RA?

(3) What shared storyline for transformation might the discourse coalition form around?

Methods

We took a mixed-methods approach combining desktop research with semi-structured interviews. A discourse analysis, adapted from Fairclough (1989) and Charteris-Black (2004), was conducted on texts from ninety-six organisations talking about RA. These were predominantly located in Australia and the USA, but also Europe, Africa, Central America and India (see Fig. 1). Texts included websites, reports, blog posts, newsletters, podcasts, email correspondence and presentations associated with each organisation. The analysis underwent three phases:

(1) Textual identification: the lead author read and annotated texts actively, identifying whether words were being used metaphorically or literally.

(2) Interpretation: the lead author examined the style, framing and modality of texts, unpacking how positions were made to appear credible, plausible or rational. Identifying points of contrast helped establish where the tensions were in RA by asking: *what does this perspective stand in contrast to?* The lead author mapped how metaphors were connected to subconscious 'conceptual' metaphors. E.g. in some texts, potential was discussed as "arising" from place, or that places were "…reaching their regenerative potential" (Fullerton 2015, p. 9). This is a spatial schema: *potential = up*. It also provides further insight into the author's metaphoric construction of place: *place = the source of potential.*

(3) Social context and explanation: using evidence from phase two, the lead author articulated different social

Fig. 1 Origins of organisations

Table 1 Participant demographics

Gender	Country	Participant
She/her	Australia	3, 4, 10, 18, 19, 20, 21
She/her	USA	14
She/her	Australia, First Nations	22
He/him	Australia	1, 2, 5, 7, 11, 12, 13, 17
He/him	USA	15, 16
He/him	Australia, First Nations	6
They/them	New Zealand, First Nations	8
They/them	Australia	9

practices (ways of speaking) about RA in the texts. He re-read the texts and considered whether these categories made sense within the broader data set.

This data set was complimented by twenty-two semi-structured interviews conducted in Australia, with three from the USA (see Table 1). The goal of the interviews was to answer questions arising from the discourse analysis. They were, therefore, conducted with people most likely to shed light on particular tensions between the texts. Questions were designed around tensions and aimed to determine how texts related to practitioner experiences. Participants included farmers, consultants, trainers and community leaders in RA. Interviews were conducted by the lead author, averaging an hour in length over zoom or somewhere chosen by the participant. They were recruited via email. After each interview, the lead author created recorded reflections. These acted as analytic memos (Saldana 2009), which helped document observations on each participant's context. Interviews were transcribed and used to refine discourse analysis findings.

Findings

Tensions in RA

We identified four major tensions, the discursive origins of which suggested that a 'family' of discourses was

Table 2 Four tensions in RA

Tensions	Discourse criteria
Genealogy and holism	The discourses are differentiated through their core genealogies and associated interpretations of holism
Equity and power	The discourses are differentiated based on the extent to which they emphasise issues of equity and power in the food system
Definition	The discourses are differentiated by whether their definitions of RA are process-based, outcomes based, both or neither
Departure	The discourses are differentiated by the strength or invisibility of their connection with industrial and productivist approaches

contributing to RA discourse. These tensions became criteria for establishing the boundaries between contributing discourses (see Table 2).

Tension one: genealogy and holism

Participant 13 remarked that in the 1960/70s, agricultural alternatives had powerful leaders who clashed heavily, each with their own ideology. This created an either/or mentality between the farming approaches (Shennan et al. 2017). The literature reflects this dichotomy, e.g. permaculture (Holmgren 2007; Mollison 1988), holistic management (Savory and Butterfield 2016) and organics (Howard 1940). However, as participant 13 points out "this new generation [of regenerative farmers] draw on the different threads that are going to work for them. No longer are you in this group or that group, it's not a club, there's no coercion. It's a movement of individuals." This implies that regenerative farmers often participate in multiple discourses simultaneously.

Interpretations of holism also have different genealogies such as systems thinking (Mann et al. 2019) or pattern understanding (Mollison 1988), nested (Haggard and Mang 2016) or holarchic interpretations (Benne and Mang 2015; Wilber 2001), and some avoid holistic terminology (Becker et al. 2017; Hodbod et al. 2016; Park et al. 2017; Teague and Barnes 2017; Teague and Kreuter 2020). The Savory and Butterfield (2016) holistic decision-making framework promotes stepping back from the parts to see the whole. Meanwhile, Bortoft (1996, p. 24) argues that stepping back from the parts leads to an abstraction of the whole. He says, "authentic wholeness means that the whole is in the part; hence careful attention must be given to the parts instead of to general principles." Seeing the 'whole' of a document does not indicate its meaning. Interpreting each letter, word and sentence—informed by your cultural and political context—reveals the meaning of the document.

Tension two: equity and power

As Ahmed et al. (2021, p. 15) say, "approaches that aim to repair, regenerate, and transform our systems toward socio-ecological resilience must address the systemic issues of equity and power." Participants 8 and 9 compared RA to the gay liberation movement. Assimilationist tools that portrayed gayness and straightness as the same created a dichotomy between "good gay subjects" and "bad queer others" (Ashley 2015, p. 29). This is a form of co-optation. In RA, this could mean popular discourses overshadow the goals of smaller discourses (or bad queer others). As RA gains widespread participation, "the first people to benefit will be the most privileged; usually the whites and the able bodied" (participant 9). The risk is that "those who benefit the most from partial gains have less of an impetus to support larger collective gains that would benefit the whole of the movement" (Ashley 2015, p. 29).

Power and equity remain largely absent in RA texts. Newton et al. (2020) found that only 17% of the academic papers and 40% of the practitioner websites talked about social and community issues when defining RA. Fassler (2021) further affirmed that there was zero mention of racial parity. As Fassler (2021, p. 47) comments, "if issues related to land access, economic equity, and racial parity fall outside its purview," then what is RA really about? Romero-Briones refers to this as taking conversations up to the fence: "you'll talk about soil and carbon, but we don't want to talk about land ownership" (Fassler 2021, p. 38). This tension is heightened because some supporters of RA do not recognise the influence of Indigenous worldviews, which has led to the co-opting of Indigenous approaches (Angarova et al. 2020; Romero-Briones et al. 2020). If discussions around social and political transformation are omitted, RA "can be seen as merely a reformist approach, which leaves it susceptible to greenwashing" (Ahmed et al. 2021, p. 15).

Tension three: definition

Different groups define RA as either process-based, outcomes based, or both (Grelet et al. 2021; Newton et al. 2020). Process-based definitions focus on *how* you farm and the practices you use, whereas outcomes based definitions are unconcerned about practices so long as you are achieving the right results (Newton et al. 2020). There were clear tensions between these definitions in interviews, e.g. we will fail if we focus on processes (participant 12); focussing on outcomes is cheating (participant 15). An outcomes based approach might say that regenerative farmers should plant genetically modified seeds if those crops facilitate higher yields. A process-based approach would disagree because genetic modification raises ethical issues that are "inherently antithetical to the regenerative ethos" (Fassler 2021, p. 15).

Definitional ambiguity in RA means corporates can shape the discourse to their own ends, potentially resulting in co-optation and greenwashing (Giller et al. 2021). Many participants were concerned that 'big farmer' chemical companies were relabelling themselves and supplying products with 'regenerative' on them (participants 4, 5, 11, 13, 14, 15 and 16). Participant 13 said, "the way the farmers think won't change. It's just the product will change." Loring (2022b, p. para 11) remarks that, "corporate plans to invest in regenerative agriculture appear to be mere appropriations of agro-ecological practices, hollowed out of their potential for supporting broad societal transformation." Haslet-Marroquin says that the desire to define RA is a form of colonisation and that *not* defining it is fundamental for achieving regenerative outcomes (Loring 2022a). Definitions that reduce RA to processes and/or outcomes alone often exclude the

non-quantifiable aspects of a regenerative mindset (Seymour and Connelly 2022).

Tension four: departure

RA is advocated by multi-national companies, NGOs and civil society (Giller et al. 2021) despite coming from conflicting sides of food system debates (Giller et al. 2021; Gordon et al. 2022). Participant 11 believes this is because unlike the divisiveness of organics, RA "is not socially partisan; it's not politically partisan; and it's not economically partisan." This is why companies such as Patagonia, General Mills and Cargill can simultaneously support RA and an industrial, productivist food system (Gordon et al. 2022). For them, RA can be "layered on top of farming as it currently exists" (Fassler 2021, p. 6). However, others argue that RA requires a complete re-structuring of the food system (Fassler 2021), which cannot function regeneratively unless the surrounding "economic, political and social systems … are also regenerative" (Gordon et al. 2022, p. 9).

This indicates that groups within RA are departing from industrial and productivist approaches to differing degrees (Gordon et al. 2022). This spectrum was emphasised by participant 9 who said that RA is a stepping-stone between Western and Indigenous ontologies. As a group departs, knowledge about how and why to regenerate is increasingly framed through the lens of relationality instead of productivity (participants 2, 4, 6, 7, 8, 9, 10, 12, 17, 19, 20 and 22). The 'biotic community' (Leopold 1949) is sometimes discussed metaphorically to suggest, "that humans belong to this greater community; humans are not 'outside' or 'other' to the natural world" (Sanford 2011, p. 292). Participant 2 referred to this as humans existing in the *web of life*. The terms regenerative and ecological are sometimes used together because the latter emphasises the relationship between living beings and their environment, e.g. "an ecological agriculture that is regenerative" (IEA 2022, p. para 3). *Relational agriculture* is also a term that has been explored (Leslie et al. 2019) and Seymour and Connelly (2022) refer to a more-than-human ethics of care in RA.

Discursive contributions to RA

Based on these criteria, we identified nine discourses contributing to RA. Table 3 gives an overview of these discourses and their positionality regarding the four tensions.

Restoration for Profit

This discourse focusses on restoring soils to be more productive and profitable. 33/96 organisations included in this analysis contributed to Restoration for Profit (see Fig. 2). It "appeals strongly to conventional farmers by … focusing on bottom line profits through increased soil health" (Soloviev 2019, p. para 11) and integrating methods such as no-till, conservation agriculture and carbon farming. The shift to RA is fundamentally linked with regenerating soil to be more productive. As participant 3 said, "these sharp implements that we've driven into the soil time and time again, in mono-cropping, have actually destroyed our soil base, so what was there to help us to be more productive, has now ended up making us less productive."

Carbon farming has become a powerful subset of this discourse to "save the planet by sequestering carbon in the landscape" (participant 3). As participant 5 said, "if you're building soil carbon, you're being regenerative." Adherents to other discourses would disagree with this broad, outcomes based definition, pointing out that a carbon-rich farm could still be undertaking practices that damage the environment. Nonetheless, some adherents to this discourse are hyper-focussed on carbon farming and natural capital: "you stick a value on the environment and pay someone to look after it, you've just protected the environment. It's as simple as that" (participant 3).

The profit and production orientation of this discourse makes it inviting for corporate investors, because adherents argue that "the profitability of regenerative agriculture is identical to conventional agriculture" (participant 5). It is also focussed on scalability, which aligns with goals such as Cargill's to "advance regenerative agriculture practices across 10 million acres" (Cargill 2020). This discourse does not challenge the industrial supply chain, as pointed out by participant 11, who said that transformation is isolated to the farm and people are still commodity producers: "Goodman Fielder or Cargill or someone like that might be promoting regenerative agriculture, but they're still running their corporate palaver; they're not changing. All they're doing is rebranding."

Restoration for Profit is a powerful stepping-stone for conventional farmers interested in RA; its critique of industrial agriculture is mild, and it departs the least from the mainstream. This similarity with the status-quo means that adherents accept many practices that other proponents of RA do not support. This puts the discourse at risk of co-optation and greenwashing because it can be absorbed into the rhetoric of industrial agriculture without changing behaviours, e.g. chemical companies relabelling themselves as 'regenerative' to market and perpetuate chemical use. Accusations that RA is being used for greenwashing are most often directed towards adherents to this discourse.

Table 3 Discursive contributions to RA

Discourse overview	Genealogy/holistic approach	Equity and power	Definition	Departure
Restoration for Profit: RA is restoring soil health to increase productivity and profitability, whilst also reversing climate change	Conservation agriculture, no-till and carbon farming; atomistic/reductionist science; global North	Regenerative practices can be layered over the current agricultural system; does not address issues of equity and power	Outcomes and process-based; broadacre focus	Uses greener practices to build soil carbon and increase productivity/profitability; has a mild critique of the status-quo
Big Picture Holism: RA is looking at how everything is connected on the farm to make good management decisions and enhance quality of life	Holistic/adaptive management; Savory/Smuts approach to holism; global North	Focusses on quality of life and the social wellbeing of the individual; does not address structural issues of equity and power	Outcomes based; broadacre focus	Emphasises holistic context and using tools towards that end. Unconcerned with what those tools are
Regenerative Organic: RA is building on the tenets of organic agriculture to regenerate soil health, animal welfare and social fairness	Organics; farm viewed as organism; global North	Includes issues of social fairness, focussing on keeping farmers accountable to fair work standards	Process-based; small and broadacre focus	Science predominant form of knowledge. Uses holistic rhetoric to emphasise soil health, animal welfare and social fairness; staunchly against chemical inputs
Regrarian Permaculture: RA is an approach to designing integrated farm systems that regenerate the land	Permaculture, keyline design and holistic management; systems thinking/pattern understanding approach to holism; global North	Influenced by permaculture ethics (e.g. people care); however, Regrarians do not have an ethical framework, prefer to let individuals make their own ethical decisions	Outcomes based (guided by permaculture principles); broadacre focus (with small-scale genealogical influence)	Permaculture influence means adherents recognise that agriculture needs systems change; however, predominantly focussed on broadacre land planning
Regenerative Cultures: RA is a spiritually rich and emotionally fulfilling practice at the heart of regenerative, place-based cultures	Regenerative development and design; holarchic/nested and living systems approach to holism; global North	Focussed on addressing issues of equity and power particularly beyond the farm-gate	Has a focus on systems change as opposed to reductive definitions	Pluralism is a prominent focus of the discourse; it is connected to the broader 'regeneration' movement. Moves beyond the farm-gate to challenge supply chain issues
Deep Holism: RA is a pathway for empathising with and experiencing ecosystems as inseparable from yourself	Deep ecology/ecosophy; Goethe/Bortoft approach to holism; global North	Issues of equity and power are a symptom of the root problem, which is a lack of ecological identity	Less focussed on production outcomes and processes. Is concerned with non-quantifiable aspects of an ecological mindset	Re-connects with relational ontologies in Western philosophy. Shares similarities with First Nations discourse (e.g. ecological identity) but does not explicitly advocate decolonisation
First Nations: RA is a new name for practices that First Nations people have been doing for tens of thousands of years	Indigenous foodways and worldviews (including traditional practices such as agroforestry, inter-cropping, and polycultures); kincentric approaches to holism; global North (settler colonial states) and South	Challenges RA to not just repackage practices from Indigenous cultures but also recognise their deeper worldviews	Reducing RA to an outcomes or process-based definition alone is colonial and overlooks relational ontologies	RA is a stepping-stone between Western and Indigenous ontologies because First Nations ways of being and living are so far beyond what Western colonial spaces can perceive
Agroecology and Food Sovereignty: RA is about regenerating communities and having people democratically involved in the food system	Agroecology and food Sovereignty movements; worldviews of traditional, peasant, Indigenous and small-scale farmers; originating in the global South	Has a specific theory of change around food sovereignty that challenges corporate power and advocates for democratic participation in food systems	Principles based; relies on food sovereignty definition for decision-making; small-scale focus	Complete food system transformation; removing corporate power and giving communities more ownership in local food systems; creates opportunities for horizontal knowledge sharing

Table 3 (continued)

Discourse overview	Genealogy/holistic approach	Equity and power	Definition	Departure
Subtle Energies: RA is a practice that works with the invisible or non-material dimensions of farming systems to connect with the intelligence of nature and restore energy imbalances	Subtle Energies (using intuition, dowsing, kinesiology) and European animistic traditions; linked to Steiner, Goethe and biodynamics; quantum approach to holism; global North	Not directly concerned with issues of equity and power; focussed on non-material dimensions of farming systems	Process-based; Subtle Energies considered 'tool' to achieve outcomes in Restoration for Profit and Big Picture Holism; small and broadacre focus	This is one of the most marginalised discourses; the status-quo would consider it 'mystical' or 'esoteric'

Big Picture Holism

This discourse is typified by holistic management, which is a decision-making framework used predominantly by regenerative graziers and developed by Savory and Butterfield (2016). 19/96 organisations included in this analysis contributed to Big Picture Holism (see Fig. 2). The holism of Smuts (1973) is core to this discourse and finds form in the Savory and Butterfield (2016) holistic decision-making framework. Participant 12 said, "when it comes to complex dynamics, like the social and environmental, we're trying to simplify things by focussing on one thing at a time. As soon as you do that, you lose sight of the *big picture*. Holistic management gets you to look and see that everything is connected. All living things: environment, soils, the business." This is a 'big picture' approach to holism that goes "away from the part to get an overview" (Bortoft 1996, p. 25).

The social wellbeing of the farmer is integral for discourse adherents, which hope to move "farmers away from just looking at production, production, production. It's about the environment, and it's about people" (participant 12). However, this manifests on an individual level; the rhetoric does not generally extend to broader issues of equity and power. Instead, it is about getting people to understand those "feelings and values that *they* hold" (participant 12). To do this, adherents create a 'holistic context' (Savory 2012). This is a personal vision that considers the 'big picture' and is based on the feelings and values of adherents.

A farmer's holistic context is the ultimate outcome in this discourse. The Savory Institute's 'Land to Market Ecological Outcomes Verification System' is an outcomes based program for ecological monitoring that requires a positive trend line for ecosystem improvements. Adherents to this discourse prioritise outcomes and are willing to use diverse 'tools' to get there. E.g. "there's a need to be careful about how we use tillage, but it's a tool like anything else. Fertiliser is a tool. All these things are tools. It's the misuse of tools that get us into trouble, not the tool itself" (participant 5). Adherents to this discourse think about which tools are going to work best for them in the pursuit of their holistic context. Participant 12 said, "the processes that people are coming up with, they're all fantastic. There's no good or bad, even chemicals—they're not good or bad. It's how we use them, how we manage them. And we can't manage without context. If we just focus on processes, we will fail."

Regenerative Organic

This discourse extends the tenets of organic agriculture, e.g. cover cropping, crop rotation and composting (Rodale 2019). It uses these as a foundation and expands to include practices that actively regenerate soils, and address issues of social fairness and animal welfare. 19/96 organisations

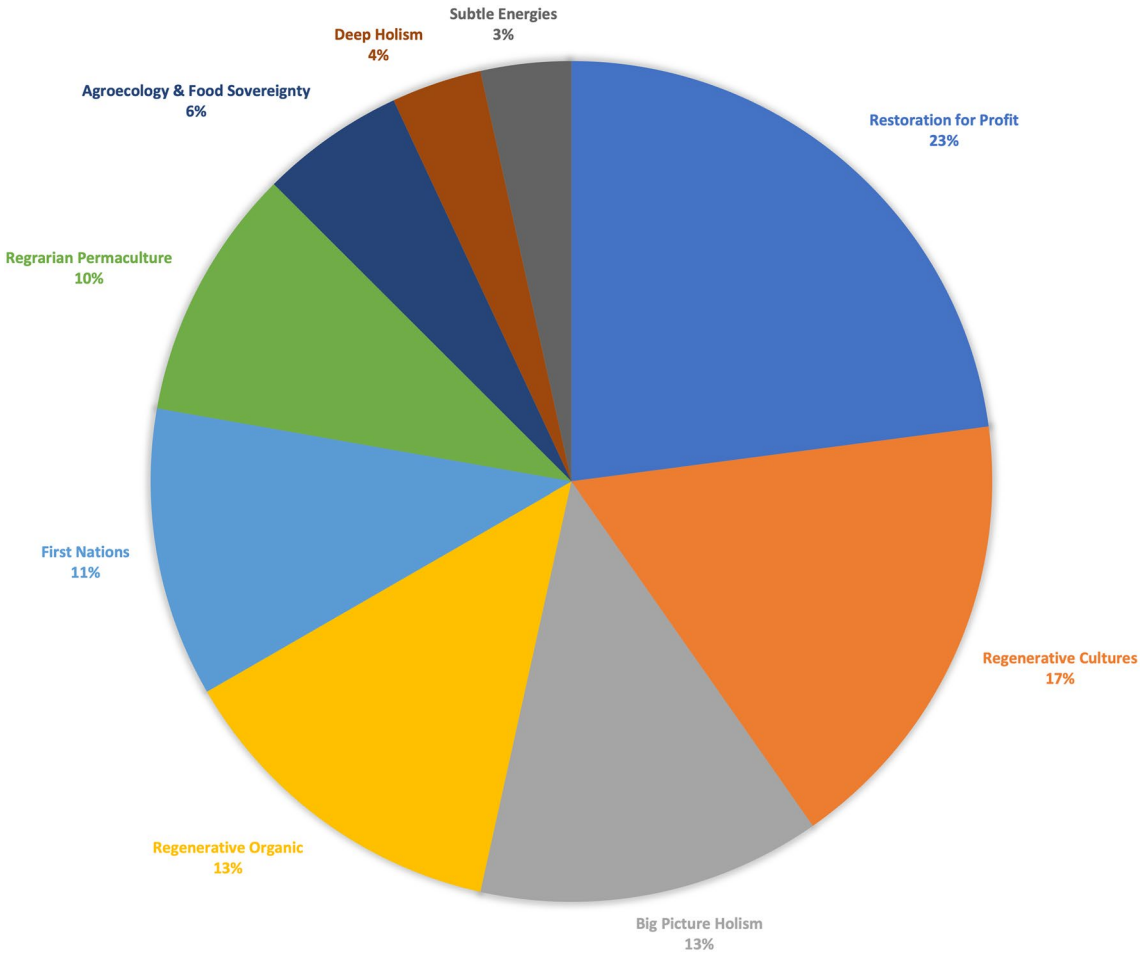

Fig. 2 Discourses contributing to RA

included in this analysis contributed to Regenerative Organic (see Fig. 2). Participant 15 said, "organic isn't enough—you don't have to plant cover crops to be organic. But you have to plant cover crops to be regenerative. You don't have to graze animals to be organic, but you have to graze them if you want to regenerate the soil."

This discourse is promoted by the Regenerative Organic Alliance and its Regenerative Organic Certification (ROC), supported by the Rodale Institute and Patagonia. In this discourse, the term *regenerative* was coined by Robert Rodale, whom with his daughter Maria articulated the *seven tendencies towards regeneration* (Rodale and Rodale 1989). RA has come to be clearly defined through the ROC and "applies specifically to measures of soil health, animal welfare and social fairness" (Rodale 2019).

Adherents to this discourse do not use chemical or synthetic inputs; participant 16 said this was a universal principle, "if we get chemicals out of the system, we free up the soil's innate ability to improve and regenerate itself." Social fairness is also an important part of the discourse, which seeks "fair payments and living wages for farmers and farmworkers, safe working conditions, capacity building and freedom of association" (Rodale 2019). As reflected in the ROC standard, this discourse is process-based: "you can build a standard based on outcomes; but the reality is, you have then built a standard on cheating" (participant 15). They said, "one of the by-products of old coal mines is coal dust. It contaminates waterways, clogs fish's gills and all sorts of things; it's a pollutant. But if I take coal dust, and I spread it on my land, I can change my carbon tremendously, while I'm actually polluting the soil." Discourse adherents disagree with outcomes based verification standards like the Savory Institute's Land to Market: "we don't think it's enough. They don't talk about chemicals in the system, and they don't talk about social justice. We think you need more of a complete package if you truly want to say you're regenerative" (participant 15).

Participant 16 said, "all these big companies have started to pick up the word regenerative agriculture to market themselves. If everyone is using the word, and everyone is defining the word differently, then it's becoming meaningless. That's why the Rodale Institute works very hard to promote

the idea of *regenerative organic*." This discourse differentiates itself from the ambiguity of RA. This differentiation is discursively critical, "is it regenerative agriculture or regenerative organic agriculture?" (participant 14). The rise of this discourse coincided with *Organic 3.0* (Leu 2020), which envisions organics moving back towards its founding principles (Arbenz et al. 2017).

Regrarian Permaculture

This discourse introduces the systems thinking and design principles of permaculture (Holmgren 2007) to broadacre farming. 14/96 organisations included in this analysis contributed to Regrarian Permaculture (see Fig. 2). As participant 10 remarked, "permaculture is particularly good on kitchen gardens, orchards, food forests; it is very weak on agriculture." The discourse is championed by the *Regrarians* (Doherty and Jeeves 2016; Regrarians 2021), which is a neologism of 'regenerative agrarian' (Regrarians 2021). The Regrarians are a consultancy and farmer network that introduced permaculture to broadacre farming by integrating it with holistic management and keyline design (Soloviev 2019).

The integration of holistic management and permaculture is unique to adherents of this discourse; typically, these approaches operate on different scales. However, participant 11 said, "holistic management is really strong on developing a holistic context, really strong on grazing planning, shit on land planning though. Permaculture is quite good on land planning, good on its principal set; but pretty bad when it comes to broadacre stuff." As such, farmers can have the benefit of permaculture's land planning combined with holistic management's broadacre (and particularly grazing) expertise. Whilst this discourse also uses the holistic context, similarly to Big Picture Holism, its understanding of holism predominantly comes from systems thinking.

The work of the Regrarians is outcomes based, with clear regenerative outcomes listed on their website (Regrarians 2021). Participant 11 emphasised that the Regrarian approach was akin to the Savory Institute, "looking more at outcomes—have I increased landscape function, ecological value, biodiversity?" They remarked that RA "is sort of like permaculture; it's a goal." Participant 10 also took an outcome-based approach saying, "I see everything in terms of restoration—restoring the things that make life possible: air, water, soil, biodiversity."

Participant 11 said the Regrarians have not adopted permaculture's ethics because people can bring their own ethics to the work. Nonetheless, these ethics were referenced by other participants. Participant 9 felt that using permaculture without the ethics subverted the core intent of permaculture. They said, "if we don't have 'people care' in this system, is it truly regenerative?" There is a tension in this discourse between the ideology of permaculture and the practicality of Regrarian Permaculture. Participant 10 summed this up neatly with the question: "are we just regenerating the land or are we regenerating agriculture?" Adherents to Regrarian Permaculture are focussed on land regeneration and do not typically address issues beyond the farm-gate.

Regenerative Cultures

This discourse moves beyond the farm-gate to challenge supply chain issues and has emerged predominantly from regenerative development: a practice that seeks to align human activities with the continuing evolution of living systems (Benne and Mang 2015; Haggard and Mang 2016; Mang and Reed 2012; Muller 2020). 25/96 organisations included in this analysis contributed to Regenerative Cultures (see Fig. 2). The consultancy Terra Genesis has been fundamental in bringing this approach into an agricultural context (Soloviev and Landua 2016).

Unlike others, this discourse is closely aligned with the rhetoric of the broader regeneration movement—epitomised in Hawken (2021). It has had a lot of interest from multinational non-government organisations, such as the World Wildlife Fund (WWF 2022). RA is considered a pathway for shifting towards a "culture of regeneration" (participant 9). Adherents to this discourse believe that "deeply regenerative agriculture can exist only if it is completely interwoven into a thriving regenerative culture" (Soloviev and Landua 2016, p. 13).

Participant 8 remarked, "we really love regenerative agriculture because of how it's not only changing the practice of farming, but the practice of how we engage regeneratively in the economy and trade and radically shifting how power and land is viewed within the agricultural industry." This discourse is not just talking about regenerating land, but shifting supply chains by creating *regenerative producer webs* (Soloviev and Landua 2016). These move the focus beyond "regenerative agriculture to regenerative culture. So, it has to be the growing of food, it has to be the relationships with the people on the farm, it has to be their relationship to the people who transport the food, it has to be the relationship to the people who sell the food. And if at any point that gets co-opted by capitalism, or colonisation, that's not a regenerative system. It has regenerative parts, but it's not regenerative" (participant 8).

Regenerative Cultures emerge from the context of bioregions (Wahl 2016) and include "songs, stories, myths, rituals, foods, ceremonies and music that transform agriculture from a functional economic activity to a spiritually rich and emotionally fulfilling central heart of an agricultural community" (Soloviev and Landua 2016, p. 14). The transformation of the supply chain is critical to this. Participant 8 posed the question "what does it take to have regenerative

consumers? Once we've gotten to that point, we really start to step into the space of an actual regenerative food system culture."

Working regeneratively requires discerning the potential of a place, based on its essence (Mang and Reed 2012). This is "the true nature or distinct character that makes something what it is" (Haggard and Mang 2016, p. 48). Such work often involves addressing the colonialism, extraction and degradation experienced by First Nations people. As Brewer (2019, p. 4) says, "to learn about regeneration of landscapes is to find atonement for the loss … a great Truth-and-Reconciliation is needed in each little piece of land."

Deep Holism

This discourse emerges from deep ecology (Naess 1988, 1989). 5/96 organisations included in this analysis contributed to Deep Holism (see Fig. 2). *Deep* refers to an embedded way of experiencing nature, compared to a flat experience that observes nature from the outside (Valera 2018). It also refers to the view of holism as outlined by Bortoft (1996) and Goethean Science (Wahl 2005), which goes deep into the parts to see the whole, rather than looking at the 'big picture.' Bortoft (1996, p. 22) explains that "the universal is seen within the particular, so that the particular instance is seen as a living manifestation of the universal." Adherents believe Big Picture Holism uses analytical consciousness to see all the parts together—viewing the *totality* but not the *whole* (Cochrane 2019).

Discourse adherents participate in a broadening or widening of personal identity, which invites the ecological community into a person's sense of self. As such, "the self to be realised extends further and further beyond the separate ego and includes more and more of the phenomenal world" (Naess 1988). As participant 17 said, "ecological identity is the experience that the social identity that we've all grown up to identify with is merely the flimsiest film on top of our larger identity, which stretches back to the beginning of everything, and relates us to everything." This is called the *ecological self* (Naess 1988).

Participant 7 referred to ecological identity as "an indivisible connection with your whole environment, which is cognitive, it's emotional, it's deep psychological, it's probably stuff we're not even aware of; it's in our ancient brain." He adds that it is "not just a paradigm; it's a complex, social-environmental interaction that's like a universe." This opens adherents up to the idea of Gaia, that earth is a self-regulating system made up of the interactions between organisms and their inorganic environments (Lovelock 2016). Participant 19 said that spirituality and ecological practice should be combined and that this is the "real issue for integrating ecology with self." Participant 2 felt connected to their environment through deep time saying, "the piece of corn I can see in the distance, that's a living organism and so am I, so we have a connection in history."

This perspective is supported by the use of second person pronouns (you, your, yours, yourself/yourselves) to connect with nature. The second person perspective creates "the capacity to have an I/thou or 'we' relationship with someone or something" (Cochrane 2021, p. 113). In this discourse, there is no completely isolatable 'I' and adherents experience themselves as a genuine part of all life—the 'thou' (Valera 2018). If people can "express their second person relationship with the world … it strengthens the bond between them and the environment, rather than looking at something, they're actually taking that something inside themselves and putting it into their imagination" (participant 2). This differs from the dominant I/it attitude towards nature (Buber 1970; Kramer and Gawlick 2003). Despite similarities with First Nations perspectives, this discourse does not necessarily prioritise decolonisation processes.

First Nations

First Nations people have been practising *regenerative* forms of land custodianship for tens of thousands of years (Ahmed et al. 2021; Hawken 2021). 16/96 organisations included in this analysis contributed to First Nations discourse (see Fig. 2). This history has gone predominantly unrecognised in RA because all the discourses presented thus far have an ethnocentric bias, originating in the colonial global North. However, First Nations people challenge RA to not just repackage practices from their cultures but also recognise their deeper worldviews: "inspiring a consciousness shift that hopefully will support us to go from a dominant culture of supremacy and domination to one founded on reciprocity, respect, and interrelations with all beings" (Angarova et al. 2020).

First Nations people view themselves as relations in an extended ecological family: "the whole of the universe is family to Aboriginal people. I practice that every day, it's fundamental to who I am. My relationship with the earth is as if she were a family member and I'm enjoying her wisdom but bending my back for her care" (participant 6). Unlike English, First Nations languages structurally support relational ontologies. E.g. in English 30% of the words are verbs, whereas for Potawatomi, the proportion is 70% (Kimmerer 2013). In Potawatomi a bay, or a day, a hill or a colour—these can all be understood as verbs, instead of nouns. This animates the world—if a bay is a *doing* word, rather than an inanimate *thing*, it is imbued with livingness. Yunkaporta (2019) writes in the dual first person, which he translates as *us-two*, as such expanding the first person to take in another—similarly to Deep Holism. Kimmerer (2013) critiques the lack of pronouns for non-human beings

in English. She proposes the pronoun ki (or kin), inspired by Bemaadiziiaaki, the Anishinaabe word for 'beings of the living Earth' (Kimmerer 2015).

More-than-human kinship is an important aspect of First Nations discourse (participant 22) and is embedded in cultural practices (Salmon 2000). As participant 6 demonstrated, "I do a greeting to the sun every morning and it reminds me of, not just who I am, but what my responsibilities are. And if you do that every day, you start the day reminding yourself that you are responsible for the dignity of the earth." Participant 9 referred to RA as a stepping-stone between Western and Indigenous ontologies: "when we come from this anthropocentric, Western colonial view, we need stepping-stones because First Nations ways of being and living are so, so far beyond what Western colonial spaces can really perceive." If we look at how far each discourse is departing from the status-quo, we see a scale that moves between two different ontological perspectives. RA "is part of an iteration of where we need to go, it's not fully formed in the fact that it can't be fully formed" (participant 8).

Agroecology and Food Sovereignty

Agroecology has a unique influence on RA because of its connection with the global South (Rivera Ferre 2018) where peasant farmers challenged industrial agriculture and the Green Revolution (Catacora-Vargas et al. 2017). 8/96 organisations included in this analysis contributed to Agroecology and Food Sovereignty (see Fig. 2). Despite their similarities, agroecology is critical of RA for being apolitical (Tittonell et al. 2022). Jonas (2021, p. 7) remarks that RA "has not developed a theory of change for an economic or social transformation and is growing a new generation of 'experts' and gurus who profit from teaching the 'how' rather than the 'what' or 'why.'" This leaves RA open to "corporate capture" (Jonas 2021, p. 1).

As such, this discourse has a specific theory of change and political structure around food sovereignty (IPC 2015), which directly challenges the dominance of corporate power in the food system (Chaifetz and Jagger 2014). This is why agroecology resisted co-optation by agri-food companies when it was endorsed by the Food and Agriculture Organisation (de Molina et al. 2019). Participant 4 remarked that, "because I think more into the agroecology space too, regenerative agriculture is about regenerating communities and democratic participation in the food system. A regenerative food system would have people deeply and democratically involved in it." Democratic participation through frameworks such as *Community Supported Agriculture* is what prevents the corporatisation of agroecology.

Soul Fire Farm has particularly influenced RA by challenging food apartheid and the structural injustice of white, industrially produced food (Hughes et al. 2020; Penniman 2018; Soul-Fire-Farm 2018). This is "an Afro-Indigenous centred community farm committed to uprooting racism and seeding sovereignty in the food system" (Soul-Fire-Farm 2022). African American communities have had a rich agricultural history, which influenced the emergence of RA through George Washington Carver (Hawken 2021; White 2018). These communities focussed on developing democratic, collective and collaborative models to create self-sufficiency during a time when they were denied voting rights (White 2018). Growing food became an act of resistance in this way (White 2018). Some regenerative farmers in the USA showed solidarity with the Black Lives Matter protests, emphasising that, "agriculture cannot be regenerative without racial equity" (Quivira-Coalition 2021).

Subtle Energies

This discourse recognises an invisible or non-material dimension in farming systems (Wright 2021). Wright (2021, p. xxix) explains this as "involving vibrational energy, consciousness, ether, sentience/intelligence and/or electromagnetic or sound waves/frequencies." 5/96 organisations included in this analysis contributed to Subtle Energies (see Fig. 2). There is a lineage of animism in this discourse, a belief that "the natural world is 'inspirited'—that is, inhabited by nature spirits" (Massy 2021, p. 306). Participant 14 said, "I've had conversations with plants and animals in my journeys that lead me to believe that everything is conscious, even the rocks are conscious." It was not until participant 14 started studying shamanism that they understood how nature was trying to communicate with them.

This discourse conflates Subtle Energies with quantum physics to explain RA. Participant 5 said, "the subtle energy and the quantum physics side of agriculture is one of the large areas that will expand and is expanding now. In my experience regen ag doesn't work well if it doesn't have the subtle energy side of it." Subtle Energies focus on the "frequencies which cannot be measured by conventional instrumentation but which can affect organisms at a cellular level" (RCS 2021, p. para 7). Adherents use intuition, dowsing and kinesiology to connect with the "intelligence of nature" (MacManaway 2020, p. 2) and correct energy imbalances. Participant 5 said, "quantum agriculture is the new one coming."

Quantum agriculture draws on the biodynamic work of Lovel (2015). Biodynamics is based on Steiner (1993, 2005) and "works with the planets and the cosmic forces of the constellations as a scientific process" (participant 13). For participant 13, "biodynamics is part of the regen ag movement." Quantum agriculture goes beyond biodynamics and practices an intuitive farming, where "a message is received from another organism, intuition arises within the human

body, particularly the heart, arising as a 'knowing' without knowing how one knows" (Wright et al. 2017, p. 109). The quantum perspective is used to explain such phenomena because "there's no separation; everything is joined, linked, the same. When you're looking at regeneration, you've got to do it from that perspective" (participant 5).

Quantum Leap workshops hosted by Resource Consulting Services suggest that "sunlight and rainfall are natural and free assets in your production system to be managed and profited from. With the right knowledge and techniques quantum physics is another natural and free asset from which your business can benefit" (MacManaway 2020, p. 2). As such, quantum physics/subtle energy is an asset that can improve profitability, which plays into the rhetoric of Restoration for Profit. Some regenerative farmers avoid mentioning Subtle Energies for fear the discourse will seem unscientific and undermine the RA movement (participant 3).

Table 3 gives an overview of the nine discourses and their positionality regarding the four tensions. Figure 2 shows the number of organisations in this study contributing to each discourse.

Discussion

The findings explicitly address the first two research questions by exploring the tensions and discourses contributing to the emerging discourse of RA. This discussion aims to position these findings in the literature by exploring the third question: what shared storyline for transformation might the discourse coalition form around?

RA as a potentially transformative storyline

Loring (2022c) introduces four archetypal food system regimes reflecting different storylines around which discourses can organise. *Degenerative* systems eat down diverse resources; *regenerative* systems sustain diverse resources; *impoverished* systems have little to no resources; and *coerced* systems maintain a few highly valued resources. Widespread participation in RA as opposed to systems that are degenerative, impoverished or coerced requires bringing people into the discourse without compromising it to the extent that others leave (Hajer 1993). This means looking for common ground across the nine discourses (Gordon et al. 2022) and finding shared storylines that enable transformations.

As is demonstrated by the four tensions and the lack of a shared definition (Newton et al. 2020), the meaning of RA is ill-structured, vague and malleable. This is because the nine discourses influencing RA have interacted and co-created a storyline that has interpretive flexibility. As Gordon et al. (2022, p. 11) say, "there is enough common ground in regenerative agriculture to feel included in the community, but also enough space for interpreting it in your own way." This is an essential trait for a discourse coalition approach, which assumes that "the political power of a text … comes from its multi-interpretability" (Hajer 1995, p. 61). The diversity of these discourses speaks directly to the multi-interpretability of RA *as a storyline*.

The RA storyline broadly goes *let's work with nature to restore, revive and renew our environments*. Since it has multi-interpretability, this storyline shape-shifts and expands depending on the discursive lens. The reasons for regenerating could be desertification (Big Picture Holism), climate change and better productivity (Restoration for Profit) or ecological identity (Deep Holism). It may mean no chemicals (Regenerative Organic) or working with energy imbalances (Subtle Energies). Regenerating social and cultural environments might be a priority (Agroecology and Food Sovereignty, First Nations, Regenerative Cultures); for others, it is ecological regeneration (Restoration for Profit; Regrarian Permaculture). This storyline is sometimes imbued with a holistic (Deep Holism, Big Picture Holism) or systems thinking perspective (Regrarian Permaculture). In other cases, it is not (Restoration for Profit). As is evident across the discourses, people are not necessarily talking about the same thing when drawing on this storyline.

However, the discourse coalition obscures disagreements and creates "the appearance of discursive unity, *as if* everyone were talking about the same thing" (Edenborg 2021, p. 2). This means that consensus on the meaning of RA is not required for coordinated action because individuals can act together whilst retaining their own interpretations (Gordon et al. 2022). In this way, RA bridges conflicting perspectives, which is a powerful "starting point for political action" (Edenborg 2021, p. 2). Whilst this creates opportunities for widespread participation in RA, it is also an invitation to more powerful actors—such as multi-national corporations—to try and shape the storyline in ways that suit their interests. This raises questions as to whether power dynamics and equity discourses are sidelined in 'mainstream' RA, thus sharpening the risk of transformations perpetuating the status-quo (Blythe et al. 2018).

The risk of co-optation and greenwashing to the transformative potential of RA

Powerful actors can dilute the transformative potential of RA through co-optation and greenwashing (Giller et al. 2021). This dilution occurs because the more radical changes such as food democracy (Agroecology and Food Sovereignty); ecological identity (Deep Holism) or Indigenous sovereignty (First Nations) do not get taken up. These actors attain this discursive power by creating principles and/or definitions (Mills 2020) that overshadow the contributions of minority

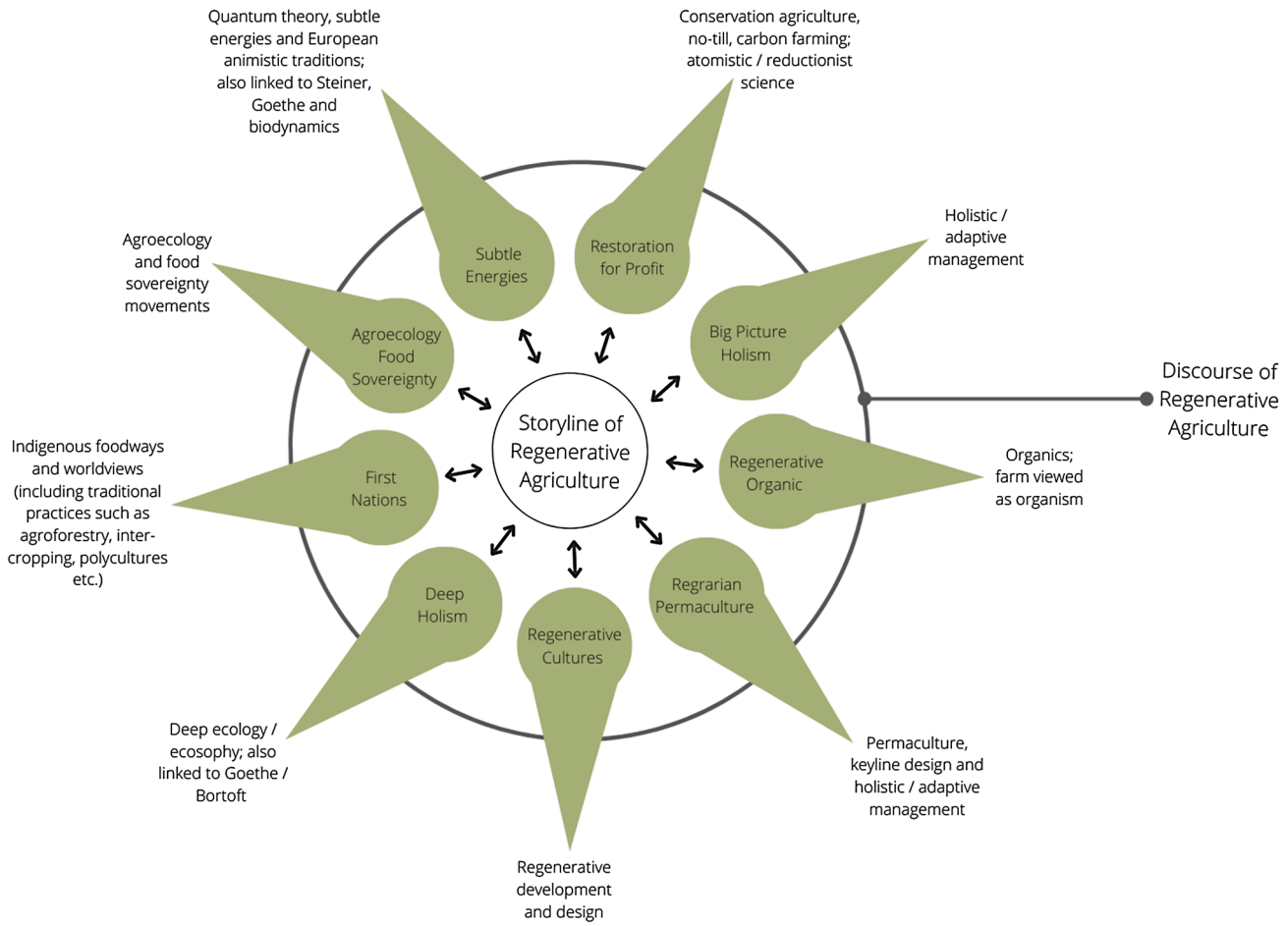

Fig. 3 RA discourse

discourses (First Nations, Deep Holism and Subtle Energies) or assimilate RA with the expectations of industrialism and productivism (Restoration for Profit). Tensions two, three and four reflect this process, which can lead to a splintering of the discourse coalition and a decline in the discursive power of RA amongst farmers.

For RA to achieve widespread participation, central actors in farming communities, corporations, supply chains and governments will need to be "persuaded by, or forced to accept, the rhetorical power of a new discourse" (Hajer 1993, p. 48). We will likely see increased *institutionalisation* where the ideas of the storyline are reflected in institutional practices (Hajer 1993). Zero Budget Natural Farming (ZBNF) in India similarly started as a grassroots movement that motivated its members through discourse and other means (Bharucha et al. 2020; Khadse et al. 2017). It became institutionalised when the state of Andhra Pradesh developed public policies to scale ZBNF. However, there remains concern that external funding for these policies may threaten the movement's original value of autonomy from capital (Khadse and Rosset 2019).

Institutionalisation can easily privilege the quantifiable aspects of RA, e.g. definitions that reduce RA to processes (Regenerative Organic) or outcomes (Big Picture Holism). For RA to be transformative without being greenwashed or co-opted, institutions need to integrate diverse forms of knowledge (Seymour 2021); e.g. taking the non-quantifiable approaches of Deep Holism, First Nations and Subtle Energies seriously. Otherwise, the risk is that institutionalisation will be achieved by shedding the more transformative discursive elements. This would force some component discourses out of the coalition. To realise transformative potential, "we need institutions and discourses which are capable of learning" (Dryzek 2013, p. 234), e.g. via horizontal farmer-to-farmer exchanges (Anderson et al. 2019) that let them commune at the edges of their discourse and share dialogue.

The institutionalisation of ZBNF supported similar horizontal learning processes (Khadse and Rosset 2019). Fortunately, dialogic spaces are emerging between discourses in RA, e.g. communities of practice sharing standards for quality of work (IEA 2022). This is promising because as Dryzek (2013) demonstrates, other environmental discourses have impeded their own learning, particularly when

over-confident in the correctness of their interpretations. There are different opportunities for transformation through each discourse: e.g. Restoration for Profit is more accessible to conventional farmers; First Nations leads decolonisation processes. As such, the transformative potential of RA could be realised through its multi-interpretability. This makes coordinated action between very different actors possible and increases the chances of widespread participation in RA. Figure 3 visualises RA discourse and its contributors.

Conclusion

This paper presented evidence that RA is an attempt to build a more encompassing discourse through an alliance of smaller discourses—a discourse coalition. We explored four tensions in RA (see Table 2) that were used as criteria for differentiating between nine discourses (see Table 3). RA is in part a storyline that is interpreted differently by these nine discourses. This multi-interpretability gives RA its transformative potential because it creates the appearance of discursive unity—that everyone is talking about the same thing. If the discourse coalition can remain intact, this makes coordinated action between very different actors possible and increases the chances of widespread participation in RA.

Future research can explore how high levels of discursive interest are translating into institutional change. This includes the relationship between discursive power and actors such as multi-national companies, not-for-profits and governments. It can also explore opportunities to create dialogue between the discourses, and what impact this has for transformation—in this way, the discursive model could function as a conceptual framework. The discourse coalition approach demonstrates that RA is full of nuance and allows researchers to hold that complexity without resorting to an over-simplified and restrictive definition.

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Declarations

Conflict of interest The authors declared that they have no conflict of interest.

Ethical approval Ethics approval was obtained for this study—UTS HREC REF NO. ETH22-7029.

Consent to participate Participants in the research signed a consent form and agreed to the conversation being published as part of this study.

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Chapter four: discursive mindscapes in regenerative agriculture

"We always hear that humans are a storytelling species, and we need new stories sometimes. I feel like this is so true. When we're trying to shift towards a new way of being in the world, we do need new stories to help us make sense of it" (participant 21).

This chapter explores more deeply the storying of regenerative agriculture. It is an extended description of each of the discourses, with illustrations, using more of my empirical data. Due to word count, these full descriptions could not fit in chapter three because it was written for submission to *Sustainability Science.* However, all participant voices in this chapter are from the same data set as chapter three. This chapter addresses question four:

- What discourses contribute to the emerging discourse of regenerative agriculture?

Research as artistic practice

The chapter also utilises illustration as a method for further interpreting and understanding the nine discourses. I partnered with artist Hannah Cox from *Nanny Potts Illustration* to illustrate each of the discourses. This was an opportunity to pause and reflect in a less 'academic' setting. It was a hybrid process of research through/as practice (Hope, 2016).

Research through practice involves examining a question through the practice of making and doing (Frayling, 1994). In this sense, the practice of illustrating the discourses. However, this was also a process of *research for (as) practice*. In this sense, the artistic practice itself is also the research outcome. The collaborative processes and thinking of Hannah and I are embodied in the illustrations, these are the final outcomes of the research through/as practice. Hope (2016, p. 82) says, "in researching through practice and also for (as) practice, the artist is having to stand outside the artefact (to communicate it) and within it (to make it)."

This was a collaborative process. Hannah and I had multiple meetings, reading through my research and discussing how the findings (specifically the nine discourses) might be visually represented. Hannah was a great collaborator because she brought fresh, interpretive eyes to the findings from a different discipline. The initial purpose of this was to better communicate the distinctions between discourses. However, the process also acted as a layer of analysis. The goal of visually representing the discourses challenged us to articulate their central themes. We did this via hours of discussion, drafting different images that emphasised different discursive aspects. Hannah and I reflected on the material and more-than-human manifestation of the discourses. *Who are the more-than-human actors co-constructing the discourse?* As such, the illustrations intentionally reflect different material-discursive realities.

This process was cyclical and led to the generation of nine artworks that complement the text. I have included a short statement alongside each artwork that reflects on how the image expresses the discourse. Both artwork and statement will be displayed alongside the discourse descriptions.

Restoration for Profit

Regenerative agriculture is restoring soil health to increase productivity and profitability, whilst also reversing climate change.

Artwork 1: Restoration for Profit is focused on soil health to increase productivity and profitability. In this artwork, we see a healthy, bio-diverse soil ecosystem

Genealogy: no-till, conservation agriculture and carbon farming

Adherents to Restoration for Profit integrate approaches such as no-till, conservation agriculture and carbon farming. No-till agriculture is supported by direct-drilling technologies and emerged as an approach to cropping that better protects soil health (Lal et al., 2007; Triplett & Dick, 2008). This movement started in the 1930's when traditional tillage was causing soil loss; e.g., the dust bowl crisis (Kassam et al., 2019). From this emerged conservation agriculture, which was endorsed by FAO in 2001 (Kassam et al., 2009) and is based on three principles: minimum mechanical soil disturbance, permanent soil organic

cover, and species diversification (FAO, 2022). It relies on chemical inputs and expensive machinery to minimise soil disturbance and reduce soil carbon losses (Kassam et al., 2009).

However, conservation agriculture is limited to cropping systems (Giller et al., 2015; Whitfield et al., 2015) whereas regenerative agriculture emphasises mixed farming with the integration of livestock for carbon capture (Newton et al., 2020). This influence has come from carbon farming, which focusses on soil carbon sequestration (often using livestock) to access new financial markets and offset the emissions of governments and companies (Baumber et al., 2019; Baumber et al., 2020). This is an opportunity for increasing soil health and creating another revenue stream through enterprise stacking (Gewin, 2021). As evident, all these approaches focus on minimising soil disturbance for soil health. They still rely on the predominant paradigms of industrialism (Kimbrell, 2002), productivism (Lawrence et al., 2013) and reductionism (Jordan, 2021). These lead to a concentrated focus on the maximisation of profit and production (Gliessman, 2007). Restoration for Profit subsequently occupies a space of discursive friction, where regenerative agriculture rubs up against industrial-productivist agriculture.

The discourse influencing regenerative agriculture

The two mantras that this discourse has genealogically inherited are *soil health* and *profitable production.* In a nutshell, it focusses on restoring soils to be more productive and profitable. This includes both the chemical and biological components of soils. Restoration for Profit "appeals strongly to conventional farmers by … focusing on bottom line profits through increased soil health" (Soloviev, 2019, p. para 11). The shift to regenerative agriculture is fundamentally linked with this goal. Productivist rhetoric makes it a powerful stepping-stone discourse between industrial and regenerative approaches. For example, participant 3 said, "these sharp implements that we've driven into the soil time and time again, in mono-cropping, have actually destroyed our soil base, and we've lost topsoil from that. So, what was there to help us to be more productive, has now ended up making us less productive." This frames soil as a foundation for productivity and suggests that looking after soil means farmers can be more productive again.

The name, Restoration for Profit, is a direct reference to the Farming and Grazing for Profit School run by Resource Consulting Services (RCS) in Australia. Whilst also drawing on other discourses (Big Picture Holism and Subtle Energies), RCS is a formidable force in this discourse. They are involved with the transition to carbon farming and monitoring in Australia through CarbonLink (2022). As mentioned, carbon farming has become a powerful subset of this discourse to, "save the planet by sequestering carbon in the landscape and bringing down the greenhouse emissions" (participant 3). Moyer et al. (2020) suggest that regenerative agriculture could draw down 100% of annual CO_2 emissions if globally adopted – which is a disputed claim (Gewin, 2020). Nonetheless, the discourse cites such claims to position regenerative agriculture as part of the solution to climate change.

However, climate change mitigation is a co-benefit of healthy, carbon dense soils – not the ultimate goal of the discourse. The ultimate goal is still profitability. As participant 6 said, conventional farmers transitioning to regenerative agriculture are "often motivated by profit." Participant 5 summed up the consensus in this discourse when they said, "if you're building soil carbon, you're being regenerative." Adherents to other discourses would disagree with this broad, outcomes-based definition; pointing out that a carbon rich farm could still be undertaking practices that damage the environment. It is evident that adherents to this discourse are at risk of 'carbon tunnel vision' (Konietzko, 2022) whereby they become overly and narrowly focused on carbon emissions (or sequestration in the case of regenerative farmers).

This discourse is bound by an economic rationalism, whereby farming is a 'business,' driven by the 'bottom line,' that needs to be endlessly scaled for economic growth (Massy, 2013). It addresses climate change, soil health and all environmental issues so far as it makes sense to do so within a paradigm of production and profitability. The market is considered the best way to transform agriculture and protect the environment – e.g., through natural capital (giving environmental 'assets' economic value). Participant 3 said, "the moment you put a value on something, then all of a sudden, you protect it. So, you stick a value on the environment and pay someone to look after it. You've just protected the environment. It's as simple as that." This perspective can be frustrating for adherents to other discourses. Participant 19 recounted their experience at a regenerative agriculture conference, saying

“there’s so much lacking here … there's just no soul or heart. It's all just money. I was so frustrated that I was sitting at a conference just talking about money … the finances just seemed to be much louder than [they] should have been.” Whilst this creates tension with other discourses it also makes regenerative agriculture inviting for corporate investors.

As participant 20 said, “corporates love mechanical models because that’s how they get their bottom line. If it’s mechanical and you can get to the bottom line, well we’ll have a go! But if it’s all sort of waffly and you’ve got to do a bit of this and a bit of that, well that’s too complicated for corporates.” As such, this discourse talks about regenerative agriculture according to what is measurable and quantifiable, e.g., units of carbon sequestered or the integration of livestock. It is often responsible for practice-based definitions of regenerative agriculture such as those in Brown (2018) or Mills (2020). Other discourses would find these to be over-simplified and missing the core of the regenerative mindset; see Seymour and Connelly (2022). Adherents to Restoration for Profit argue that “the profitability of regenerative agriculture is identical to conventional agriculture” (participant 5). They also focus on the scalability of regenerative agriculture, which aligns with goals such as Cargill’s to, “advance regenerative agriculture practices across 10 million acres” (Cargill 2020b).

Adherents to this discourse do not challenge food systems ‘beyond the farm gate’ (e.g., the industrial supply chain), they are focussed on farming practices and their environmental outcomes. As participant 11 pointed out, transformation is isolated to the farm and people are still commodity producers.

> “Goodman Fielder or Cargill or someone like that might be promoting regenerative agriculture, but it's really only what happens on the farm. They're still running their corporate palaver; they're not changing. All they're doing is rebranding. And they may genuinely feel this is a good thing. It ticks the carbon box; it ticks the biodiversity box; but it's not necessarily relating to changes in behaviours in the way value chains or their corporations operate. It's business as usual.”

Restoration for Profit is a powerful stepping-stone for conventional farmers interested in regenerative agriculture; it’s critique of industrial agriculture is mild, and it departs the least

from the mainstream. This makes it very popular for investors whose, “idea of investing in regenerative agriculture is being part of an agriculture fund that buys up farmland and gets a return on investment when that farmland is sold in X amount of years. Well, that’s not regenerative, that’s just corporatisation” (participant 21). This demonstrates how easily Restoration for Profit fits into status-quo structures. It is fundamentally about layering greener practices over the agricultural system that already exists (Fassler, 2021). This means it accepts many practices (such as chemical use) that other proponents of regenerative agriculture do not support. Accusations that regenerative agriculture is being used for greenwashing are most often directed towards adherents to this discourse.

Big Picture Holism

Regenerative agriculture is looking at how everything is connected on the farm to make good management decisions that enhance quality of life.

Artwork 2: Big Picture Holism is predominantly used in grazing systems; utilising livestock as a management tool. In this artwork, we see a grazier walking with her animals through healthy pastures

Genealogy: holistic management

Big Picture Holism is typified by holistic management; which is a decision-making framework used predominantly by regenerative graziers and developed by Savory and Butterfield (2016). It is based on the holism of Smuts (1973) suggesting that "the world is not made up of substance, but flexible, changing patterns" (Savory & Butterfield, 2016, p. 24). These patterns are arranged in nested wholes.

> "Anytime we talk about interconnectedness we are implying that boundaries exist between whatever is being connected. To more accurately view the world, one has to accept that, in reality, there are no boundaries, only wholes within wholes in a variety of patterns. And to understand the world, according to Smuts, we must first seek to understand the greater whole, which has qualities and characteristics not present in any of the lesser wholes that form it" (Savory & Butterfield, 2016, p. 29).

Practitioners of holistic management believe all management decisions should be made from the perspective of the 'whole under management' – that is, the whole being managed by the farmer, which exists within (and is influenced by) greater and lesser wholes (Savory & Butterfield, 2016). It was on this premise that the holistic decision-making framework was created to help people focus on the whole when making management decisions (Gosnell, Grimm, et al., 2020). One of the factors included in this decision-making framework is a person or group's holistic context (Savory, 2012). Originally referred to as a holistic goal, this is a personal vision that considers the 'big picture' and is based on the group's feelings and values.

Whilst this framework can be used in any context, it has been most successfully applied to grazing, and the approach has gone under many names – such as cell grazing, time control grazing (Richards & Lawrence, 2009), adaptive management (Mann & Sherren, 2018) or regenerative ranching (Gosnell, Charnley, et al., 2020). A key insight came from Voisin (1988), that overgrazing was not so much connected with the number of animals, but the amount of time plants were exposed to those animals. The predator-prey relationship was also important for keeping animals moving in higher densities (Savory & Butterfield, 2016). Holistic management can be confused with rotational grazing, but the two have different practical and philosophical approaches (Richards & Lawrence, 2009). Similarly, managed grazing, as described in Hawken (2017), does not include holism (Gosnell, Charnley, et al., 2020).

The discourse influencing regenerative agriculture

As mentioned, the holism of Smuts (1973) is core to the Savory and Butterfield (2016) holistic decision-making framework. This perspective is the bedrock of Big Picture Holism. Participant 12 said, "when it comes to complex dynamics, like the social and environmental, we're trying to simplify things by focussing on one thing at a time. As soon as you do that, you lose sight of the *big picture*. Holistic management gets you to look and see that everything is connected. All living things: environment, soils, the business." This is a 'big picture' approach to holism that goes, "away from the part to get an overview" (Bortoft, 1996, p. 25). Other discourses differ from this approach (see Deep Holism discourse). Whilst practitioners of holistic management exhibit systems thinking (Mann et al., 2019), this discourse has specific rhetoric around holism that comes from Savory – e.g., holistic context, whole under management, holistic decision-making framework (Savory & Butterfield, 2016). This differs from the systems rhetoric in other discourses (see Regrarian Permaculture).

Adherents to this discourse consider the environment, social wellbeing, and economic profit as integral to a farmer's quality of life. It is a fundamental shift from Restoration for Profit because the discourse hopes to move "farmers away from just looking at production, production, production. It's about the environment, and it's about people" (participant 12). This does not mean that production is not considered important, it is still highly valued as demonstrated by Gosnell, Grimm, et al. (2020). However, it is not considered more important than other contributing factors to quality of life. The emphasis on the social manifests at an individual and context specific level (as opposed to addressing systemic issues of equity and power). It is about getting people to understand those "feelings and values that *they* hold" (participant 12). These values are translated into actions via the holistic context, which "is an expression of the way people want their lives to be within the whole under management … and a description of the environment and behaviours that will sustain that quality of life" (Savory & Butterfield, 2016, p. 63).

Adherents to this discourse prioritise outcomes in their monitoring and definition of regenerative agriculture – the holistic context represents self-identified outcomes that each farmer should be working towards. To achieve these outcomes, farmers can use diverse

‘tools’ (processes/practices). Participant 5 said, “in Gabe Brown’s principles, he's got one ‘no tillage.’…[But] I see a lot of country that needs tillage. So, there's a need to be careful about how we use tillage, but it’s a tool like anything else. Fertiliser is a tool. All these things are tools. It's the misuse of tools that actually get us into trouble, not the tool itself.” As this quote demonstrates, the metaphor of ‘tools’ is powerful in this discourse. It is an anthropocentric metaphor, in the sense that adherents are using what’s in their ‘toolbox’ (e.g., livestock) to achieve human-defined outcomes. In other discourses, animals are referred to as kin (see First Nations discourse) and are active participants in a more collaborative relationship. By contrast, adherents to Big Picture Holism consider which tools are going to work best for them in the pursuit of their holistic context.

Referring to the importance of holistic context, participant 12 said, “the processes that people are coming up with, they’re all fantastic. There's no good or bad, even chemicals – they're not good or bad. It's how we use them, how we manage them. And we can't manage without context. If we just focus on processes, we will fail.” As such, the Savory Institute’s ‘Land to Market Ecological Outcomes Verification System’ is an outcomes-based program for ecological monitoring that requires a positive trend line for ecosystem improvements. The certification seal is “awarded to land following a scientific, robust monitoring process to demonstrate positive trends in the areas of soil health, biodiversity and ecosystem function” (Inside-Outside-Management, 2022). This is appealing because farmer’s do not feel obliged to radically transition their farm in one go. It speaks to the definitional flexibility of regenerative agriculture in this discourse. As participant 12 said, “everybody wants this kind of definition of what regenerative agriculture is. And it's a journey, you know, we're developing technologies, we're rediscovering knowledge. And what we think of it today can be completely different in two weeks’ time.”

There are lineages within the discourse that emphasise slightly different elements – in particular, the difference between followers of Allan Savory and Stan Parsons.

> “…it was all just on environment; all of our grazing and using animals as the tool and trying to mimic nature. That's where Savory got his knowledge from. And he was seeing farmers doing some really good stuff for the environment. But financially, it

> was falling apart, or socially there were problems or community-wise there were problems. And then he had this epiphany about 'yeah, they're all connected.' You can't just have production without the social and financial. Around about that time he met up with Stan Parsons and Stan was very, very astute with the financial side. He brought that missing link in a way" (participant 12).

Personal differences between Savory and Parsons eventually led to slightly different lineages of holistic management. Followers of Savory tend to emphasise ecology and holism (e.g., Inside Outside Management) whereby Parsons tend to emphasise economics (e.g., Resource Consulting Services). As participant 12 explained, "the financial side of RCS is very strong, and very good. They don't really touch on the decision-making or create context, which to me is the umbrella." In many communities there was a rhetorical shift towards adopting the term *adaptive*. This occurred because there was such resistance to the term holistic management, which was sometimes mistaken as a religious cult because of the word *holistic* (participant 12).

Participant 20 made the point that regardless of different emphasis – or even different agricultural systems (they listed biodynamics, organics, natural sequence farming, radionics) all of these are management techniques that "come under the umbrella of decision-making. If you've got to use a bit of chemical, let's! Because otherwise you're going to go bankrupt and have to sell the farm, for God sakes use that bit of chemical, use it. But do so whilst acknowledging that [your holistic context] is where you really want to be."

Regenerative Organic

Regenerative agriculture is building on the tenets of organic agriculture to regenerate soil health, animal welfare and social fairness.

Artwork 3: Regenerative Organic actively regenerates soils and addresses issues of social fairness and animal welfare. In this artwork, we see two farm workers, in safe working conditions, harvesting a polyculture alongside happy animals and healthy soils

Genealogy: organic agriculture

Regenerative Organic builds on the foundation laid by organic agriculture – which is both a set of practices and a social movement (Guthman, 2004). It was inspired by the work of Sir Albert Howard in India (1940, 2013), the trials of Lady Eve Balfour (1943), and the lectures of Rudolf Steiner (1993). The organic movement has evolved with the biodynamic movement (Brock et al., 2019; Paull, 2013). It emerged as an early response to synthetic nitrogen fertilizers and pesticides, mechanisation in agriculture and urbanisation in rural areas (Vogt, 2007). It minimises external inputs and completely excludes chemical and synthetic inputs.

This led to its connection with environmental movements in the 1960's when *Silent Spring* (1962 (1972 repr.)) inspired public concern about chemicals in the environment (Lockeretz, 2007).

Organic agriculture has been slowly institutionalised through associations and standards (Schmid, 2007), which eventually led to a market worth $23 billion (Sahota, 2004). With this came the industrialisation of organic agriculture, which saw an increase in mono-cultural farms using more and more inputs (Guthman, 2004). This was a concerning development for many organic farmers (Darnhofer et al., 2010) as the 'movement' moved away from its founding principles. Subsequently, *Organic 3.0* emerged in 2016 under the lead of the International Federation of Organic Agriculture Movements (IFOAM). This was an attempt to redirect organic agriculture back towards the founding principles proposed by the likes of Howard, Balfour and Steiner (Arbenz et al., 2017). It aims to move away from practice-based certification requirements and be less constrained by the private standards, government regulations and restrictive definitions that have been the hallmark of organic agriculture to date (Arbenz et al., 2017). Interestingly, the launch of Organic 3.0 coincided with the rise of regenerative agriculture. Whilst under the guise of a different rhetoric, Regenerative Organic is closely aligned with Organic 3.0 (Leu, 2020).

The discourse influencing regenerative agriculture

As mentioned, Regenerative Organic is an extension to the tenets of organic agriculture; e.g., cover cropping, crop rotation, composting, no-till (Rodale, 2019). Using these as a foundation, it expands to include practices that will actively regenerate soils, and address issues of social fairness and animal welfare. As participant 15 said,

> "…organic isn't enough – you don't have to plant cover crops to be organic. But you have to plant cover crops to be regenerative. You don't have to plant a greatly diversified rotation to be organic. But the more you diversify the rotation, the faster you regenerate soil. You don't have to graze animals to be organic, but you have to graze them if you want to regenerate the soil."

In an agricultural context, the term *regenerative* first emerged in this discourse. As mentioned in the introduction, it was coined by Robert Rodale who articulated the *seven tendencies towards regeneration* with his daughter Maria (Rodale & Rodale, 1989). In these 'tendencies' there is a clear correlation between soil health and community wellbeing. This discourse is promoted by the Rodale Institute, a science and education facility responsible for founding the Regenerative Organic Alliance and its Regenerative Organic Certification (ROC). Regenerative agriculture has come to be clearly defined through the ROC and, "applies specifically to measures of soil health, animal welfare and social fairness" (Rodale, 2019).

Whilst biological inputs are used, adherents to this discourse do not use chemical or synthetic inputs. Participant 16 said this was a universal principle, "if we get chemicals out of the system, we free up the soil's innate ability to improve and regenerate itself." Participant 20 referred to engaging the "landscape in an integrated way that is not interrupted with artificial chemicals and fertilisers." This position is inherited from organic agriculture, but nevertheless stands in contrast to other discourses that do not discredit chemical use (e.g., outcomes-based approaches such as Big Picture Holism). Moreso than other discourses, Regenerative Organic is focussed on aligning itself with the rhetoric of 'science.' Participant 15 made the point, "we're not just telling a story that consumers can feel good about, there's real science behind this." This science includes research to support the negative role of chemical inputs on soil health.

Social fairness is also an important part of the discourse, which seeks "fair payments and living wages for farmers and farmworkers, safe working conditions, capacity building and freedom of association" (Rodale, 2019). Participant 15 remarked that organic cotton had gravitated towards ROC because it had been criticised for using child labour when harvesting. As they said, "that still meets the organic standard. That's organic cotton. How do you have a certification standard that assures the person buying a Patagonia jacket made out of organic cotton, that it didn't come from child labour?" Again, this demonstrates how regenerative agriculture builds on organic agriculture in this discourse. An organic farmer does not need to address issues of social justice, but for adherents to this discourse a regenerative farmer does. This is established as a requirement in the ROC (2022). This social justice lens is predominantly focused on the rights of farm workers (Rodale, 2022).

As reflected in the ROC standard, this discourse is process-based. Regenerative Organic does not support outcomes-based verification standards or definitions of regenerative agriculture. Participant 15 said, "you can build a standard based on outcomes; but the reality is, you have then built a standard on cheating." On this front, the discourse is in direct contrast to other approaches (such as the Big Picture Holism discourse). Referring to the Savory Institute's Land to Market Ecological Outcomes Verification System, participant 15 said, "we don't think it's enough. They don't talk about chemicals in the system, and they don't talk about social justice. We think you need more of a complete package if you truly want to say you're regenerative." The rationale for the process-based focus is that people will otherwise attempt to achieve an outcome in the easiest way possible – which may have other consequences. For example, if the goal is to raise carbon levels, they will logically look for the cheapest way to do that. Participant 15 went on to explain,

> "…one of the by-products of old coal mines is coal dust. It contaminates waterways, clogs fish's gills and all sorts of things; it's a pollutant. But if I take coal dust, and I spread it on my land, I can change my carbon tremendously, while I'm actually polluting the soil. But the outcome is raise my carbon, so I can make my carbon look amazing."

Similarly to Restoration for Profit, this discourse is popular amongst corporates – such as Patagonia (2020). Scaling regenerative agriculture through corporatisation is considered a pathway towards transformation. Participant 15 referred to such partnerships as the "three-legged stool: government agencies, non-profits, and for-profit CPG's (consumer packaged goods). And that partnership together can move the message and change the world." Alongside Restoration for Profit, this approach stands in contrast to other discourses (see the Agroecology and Food Sovereignty discourse – which aims to democratise the food system). Nevertheless, the discourse is very clear on their definition of regenerative agriculture and much less flexible compared with other discourses. Adherents are aware that the terminology risks co-optation. Participant 14 said, "there's a lot of people using the word *regeneration* that are not really regenerative. It's the new buzzword, and there's no

regulations around it yet. So it's like greenwashing." The definition of regenerative agriculture is articulated best in the ROC standard for this discourse. Participant 16 said,

> "…all these big companies have started to pick up the word regenerative agriculture as a way to market themselves. If everyone is using the word, and everyone is defining the word differently, then it's becoming meaningless. That's why the Rodale Institute works very hard to promote the idea of *regenerative organic*."

This is an important discursive point of difference; this discourse will always refer to itself as *regenerative organic* to differentiate itself from the ambiguity and messiness of regenerative agriculture. Participant 14 summed it up with the question, "is it regenerative agriculture or regenerative organic agriculture?" The discourse is dubious of approaches that do not explicitly extend on the organic approach.

Regrarian Permaculture

Regenerative agriculture is an approach to designing integrated farm systems to regenerate the land.

Artwork 4: Regrarian Permaculture predominantly emerged from the permaculture movement and is focused on land planning. In this artwork, we see a permaculture design map mirroring the landscape around it

Genealogy: permaculture, keyline design and holistic management

Regrarian Permaculture emerged from three lineages – permaculture, keyline design and holistic management (which has already been discussed in Big Picture Holism). Permaculture is a design and systems thinking framework used for land planning (Mollison, 1979). It was developed by David Holmgren and Bill Mollison in Australia and is a shortened word for 'permanent agriculture' – a concept originally coined in 1911 by King (2019). The framework is based on three ethics and twelve principles (Holmgren, 2007). The principles are not fixed, and often get adapted in different contexts or integrated with other approaches (McLennon

et al., 2021). The ethics however are the bedrock of permaculture (Mollison, 1988). These are: earth care – rebuilding nature's capital; people care – caring for self, kin and community; and fair share – setting limits to consumption and reproduction, and redistributing surplus (Holmgren, 2007). Landscapes are designed to mimic patterns and relationships in nature while meeting local needs (Mollison & Holmgren, 1978). As such, the systems that permaculture designers develop integrate ecology, horticulture, animals, water systems, architecture, energy efficiency and the vertical stacking of production systems to maximize solar capture (Leu, 2020).

Keyline design was also developed in Australia and became popularised by *Water for Every Farm* (1993) wherein Percival Yeomans detailed his keyline system. This is a land planning approach that collects run-off water from sloping ground using diversion channels. The water is distributed across a property into small to medium-sized dams (Yeomans, 1958). As Duncan (2015, p. 276) explains, "these water conservation and distribution channels [keyline swales] often involve a 1:400 fall (i.e., every 400m, the keyline channel descends 1m in the landscape), which dramatically slows the flow of rainfall over the landscape. During large rainfall events, keyline channels deliver the excess water to the dams." This helps with water retention in the soil. Permaculture land planning stands on the shoulders of keyline design (Mollison, 1988). Another significant aspect of Yeoman's work is the keyline scale of permanence (Yeomans, 1958). This arranges the features of the farm into a hierarchy of permanence – the first three features are climate, land shape and water. Yeomans referred to these as the 'inseparable trinity of landscape design' because the first two in particular form the "unalterable background of the landscape" (Yeomans, 1971). Water is the first landscape factor that can be changed by farmers followed by roads, trees, buildings, subdivision, and soil (Yeomans, 1958). These are less permanent aspects of the landscape that farmers can work with, but when designing landscapes it's important to start by considering the unalterable features – climate and land shape (Duncan & Savory, 2015).

The discourse influencing regenerative agriculture

Regrarian Permaculture brings permaculture into broadacre farming context. As participant 10 remarked, "permaculture is particularly good on kitchen gardens, orchards, food forests; it

is very weak on agriculture." The discourse is championed by the *Regrarians* (Doherty & Jeeves, 2016), which is a neologism of 'regenerative agrarian' (Regrarians, 2021). The Regrarians are a consultancy and farmer network that introduced permaculture to broadacre farming by integrating it with holistic management and strengthening its connection to keyline design (Soloviev, 2019). The integration of holistic management and permaculture is particularly unique. These approaches operate on different scales and would not normally overlap. However, participant 11 demonstrates their complementarity. They said, "holistic management is really strong on developing a holistic context, really strong on grazing planning; shit on land planning though. Permaculture is quite good on land planning, good on its principal set; but pretty bad when it comes to broadacre stuff." As such, farmers can have the benefit of broadacre grazing from holistic management alongside the benefit of good land planning from permaculture.

Adherents understand holism through the lens of systems thinking and pattern understanding (Alexander et al., 1977). These are considered interchangeable, as participant 11 said, "patterns are observations of systems in place." Similarly, Mollison (1988) describes pattern understanding as an ability to recognise the basic patterns that are continuously replicated in nature, and that can be used in permaculture design. Other holistic frameworks are also used, such as the holistic context (see Big Picture Holism) and the keyline scale of permanence (Doherty & Jeeves, 2016). The scale helps adherents understand the different systems and layers to the farm (Duncan & Savory, 2015). The Regrarians list the key features as: climate (e.g., metrological, human and regulatory climates), geography (instead of land shape), water, access (instead of roads), forestry (instead of trees), buildings, fences (instead of subdivision), and soil. They have also added *economy* and *energy* to the scale (2021). Participant 11 said,

> "…that started to become less of a scale of permanence and more of just a checklist, a catalogue. We go through each of the different layers and they're all naturally interlinked. When you're considering the water layer, well, you should think about the economy layer. How much is all this water infrastructure gonna cost? You think about the water layer, you think about integrating that with access. So its systems thinking, basically. And for something as complex as agriculture, that's a really mighty task."

Forestry is also referred to as the living systems layer – the 'Kingdoms of Nature' layer (participant 11) – whereby they consider how all the living systems on the farm (e.g., flora, fauna, fungi, bacteria) might integrate in a dynamic whole that reflects the farmer's holistic context (participant 12). In considering these layers, Regrarian Permaculture is unapologetically outcomes-based; with clear regenerative outcomes listed on their website (Regrarians, 2021). Participant 10 said, "I see everything in terms of restoration – restoring the things that make life possible: air, water, soil, biodiversity. I look at the landscape and think – this could happen. I see potential." Participant 11 emphasised that the Regrarian approach was akin to the Savory Institute (2020), "looking more at outcomes – have I increased landscape function, ecological value, biodiversity?" They remarked that, "regenerative agriculture is sort of like permaculture; it's a goal."

There is a tension in this discourse between the political views of permaculture and the practical approach of Regrarian Permaculture. Participant 10 summed this up neatly by posing the question: "are we just regenerating the land or are we regenerating agriculture?" Whilst adherents recognise the shortcomings of modern agriculture, their answer to this would generally be: we are only regenerating the land. Regrarian Permaculture is focused on practical applications, and adherents do not typically address issues beyond the farm-gate. However, they are influenced by permaculture to different degrees. For example, some abide by permaculture values such as self-sufficiency (or 'community-sufficiency' according to participant 9). Self-sufficiency requires a fundamental shift in the food system. Participant 10 demonstrated this when they said, "the safest thing for people to do is just grow food where they are … that means on balconies, rooftops, sheds." These tensions are heightened because adherents to Regrarian Permaculture do not necessarily value the permaculture ethics.

According to participant 11, the Regrarians decided not to include the permaculture ethics in their work because it went against their belief of self-determination. The participant said,

> "You just start to get a bit religious, and sort of culty, when you start to do that sort of thing. I'd say there's more of the 'cult' in permaculture rather than the 'culture.' Most

> people have good ethics. And so there's other frameworks that deal with that – whether it's your parents, religion, society or laws. I don't need to tell you how to do that. All we're really interested in his how do you work with the land? And the government's regulations, and just the more practical part of all of this. As opposed to getting too much in between people's ears and being another sort of culty noise."

This has caused controversy. Participant 19 said, "do you think it's permaculture? Because someone brought that up the other day on Facebook and I was wondering… I said it wasn't." They went on to say that because the Regrarians removed the ethics, "that's why it doesn't feel like permaculture anymore." Participant 9 challenged whether it could even be dubbed regenerative agriculture without the permaculture ethics, they said, "if we don't have 'people care' in this system, is it truly regenerative?"

Both permaculture and regenerative agriculture have been critiqued for repackaging Indigenous approaches (Angarova et al., 2020). Participant 11 remarked that permaculture has "been really good at appropriating other concepts and sort of making them its own." For a discourse that sits at the interface of both permaculture and regenerative agriculture, this is a topical discussion. Participant 8 said that permaculture can be "as decolonial or as constrictive as the ethics and practices of the designer. We do see a lot of critique of perma-colonization. But it's about who does it. If you've got a racist doing permaculture, that's racist permaculture." This is a pointed comment for a discourse that does not uphold the rhetoric of permaculture ethics. As per self-determination, adherents can be as ethical or unethical as they please. However, participant 9 said that First Nations people are critiquing colonizers rather than permaculture itself; "white people with resources that are using permaculture. We've seen permaculture be used in Indigenous spaces to help reclaim sovereignty and actually practice their own culture."

Regenerative Cultures

Regenerative agriculture is a spiritually rich and emotionally fulfilling practice at the heart of regenerative, place-based cultures.

Artwork 5: Regenerative Cultures moves beyond the farm-gate to renew supply chains, communities and local cultures. In this artwork, we see a vibrant agricultural community singing and playing music together

Genealogy: regenerative development and design

Regenerative development and design is championed by the Regenesis Institute (2022), Carol Sanford Institute (2022) and the Capital Institute (2022). It is a practice that seeks to align human activities with the continuing evolution of living systems (Benne & Mang, 2015; Haggard & Mang, 2016; Mang & Reed, 2012; Muller, 2020). These systems are interdependent, nested in wholes, and include mental and biophysical processes (Hes & Rose, 2019). The concept of being nested is sometimes used interchangeably with the concept of a holarchy (Koestler, 1967), which is a type of hierarchy within which *holons* are nested. A holon is a *whole* in and of itself, whilst also being a *part* of another whole; "they can be understood neither as things nor processes, neither as wholes nor parts, but only as

simultaneous whole/parts" (Wilber, 2001, p. 41). Whilst Big Picture Holism also refers to nested wholes, that discourse does not tend to use the holarchy rhetoric.

A key premise of regenerative development is that "co-evolution among humans and natural systems can only be undertaken in specific places, using approaches that are precisely fitted to them" (Haggard & Mang, 2016, p. 36). The concept of *place* represents the ecological and cultural context from which higher levels of order can emerge. Mang and Reed (2012, p. 28) define it as, "the unique, multi-layered network of living systems within a geographic region that results from the complex interactions, through time, of the natural ecology … and culture." Each place has an inherent *essence*, which is the distinct and permanent character that makes that place what it is (Haggard & Mang, 2016). This essence is the bedrock for the potential of a place (Benne & Mang, 2015).

By focussing on potential, regenerative practitioners explore a place's vocation and capacity for adding value to the broader ecological and cultural whole within which it is nested (Mang & Reed, 2012). As Hes and Rose (2019, pp. 9-10) point out, "regenerative development aims to work within a system to enable the potential of that system to emerge, to co-evolve the aspects of the system so that it can constructively adapt to change and evolve towards increasing states of health and abundance." This includes working collaboratively to develop potential and involves a shift away from focusing on problem-solving (Mang & Reed, 2012).

Regenerative development emerged in design and architecture (Cole, 2012a, 2012b; Cole et al., 2012; Cole et al., 2013; Dias, 2015; France, 2008; Lyle, 1994; Plaut et al., 2012; Svec et al., 2012). However, it now spans multiple sectors such as urban design (Gou & Xie, 2017; Zari, 2012, 2015), regenerative economics (Fullerton, 2015; Morseletto, 2020), regenerative businesses (C. Sanford, 2011; Sanford, 2017, 2020), regenerative sustainability (Gibbons, 2020; Hes & du Plessis, 2015) and regenerative health (United, 2020). This work starts to collectively paint a picture of regenerative cultures. Wahl (2016) asserts that regenerative cultures can be designed from the overlapping cultural and ecological systems of individual bioregions. There is not a single regenerative culture but numerous depending on the uniqueness of different places.

The discourse influencing regenerative agriculture

The consultancy Terra Genesis has been fundamental in bringing regenerative development and design into an agricultural context (Soloviev & Landua, 2016). Regenerative Cultures is the first discourse that moves beyond the farm-gate to challenge supply-chain issues and think about managing whole bioregions (the social and ecological systems of place). As participant 21 said,

> "…we can't look at regenerative agriculture as just being the farm. When I think of regenerative agriculture and what it means to me, it's cultural and community renewal. It's rethreading all those connections that are so integral to our food, community and lives. When I really try and strip it back, [regenerative agriculture is] farming on the side of life. It's reviving our rural community through healing the landscapes."

This is the only discourse that is rhetorically aligned with the broader regeneration movement. This includes explicit links to regeneration in the different sectors mentioned above and those included in Paul Hawken's book on societal regeneration and ending the climate crisis (Hawken, 2021). Adherents are keenly aware of what regeneration means across these sectors, not just in agriculture. Participant 21 said, "those active conversations happening beyond the sphere of agriculture in all the other disciplines – [they are] really important because the regenerative work in those fields will feed directly back into what we're doing." As an example, they commented that an extractive financial system is not fit-for-purpose alongside regenerative farming systems. In this sense, regenerative agriculture is discussed as a major pathway for shifting towards a "culture of regeneration" (participant 9). The fundamental belief of adherents to this discourse is that "deeply regenerative agriculture can exist only if it is completely interwoven into a thriving regenerative culture" (Soloviev & Landua, 2016, p. 13).

Regenerative cultures emerge from the context of bioregions (Wahl, 2016) and include, "songs, stories, myths, rituals, foods, ceremonies and music that transform agriculture from a functional economic activity to a spiritually rich and emotionally fulfilling central heart of an

agricultural community" (Soloviev & Landua, 2016, p. 14). As per regenerative development, culture emerges from the essence and potential of place (Haggard & Mang, 2016). Participant 19 referred to regenerative tourism (Bellato, et al., 2022; Bellato, Frantzeskaki, & Nygaard, 2022) and said, "all I dream of is going to a little bakery in a village, and they don't have exactly the same stuff in the bakery as they did at home. You're supposed to have [different] culture and food in places." Exploring the potential of local culture can often involve addressing colonialism, extraction, and degradation. As Brewer (2019, p. 4) says, "to learn about regeneration of landscapes is to find atonement for the loss … a great Truth-and-Reconciliation is needed in each little piece of land." Subsequently, this discourse is open to addressing issues of indigenous sovereignty and asking questions of land access and custody, "because there's deep seated personal traumas around land ownership" (participant 8). In some instances groups who adhere to Regenerative Cultures are First Nations led; see Poelina et al. (2021).

By focussing on the regeneration of broader socio-ecological systems (beyond the farm-gate), Regenerative Cultures is compelled to authentically consider transforming supply-chains into what Soloviev and Landua (2016) call *regenerative producer webs*. These are predominantly local, non-linear networks of enterprises that continuously add value to each other and the earth when exchanging their goods and services (C. Sanford, 2011). The value that is produced is a direct expression of the uniqueness in the surrounding landscape (Soloviev & Landua, 2016). It is no surprise that adherents to this discourse also refer to the localisation movement (participant 19); see Norberg-Hodge (2016, 2019). Participant 8 remarked, "we really love regenerative agriculture, because of how it's not only changing the practice of farming, but the practice of how we engage regeneratively in the economy and trade and radically shifting how power and land is viewed within the agricultural industry." The transition from supply-chains to regenerative producer webs plays a central role in this because "the interactions between people need to be regenerated and be regenerative" (participant 19). This was articulated clearly by participant 8 when discussing how to move beyond regenerative agriculture to regenerative culture. They said,

> "…[regenerative agriculture] has to be the growing of food, it has to be the relationships with the people on the farm, it has to be their relationship to the people

> who transport the food, it has to be the relationship to the people who sell the food. [And then] what does it take to have regenerative consumers? Once we've gotten to that point, we really start to step into the space of an actual regenerative food system culture. If at any point that gets co-opted by capitalism, or colonization, that's not a regenerative system. It has regenerative parts, but it's not regenerative."

This discourse is increasingly being normalised in popular media. For example, in film campaigns by Damon Gameau – 2040 (2019) and Regenerating Australia (2022). This is potentially occurring to this discourse and not others because its rhetoric extends beyond the agricultural context. These films demonstrate the role agriculture plays in the broader regeneration movement, typically for a non-farming audience. Hawken (2021) had a lot of exposure and the discourse received interest from multi-national non-government organisations, such as the World Wildlife Fund (2022). Cultural regeneration is central to the discourse, as participant 22 said, "this cultural regeneration stuff could be really profound in helping nest people within that abundance that they're working with." Pathways to cultural regeneration (and within that, truly regenerative agriculture) are explored through the systems view. Regeneration is seen as "a really dynamic kind of living entity in itself and so it shifts" (participant 21). Participant 22 said people need to be working with,

> "…the systems of cultural literacy, cultural intelligence, and cultural humility from the heart space, the 'being' stuff and then cultural safety. I think when you have those things working in harmony it creates cultural regeneration … culture has to be alive and being transmitted. And therefore, it's always open to change."

As demonstrated by these quotes, the systems language in this discourse is more socio-cultural and often includes the word 'living.' This is different from the systems language in Regrarian Permaculture, which is more mechanistic and focused on establishing practical and infrastructure-based systems (e.g., water infiltration systems on the farm). By contrast, adherents to this discourse see systems as living entities that they are relating to. In this discourse, regenerative practitioners are framed as *systems actualizers* (Plaut & Amedee, 2018), which is a recognition that people are participating in numerous cultural and

ecological systems that respond to them (participant 22). They actualise these by awakening "the regenerative capability embodied in all living systems" (Plaut & Amedee, 2018, p. 5).

Participant 22 said, "we have the opportunity to activate or animate that biorhythmic potential – the potential that's innate within all of us." This is a term created by the participant, which refers to the potential of "those conditions that enable life." They said that it is Country that enables life – the relational potential of Country. As participant 22 said, "often, we're too much in our head to allow that potential to be realised." They referred to it as a sacred contract that they reaffirm every time they do a breath in – "relying on the trees and the plants to provide that oxygen, that purity of the air that I need to breathe, and I exhale that out." Working with living systems to realise biorhythmic potential (the regenerative capability that emerges from relational, living systems) is at the heart of Regenerative Cultures discourse.

Deep Holism

Regenerative agriculture is pathway for empathising with and experiencing ecosystems as inseparable from yourself.

Artwork 6: Deep Holism invites ecosystems into a farmer's sense of self. In this artwork we see a woman who is totally integrated with her environment. There is no separation between her and the ecosystem

Genealogy: deep ecology and Goethean science

Deep Holism emerges from deep ecology (1988, 1989a) and the view of holism as outlined by Bortoft (1996) and Goethean Science (Wahl, 2005). This perspective on holism will be explained in the next section. Deep ecology is an environmental philosophy and social movement that believes in the inherent value of all living beings regardless of their usefulness to humanity (Naess, 2005). It is influenced by the gestalt ontology of Naess (1989b), which suggests that every living being is part of a related community of gestalts (Valera, 2019). This transcends the idea of 'man-in-environment' and replaces it with an image of relationality whereby *everything hangs together* (Naess, 2005).

A key proponent of the deep ecology worldview is the *ecological self* (Naess, 1988). This is a broadening or widening of personal identity, which invites the ecological community into a person's sense of self. As such, "the self to be realised extends further and further beyond the separate ego and includes more and more of the phenomenal world" (Naess, 1988). Macy (2007, p. 153) makes the point that, "our very breathing, acting, and thinking arise in interaction with our shared world through the currents of matter, energy and information that move through us and sustain us." To further stress this point, Bateson (1972, p. 319) says that the boundaries of our environment, "do not at all coincide with the boundaries either of the body or what is popularly called 'self.'" As such, this perspective entails a deep integration between self and world.

Johann Wolfgang von Goethe (1749-1832) was a poet and scientist with early objections to vitalism (that the world is infused with a mystical life force) and the mechanistic direction of science. For Goethe, vitalism credits the generative power of organisms to a vague and free-floating, mystical force whilst mechanistic science denies them their full mystery (Brook, 2021b). A middle ground emerged in what Goethe referred to as a 'delicate empiricism' (Wahl, 2005). This approach is known as the Goethean method. It makes the subject utterly identical to the object being studied (Bradley, 2011). The method has four stages: exact sense perception; exact sensorial imagination; seeing-in-beholding; and being one with the object (Brook, 2021a).

Rather than seeing human faculties (e.g., imagination) as impairing scientific objectivity, Goethe saw the human being as a scientific instrument to understand the workings of nature (Brook, 2021a). His method relies on "rigorous attention to direct experience, empathy, intuition and imagination as a path towards meaningful insights into nature's creative process" (Wahl, 2005, p. 60). Using these faculties, an observer (e.g., of a plant) can "*become*, for a moment, that which we study, for example, to experience vegetative growth or even photosynthesis" (Brook, 2021a, p. 75). This is a qualitative and experiential approach to the world, "but not one that revels in undisciplined subjectivity" (Brook, 2021a, p. 231). The method involves self-examination and critical reflection in "a cycle of looking at nature, examining oneself, looking at nature again" (Brook, 2021a, p. 74). Goethe also influenced the

spiritual science of Steiner (anthroposophy), which in turn influenced biodynamic agriculture (Steiner, 1993, 2005).

The discourse influencing regenerative agriculture

The use of the word *deep* in the title of this discourse refers to deep ecology and its embedded way of experiencing nature (Valera, 2018). Participant 2 highlighted the distinction between humans being at the top of the pyramid of life versus in the web of life. Participant 19 referred to "the language of distance" whereby people still see themselves as "kingpin up there on the top of the triangle, they haven't yet fallen into the circle of the ecological." Other discourses are similarly non-anthropocentric (e.g., Regenerative Cultures). However, adherents to this discourse go further in articulating a breakdown between their sense of self and the environment. Participant 19 said,

> "When we first moved here, I was pregnant with my sixth child. After he was born I dived headfirst into postnatal depression. In that time of complete vulnerability, I really became connected to this place. It was in that time of darkness that I kind of looked for gentler ways of managing the land. That has been a very reciprocal relationship, full of compassion and empathy for both the property and myself. I find it hard to distinguish between self and property now, if that makes any sense?"

Unlike other discourses, this is not just a recognition that humans and landscapes are in relationship, but a broadening of identity to take in the more-than-human. As participant 17 said, "ecological identity is the experience that the social identity that we've all grown up to identify with is merely the flimsiest film on top of our larger identity, which stretches back to the beginning of everything, and relates us to everything." In the above story, participant 19 developed a sense of ecological identity through time and shared experience with place. They nevertheless continued using the language of ownership (referring to place as property), which conceptually separates participant 19 from the farm. This reflects the discursive tension in participant 19 as they move away from dominant ideas of relating to land, towards more marginal ideas. Whilst contradictory, these discourses can co-exist.

Participant 7 discussed structural coupling; whereby recurrent interactions lead to congruence between organisms (Maturana, 2002). This concept was a pathway into ecological identity. They said that structural coupling is,

> "…an indivisible connection with your whole environment, which is cognitive, it's emotional, its deep psychological, it's probably stuff we're not even aware of; it's in our ancient brain … I don't think the truly great land managers, thinkers or environmentalists get there without that sort of structural coupling. It's an ability to chuck those chains that we've bound ourselves with, humanism and reductionist thinking, chuck them out! And open-up your heart and your mind."

They went on to say that its, "not just a paradigm; it's a complex, social-environmental interaction that's like a universe." This opens adherents up to the idea of Gaia, that earth is a self-regulating system made up of the interactions between organisms and their inorganic environments (Lovelock, 2016). Adherents to this discourse believe you need this kind of ecological transformation in how you see the landscape to be truly regenerative (participant 19). Participant 19 said that definitions are for those who have not experienced ecological identity and feel the need to "hang it [regenerative agriculture] on a coat hanger and put it in their closet." In this discourse, an ecological shift can also have a spiritual dimension.

Participant 19 emphasised how integrated regenerative approaches are with spirituality. They said that despite a dichotomy existing between spirituality and ecological practice, these should be combined and that this is the "real issue for integrating ecology with self." Participant 2 self-identified as a pantheist, referring to this as a person who connects with the environment. The environment was their spirit or soul world. They said, "spirituality is really about connectedness, about the relatedness, about seeing our part in the system of life, that we're part of the evolution of life, that we're part of stardust, that we are part of some magnificent event, we're both in it and on the surface of it at the same time." The participant felt connected to their environment through deep time saying, "the piece of corn I can see in the distance, that's a living organism and so am I, so we have a connection in history."

Adherents to this discourse often use second person pronouns (you, your, yours, yourself/yourselves) to connect with nature. A story written from the second person perspective attempts to connect the reader and the protagonist as one – expanding the first person to take in another. This is not possible in the third person (looking objectively to an external world) or first person (looking internally to a subjective world) because both subscribe to a subject-object binary. The second person perspective creates, "the capacity to have an I/thou or 'we' relationship with someone or something" (Cochrane, 2021, p. 113). That is, to always interpret the structure of 'I' within the context of its relationship to 'thou.'

In this discourse there is no completely isolatable 'I' and adherents experience themselves as a genuine part of all life – the 'thou' (Valera, 2018). If people can, "express their second person relationship with the world … it strengthens the bond between them and the environment, rather than looking at something, they're actually taking that something inside themselves and putting it into their imagination" (participant 2). This differs from the dominant I/it attitude towards nature (Buber, 1970; Kramer & Gawlick, 2003). The I/thou relationship reflects the ability of the "subject to leave its boundaries in order to understand otherness" (Valera, 2018). This is exactly what is happening in the Goethean method, which has influenced the interpretation of holism in this discourse.

The use of the word *deep* in the title of this discourse also refers to the view of holism as outlined by Bortoft (1996) and Goethean Science (Wahl, 2005); which goes *deep* into the parts to see the whole, rather than looking at the 'big picture.' This is in direct contrast to the approach of Big Picture Holism, which (as per the title) is more concerned with seeing the big picture. Deep Holism discourse is prevalent in the Bachelor of Science (Regenerative Agriculture) at Southern Cross University, particularly in the subject 'Ecological Perspectives: Human Ecology.' This was written by the Institute of Ecological Agriculture.

The coursework for this subject refers to the difference between *totality* and *holism* (Cochrane, 2019, 2021). The former uses *analytical consciousness* to simply view all the parts together (as per Big Picture Holism). Cochrane (2019) says, "note the distinction between standing back to view something versus going into the object and placing it in your imagination. The 'standing back' position gives the totality of an image whereas the 'going

into' enables the holistic image to emerge." Some adherents to this discourse perceive the totality approach to be 'pseudo-holism' (Bortoft, 1996) – a term for approaches that are not authentically holistic. The whole does not exist as a 'thing' that can be known; its meaning can only be experienced through the parts. Consequently, "careful attention must be given to the parts instead of to general principles" (Bortoft, 1996, p. 24).

Leopold (1949) tells a story called *thinking like a mountain*, in which he recounts killing a mother wolf and watching her die. In this story, he uses his imagination to enter the perspective of the mountain. This is like the Goethean method. Leopold knew the mountain, hunted on the mountain, and saw the mountain evolve over many seasons. As such, through observation and then *imagination* he was able to extend his feelings to experience a deeper and more direct connection with the mountain. Participant 2 said, "I'm a great believer in the use of imagination in helping to strengthen one's framework in one's head about what's out there … I do that a lot … and that brings me closer to the natural world." Imagination and empathy (what Goethe would call human faculties) are being used to raise Leopold's awareness of the relationship between him, the wolf, and the mountain. Meaning (or an understanding of the whole) emerges through this raised awareness (Wahl, 2005).

In his story, the "fierce green fire," (Leopold, 1949, p. 130) in the eyes of the dying wolf is significant because it symbolises the mountain's and wolf's capacity to see the whole. As Leopold (1949, p. 130) says, "I realised then, and have known ever since, that there was something new to me in those eyes – something known only to her and the mountain." Everything that Leopold needed to feel and know about the whole existed in the fierce green fire of the wolf. Bortoft (1996, p. 22) explains that "the universal is seen within the particular, so that the particular instance is seen as a living manifestation of the universal." These particular instances, such as the fierce green fire, are referred to as *Urphänomen* – the primal phenomenon; an "instance worth a thousand, bearing all within itself" (Bortoft, 1996, p. 43). Leopold is unable to truly see the whole until he enters the perspective of the mountain through imagination – when he starts *thinking like a mountain*. The is how adherents to this discourse understand holism.

First Nations

Regenerative agriculture is a new name for practices that First Nations people have been doing for tens of thousands of years.

Artwork 7: First Nations people view themselves as relations in an extended family of more-than-human kin. In this artwork we see an indigenous man fishing alongside a water bird, each following their own lore

Genealogy: Indigenous worldviews and foodways

Regenerative agriculture owes much of its worldview to First Nations people who have been practicing *regenerative* forms of land custodianship for tens of thousands of years (Ahmed et al., 2021; Hawken, 2021). Many of the practices are founded in pre-colonial knowledge systems and were used for millennia by Indigenous people (Sands et al., 2023). For example, holistic management has short periods of high intensity grazing followed by long periods of recovery (Savory & Butterfield, 2016). This resembles the rotational grazing approaches of Indigenous people, such as the Tamang people in northern Nepal (Sands et al., 2023). In

summer, Tamang herders graze Chauri in alpine pastures and in winter they move to forestry belts. In each of these areas the Chauri are moved every 10 – 15 days to prevent overgrazing. Herders observe the groundcover to inform the frequency of these rotations (Dong et al., 2009). There are many examples of regenerative practices in pre-colonial systems. These include no-till, crop rotations, intercropping, agroforestry, silvopasture, soil amendments, cover crops, and biochar – see Sands et al. (2023) for descriptions of these. As participant 4 said, "most of these are not new ways, of course; they're old ways. So, it's like we have new-old ways." This influence has gone predominantly unrecognised because all the discourses presented thus far have an ethnocentric bias, which originates within settler states and the global North.

Consequently, First Nations people have challenged regenerative agriculture to not repackage practices from their cultures without Indigenous recognition or inclusion (Romero-Briones et al., 2020). They have also critiqued the use of Indigenous practices without recognising the deeper worldviews that inform them (Angarova et al., 2020). For example, the Tamang have rituals to protect their animals through winter (Gurung & McVeigh, 2002) and celebrate them with music and dance in festivals (Joshi et al., 2020). The relationship between the people and the animals carries cultural significance, which itself holds important knowledge for understanding the relational values that are lacking in many descriptions of regenerative agriculture (Sands et al., 2023). Angarova et al. (2020) say that understanding the worldviews that underpin regenerative practices could inspire a consciousness shift. This will hopefully, "support us to go from a dominant culture of supremacy and domination to one founded on reciprocity, respect, and interrelations with all beings."

The discourse influencing regenerative agriculture

First Nations people view themselves as relations in an ecological family that shares ancestry and origins (Salmon, 2000). As participant 6 said, "the whole of the universe is family to Aboriginal people. I practice that every day, its fundamental to who I am. My relationship with the earth is as if she were a family member and I'm enjoying her wisdom but bending my back for her care." Kimmerer (2013) critiques the lack of pronouns for non-human beings in English. She explains how the grammar either reduces the more-than-human to an *it*, or

genders them inappropriately as *he* or *she*. Consequently, she proposes the pronoun ki (or kin) inspired by Bemaadiziiaa**ki**, the Anishinaabe word for 'beings of the living Earth' (Kimmerer, 2015).

More-than-human kinship is an important aspect of First Nations worldviews. Participant 22 said, "we have a biologic connection to some kin, and then we have other kin within our species, but we [also] have so much more! I call them the 'more-than-human kin,' – that's the plants, the animals, the waterways, the mountains and the weather." This demonstrates how the concept of kin transcends the living and non-living binary and gives life to what many would perceive as inert. This perspective is embedded in cultural practices (Salmon, 2000). For example, participant 6 does a greeting to grandfather sun every morning as a reminder that they're responsible for the dignity of the earth. The non-anthropocentric softness in this way of being is beautifully demonstrated in a story shared by participant 6. They said,

> "I was catching prawns one night in the river, and I could hear something approaching me. I was waist deep in the water and I worked out that it was a bird, a water bird. What I was hearing were the droplets coming off her toes as she stepped through the water; and she walked behind me and kept on fishing. Because that's what she was doing too. She was fishing. Being ignored by a bird means you're doing the right thing. She understood that I was fishing; I understood that she was fishing; and we went about our different ways. We each followed our own lore. She followed her lore, I followed mine. We didn't get in each other's way, we both had food."

There is mutual understanding and respect between participant 6 and the water bird – that each need to follow their own lore (their own knowledges and rituals). They are also equal participants in, and connected through, the shared act of fishing. They are both reliant on the health of the waters. Participant 6 went on to say, "you've just got to see yourself as one of the animals. This is the thing about aboriginal belief, we see the animals as our past ancestors. We don't see a kangaroo, we look carefully and go, 'I remember that person,' or 'I will remember that person,' or 'I will become that person' who is now a kangaroo. You're looking at animals with respect and love." Similarly to Deep Holism, participant 6 is using second person pronouns here (you've, yourself, you're). Yunkaporta (2019) also writes in the

dual first person, which he translates as *us-two*; as such, expanding the first person to take in another. Unlike English, First Nations languages structurally support relational ontologies. For example, in English 30% of the words are verbs; whereas for Potawatomi the proportion is 70% (Kimmerer, 2013). In Potawatomi a bay, or a day, a hill, or a colour – these can all be understood as verbs, instead of nouns. This animates the world – if a bay is a *doing* word, rather than an inanimate *thing*, it is imbued with activity and livingness.

For participant 8 agricultural transformation will be within reach only when questions of land access and custody start being asked, "because there's deep seated personal traumas around land ownership." This was reiterated by participant 22 who emphasised the trauma from colonisation and consequently the lateral violence that exists in Aboriginal communities. They said, "there's just such a huge role for healing." The privatisation of land, and the subsequent loss of access to sacred sites, is a significant issue for adherents to this discourse. Adherents have a collective approach to land management that is difficult to integrate with private farms. As participant 6 said,

> "…it's hard to look after the earth when individuals are putting up fences and saying, 'this is my property I'll care for this alone.' If someone upstream of you is damming the water, then your ability to look after the land is reduced. In the old days people would look after the land as a collective and cooperate with the people who lived outside their zone. When fires were lit, people over thousands of kilometres would be included in the plan. It's a different way of looking at the earth."

Similarly to Regenerative Cultures and Deep Holism, this discourse looks beyond the farm-gate and considers the cultural and ecological health of whole bioregions.

Participant 6 referred to regenerative agriculture as "something that is kinder to the earth." They said, "if you hate the land, if the land is your enemy; which a lot of our farming practice assumes; then you're going to be cruel. If you love the land, you'll be kind. And the earth needs kindness." Participant 9 took this definition further and referred to regenerative agriculture as a stepping-stone between Western and Indigenous ontologies; "when we come from this anthropocentric, Western colonial view, we need stepping-stones because

First Nations ways of being and living are so, so far beyond what Western colonial spaces can really perceive." If we look at how far each discourse is departing from industrial-productivist agriculture, we see a scale that moves between two different ontological perspectives. As participant 8 said, "regenerative agriculture is part of an iteration of where we need to go, it's not fully formed in the fact that it can't be fully formed."

As a stepping-stone, a critical shift occurs "when you start thinking about the land as a being, not there for your plunder, but there for your protection – that's a cultural change" (participant 6). Participant 22 stressed that regenerative farmers are not separate from Country and need to see themselves as "an echo of Country." They recounted a story that reflects the cultural difference between Western and Indigenous ways of seeing Country.

> "I remember when I used to work in the city, I'd go in and walk up the Parliament stairs and everyone would be thinking about what they had to do in the day. Their minds were totally occupied with all those pressures, and I could feel the full-on sound from their feet as they clamped up the stairs. Often the noises and vibrations that we give to her [Country] are aggressive, people are stamping on her. I just thought, 'Oh, how does that feel for Country?' Because she's alive and feels that way. She would have been having soft feet dancing on her in the past."

In this story, participant 22 is aware of Country as an animate being with feelings. Adherents to this discourse have deep respect and concern for Country. This connection is predominantly relational and localised, but adherents also conceive of Country as interconnected with the world. Participant 22 also said, "I feel like when all these [bad] things were happening in other parts of the world, Country would have been drawing back through the magma and connecting into the love that was coming from our continent. I know that's still there."

Increasingly, non-indigenous regenerative farmers are starting to engage with this discourse (participants 4, 5, 7, 10 and 21) and form relationships with their local Indigenous communities. This includes working with Indigenous people to do cool burns on the farm, access sacred sites for ceremonies, and host workshops with graziers. However, some of

these participants (4, 7 and 21) felt that the regenerative movement couldn't go further without placing Indigenous sovereignty at the centre. This is uncommon in regenerative agriculture, however literacy around Indigenous issues is increasing. Participant 21 said,

> "…what I'm hearing from First Nations people is that there needs to be meaningful shifts in the structures of power and participation in the food system. [This includes] acknowledging history and facing up to reparations – not just consultation. Who knows how we come at that, but firstly it's shutting up and listening. Then being prepared to give up privileges and ownership of things that we have. That's really challenging and not easy and I include myself in that."

These farmers are initiating sensitive conversations around access and land ownership. Participant 21 continued, "I've got this very strong and growing sense that we can't be practising regenerative agriculture if we're not having First Nations knowledge and ownership and history in the picture, so I'm still working out what that means at the farm level." This discourse demonstrates how regenerative agriculture risks adopting and promoting Indigenous knowledge and practices without explicitly addressing issues of land ownership and historic land extraction. However, if the politics of land are made central to how 'being regenerative' is understood and practiced (as it is for participants 4, 7 and 21 in particular) this would enhance the transformative potential of regenerative agriculture.

Agroecology and Food Sovereignty

Regenerative agriculture is about regenerating communities and having people democratically involved in the food system.

Artwork 8: Agroecology and Food Sovereignty invites the community to be democratically involved in their food system. In this artwork we see a thriving local food system with people participating in different aspects of production and distribution

Genealogy: agroecology and food sovereignty movements

As mentioned in the First Nations discourse, Indigenous people have been cultivating food in socially and ecologically minded ways for millennia (Rivera Ferre, 2018). Agroecology emerged from practices used by Indigenous farmers particularly in the global South (Wezel et al., 2009). It began to form as a concept in Western science during the 1930s-60s (Francis et al., 2003) and grew as a movement through the 1980s-90s (Wezel et al., 2009). Agroecology has a political framework and theory of change around food sovereignty (IPC, 2015) that

directly challenges the dominance of corporate power in the food system (Chaifetz & Jagger, 2014).

Food sovereignty is defined as "the right of peoples to healthy and culturally appropriate food produced through ecologically sound and sustainable methods, and their right to define their own food and agriculture systems" (World-Forum-for-Food-Sovereignty, 2007). As such, it advocates for the rights of traditional, peasant, Indigenous and small-scale farmers (Chaifetz & Jagger, 2014). For this reason, agroecology also challenged the Green Revolution and the spread of industrial-productivist agriculture (Catacora-Vargas et al., 2017). It was endorsed by the Food and Agriculture Organisation (FAO) (Barrios et al., 2020) and has gained support in the global North (Bellon & Ollivier, 2018). However, the movement is critical of how the FAO has interpreted agroecological principles (Giraldo & Rosset, 2018). Consequently, agroecology has resisted up-take and co-optation by agri-food companies (de Molina et al., 2019).

The discourse influencing regenerative agriculture

This is the only discourse identified in this research with links to the global South. Even the First Nations discourse (as understood through this research) exists predominantly in settler states of the global North. Agroecology and Food Sovereignty also includes a broader network of actors compared with First Nations, e.g., small-scale farmers who are not Indigenous. Food sovereignty language is not necessarily used in First Nations discourse. As such, agroecology brings a unique perspective to regenerative agriculture. In particular, the political activism associated with agroecology does not sit comfortably in regenerative agriculture (Tittonell et al., 2022). As Tittonell et al. (2022) explains, this is likely because agroecology is aligned with peasant movements who need to protect their rights and access to natural resources. However, regenerative agriculture is also being adopted by large scale, commercial farmers for whom these issues are not a concern. Consequently, agroecologists have been critical of regenerative agriculture for not having a political position. Jonas (2021, p. 7) remarks, "regenerative agriculture has not developed a theory of change for an economic or social transformation and is growing a new generation of 'experts' and gurus who profit from teaching the 'how' rather than the 'what' or 'why.'" This leaves regenerative

agriculture open to corporate capture (Jonas, 2021). However, participant 21 emphasised that despite this regenerative agriculture "is inherently political, without it being deliberately so in its frame. But it is political and challenging the status quo."

Many regenerative farmers assume that regenerative agriculture and agroecology are synonyms or the same movement (Tittonell et al., 2022). However, this is not the case. Both are ecologically minded, but adherents to agroecology go further in considering food sovereignty issues. Regenerative Organic and Regenerative Cultures are focussed on social and societal transformation too – but they do not challenge corporatisation. Meanwhile, Big Picture Holism only emphasises the social values of the individual. As such, this discourse makes important contributions to discussions of transformation and regenerative agriculture and is the only discourse to directly challenge corporatisation. As participant 4 remarked, "because I think more into the agroecology space too, regenerative agriculture is about regenerating communities and democratic participation in the food system. A regenerative food system would have people deeply and democratically involved in it." Food sovereignty was a critical framework for participant 4, and it was used in all their decision-making. They said,

> "I use as the food sovereignty definition as my framing questions all the time. The definition is: *advocating for everyone's right to access culturally appropriate and nutritious food, producing and distributed it in ethical and ecologically sound ways, and our right to democratically participate in the food system.* So, is what I'm going to produce culturally appropriate in this setting? Is it nutritious? Is it produced in ethical and ecologically sound ways? If it's not being produced in those ways, then I'm not going to do it. If it's something that involves confining animals, it's out! Can people democratically participate in the decision-making? We're CSA [community supported agriculture] so people get to vote on whether there's a price increase. The people that eat our food can give us feedback at any time, and they're regularly surveyed. I think we're about as democratic as it gets."

Democratic participation through frameworks such as Community Supported Agriculture (CSA) is what prevents the corporatisation of agroecology. African American communities

focussed on developing democratic, collective and collaborative models to create self-sufficiency during a time when they were denied voting rights (White, 2018). Growing food became an act of resistance in this way (White, 2018). They influenced the emergence of regenerative agriculture through George Washington Carver (Hawken, 2021). Some regenerative farmers in the USA showed solidarity with the Black Lives Matter protests; emphasising that, "agriculture cannot be regenerative without racial equity" (Quivira-Coalition, 2021). As participant 4 said, "regenerative practices, of course, are not just ecological, they're ethical." Soul Fire Farm has particularly influenced regenerative agriculture by challenging food apartheid and the structural injustice of white, industrially produced food (Hughes et al., 2020; Penniman, 2018; Soul-Fire-Farm, 2018). This is, "an Afro-Indigenous centred community farm committed to uprooting racism and seeding sovereignty in the food system" (Soul-Fire-Farm, 2022).

Participant 4 operates a pork-based CSA, which was the first CSA in their region. When I interviewed them, eight more had emerged within 40kms. They are members of two vegetable CSAs, a fruit CSA, and a duck CSA. They barter and exchange goods (with the fruit and duck CSAs) in exchange for their pork. This approach to regenerative agriculture is a "deeply grounded community practice" (participant 4). As participant 20 said, "all these local food systems are now cropping up. People in the city buy the local CSA boxes. They get their newsletters every week that tell them all about when the piglets were born, what's happening on the farm and when there's been rain." Adherents to this discourse are predominantly small-scale farmers. As participant 4 said,

> "…small-scale farms are increasing so rapidly. Whereas broadacre farming is a harder space to influence. The size of the acreage is prohibitive for people to buy, and most of its locked up in old agricultural families. We have new farmers turning up and changing 69 acres. But in the broadacre space it's not about changing land ownership, it's changing the mindset of those farmers."

Many of the other discourses in regenerative agriculture have a broadacre focus (see Restoration for Profit, Big Picture Holism and Regrarian Permaculture). Adherents to this discourse struggle to gain recognition and support because food sovereignty and small-scale

production is challenging to current structures of power. Participant 4 was introduced to a policymaker working for the Commonwealth Scientific and Industrial Research Organisation (CSIRO) – an Australian Government agency. They said, "food sovereignty came up and he [the policymaker] goes, 'food sovereignty, well that raises alarm bells for policymakers.' And I went, 'right, advocating for people's right to democratically participate in the food system raises your alarm bells and you're a policymaker.' And he goes, 'yeah, well it impedes trade.'" This demonstrates the structural and values-based challenges that this discourse faces in attempting to bring about transformation. Participant 21 also said, "how did it happen in Australia that the food sovereignty movement is led by non-Indigenous white people when in every other part of the world it's led by Indigenous people?"

Subtle Energies

Regenerative agriculture is a practice that works with the invisible or non-material dimensions of farming systems to connect with the intelligence of nature and restore energy imbalances.

Artwork 9: Subtle Energies works with the non-material dimensions of farming systems. In this artwork we see a farmer using their dowsing rods to tap into the vibrational energies of the landscape

Genealogy: Celtic shamanism and quantum physics

There is little academic literature on this discourse and its role in either regenerative agriculture or agriculture more broadly. As such, I've predominantly relied on practitioner anecdotes to understand the genealogy. Participant 19 told me that the lineage was based in Celtic folklore and participant 20 said shamanism. All farmers who spoke about subtle energies (except participant 14) were students of Dr Patrick MacManaway, a third-generation practitioner of psychic and healing arts (MacManaway, 2022). Patrick was raised in Scotland by a family of traditional spiritual healers, psychics, mediums, and dowsers (MacManaway, 2021). In partnership with Terry McCosker and Resource Consulting Services (RCS), he

established the Quantum Leap workshops (MacManaway, 2020). These use intuition, dowsing and kinesiology to access information about the landscape and restore energy imbalances (MacManaway, 2020).

Quantum Leap is a fundamental pathway for this discourse in Australia, however it is unclear how prevalent this discourse is beyond Australia. This requires further research. The discourse adopts the language of quantum physics to explain subtle energies as the energies beyond those presently acknowledged in physics (Tiller, 1999). These are the "frequencies which cannot be measured by conventional instrumentation but which can affect organisms at a cellular level" (RCS, 2021, p. para 7). The pamphlets also refer to research undertaken by MacManaway demonstrating the effects of quantum physics and subtle energies on yield increases in potatoes (MacManaway, 2020). However, this is not cited. Patrick says that "the tone, quality and content of our mind and spirit, our attention and intentions, [define] our physical circumstances and health" (MacManaway, 2021, p. 293). This is a basic tenet of this discourse. Adherents are becoming more aware, and working with, the impact of their own consciousness on the surrounding landscape and environment.

As Massy (2013) explains, dowsing is a technique conducted with steel rods, wire or branches to divine energy flows, metals, water, or currents of radiation beneath the ground. In both biodynamics and subtle energies, ley lines are identified by dowsing the lines of energy that run across the landscape. These are the alignments between places with geographical and historical significance. Ley lines with positive energy are used to distribute biodynamic preparations. Energy towers (vertical towers often made from metal or ceramic, sometimes called reagent wells) are placed at ley line intersections alongside biodynamic preparations. These act as a means of field-broadcasting. This is where the tower's send the concentrated energies from the site out across the farm. Sometimes statements of intent are placed within the towers to also spread the mind-energy of farmers.

However, it is important to genealogically differentiate this discourse from biodynamics, which emerged alongside organic agriculture and is based on the work of Steiner (1993; 2005). Biodynamics is closely related to the regenerative agriculture movement and works with the planets and the cosmic forces of the constellations as a scientific process

(participant 13). As such, it uses some very specific preparations and is a very disciplined model of agriculture; "the most disciplined" (participant 20). Participant 19 articulated the difference between subtle energies and biodynamics. They said,

> "…there's a little bit of patriarchy in biodynamics. [Steiner] he's the be all and end all, he has the answers, you just need to look harder in his work. Whereas subtle energies are more feminine when Patrick teaches them. It's very much about tapping into *self* and finding the answers yourself. The fear of [doing it wrong and] someone else having the answers is just not there at all. It's yourself and how you respond intuitively to the messages you get from your landscape."

As demonstrated, there are instances of overlap between biodynamics and subtle energies. For example, participant 5 said, "quantum agriculture is the new one coming." Quantum agriculture draws on the biodynamic work of Lovel (2015), which integrates intuitive farming approaches like those used by adherents to this discourse (Wright et al., 2017). However, these two traditions do not have much overlap, "there's more overlap between subtle energies and Druidry than subtle energies and biodynamics" (participant 19).

The discourse influencing regenerative agriculture

This discourse recognises an invisible or non-material dimension in farming systems (Wright, 2021). As Wright (2021, p. xxix) explains, this is "a dimension that may be described in secular terms as involving vibrational energy, consciousness, ether, sentience/intelligence and/or electromagnetic or sound waves/frequencies." Adherents use intuition, dowsing and kinesiology to connect with the "intelligence of nature" (MacManaway, 2020, p. 2) and correct energy imbalances. Participant 20 compared this to vibrational medicine. They said, "when I explain to people the difference [between vibrational kinesiology and this farming approach] it's simply the energy of the human body as compared with the energy of the landscape. It's the same concept, they're just different threads of energetic healing." As such, farmers are working with the energetic body or consciousness of the landscape.

Consequently, there is a lineage of animism in this discourse; a belief that, "the natural world is 'inspirited' – that is, inhabited by nature spirits, that a sacred reality exists and is different from everyday profane realities, and is manifested at special times and places, usually through natural entities and places" (Massy, 2021, p. 306). Participant 20 said, "nature spirits are at another level of consciousness, there's nine levels of consciousness. Our human level of consciousness is the physical platform between the heavenly and the earthly, we're sort of in the middle. Some of us have developed the capacity to connect with the heavenly and the earthly but most of us just live in our physical form." The experience of these different levels of consciousness was further explained by participant 14.

Participant 14 described their experience with shamanic journeying. They said that it wasn't until they started studying shamanism that they understood that nature was trying to communicate with them; which is not uncommon in this discourse (Wright, 2021). Using a drumbeat, they were able to lower their vibrational consciousness to the same level as the weeds in their garden. When at the same level, they had a conversation with their weeds. Participant 14 explained that one plant, "actually appeared to me as this thirty-foot tall, beautiful, glowing green woman; and you realize like, 'okay, this is a very powerful being, a very loving being.'" Such experiences significantly impact how adherents to this discourse perceive the more-than-human world – as alive and inspirited. Participant 14 said, "I've had conversations with plants and animals in my journeys that lead me to believe that everything is conscious, even the rocks are conscious. And what's the worst that can happen if you believe that? Nothing."

This discourse is also associated with intuitive farming approaches that explore telepathic interspecies communication; this is where, "a message is received from another organism, intuition arises within the human body, particularly the heart, arising as a 'knowing' without knowing how one knows" (Wright et al., 2017, p. 109). Below are two stories that demonstrate how regenerative farmers are using these approaches.

> "It's more than intuition, but intuition is a part of it. It's tapping into your native energy and letting that connect with the energy of the landscape or the energy of the animals. I know one lady who uses it all the time to find missing calves. She'll have a

> mother come to her, and she knows the calf is missing. But she doesn't know which paddock it's in, so she'll just use the map. Is it north? Is it south? Is it east? Is it west? And then, which paddock? She will refine it down and then go and get the missing cow" (participant 20).

> "…through subtle energies, you get a bit more in tune with what's being mentioned to you from the land. I can tell when the cattle need moving even when they're right across the other side of the property, and I can't hear them. But I know that they need checking. I know that it's either the cattle or the soil that is hurting. So, I just go over and check. That's quite an intuitive thing. That's why I don't use a grazing chart, because it takes away from that heart – that allowance for the other elements of the property to speak for themselves" (participant 19).

Other discourses (Restoration for Profit, Big Picture Holism, Regenerative Organic, Regrarian Permaculture) are more 'scientific' and 'measurable.' That everything must have a measurable value is a usual bias in agriculture (Seymour & Connelly, 2022). However, adherents to this discourse (alongside Deep Holism and First Nations in particular) raise the question that perhaps some aspects of transformative thinking are non-measurable? Adherents to this discourse draw on quantum physics to explain regenerative agriculture from a holistic perspective. Participant 2 remarked,

> "…there's almost an aspect of quantum theory which comes into regenerative agriculture that enables us to be comfortable in letting go of the magnificence of the scientific method and embracing the fact that all sorts of variables exist at the atomic level which are quite strange and quite different, and therefore we have to allow those differences to come into our way of thinking about the world."

In this discourse quantum physics is conflated with subtle energies. This is because the intuitive practices in this approach rely on a radical interconnectedness with everything. As participant 5 said, "if you get back into quantum, there's no separation. Everything is joined, linked, the same. So therefore, when you're looking at regeneration, you've got to do it from that perspective, that everything is linked, everything's the same." As such, participant 5

believed that regenerative agriculture could not work well if it didn't consider subtle energy and quantum physics. They used these terms interchangeably, as does RCS when marketing their Quantum Leap workshops (MacManaway, 2020). This quantum rhetoric brings a scientific argument into the discourse, whereby "ancient wisdom meets modern agriculture" (MacManaway, 2020, p. 1). Participant 20 made an interesting comment about the language of the workshops. They said, "if he [Patrick MacManaway] was not talking to Western people he would describe it [subtle energies] very differently because he understands it intimately from a Shamanistic point of view. But if he didn't Westernise it, we wouldn't be able to embrace it because we haven't got that Shamanistic history."

In many cases, this approach to regenerative agriculture continues the pattern of transplanting European practices into non-European contexts (e.g., Australia). As such, it is not place-based or place-informed (unlike other discourse such as Regenerative Cultures and First Nations). Participant 19 referred to being invited "into an Indigenous Australian perspective of subtle energies." In their practice they asked questions such as, "what's the connection to Australia here? Why am I here? What am I doing?" This type of awareness is not apparent in the discourse more broadly. For example, adherents are erecting Celtic-inspired stone circles on their properties to harness landscape energies. However, there is no consultation with Indigenous people to ensure that sacred sites (also considered energetic centres by some and often located on private land) are not negatively impacted by changes in energy flow.

The Quantum Leap workshops hosted by RCS suggest on their pamphlets that, "sunlight and rainfall are natural and free assets in your production system to be managed and profited from. With the right knowledge and techniques quantum physics is another natural and free asset from which your business can benefit" (MacManaway, 2020, p. 2). As such, quantum physics/subtle energies are assets that can improve profitability. This plays into the rhetoric of the Restoration for Profit discourse. RCS is an organisation that participates in Restoration for Profit, Subtle Energies and Big Picture Holism. The interaction between Subtle Energies and Big Picture Holism in this context is evident in the use of the anthropocentric 'tool' metaphor – subtle energies are tools for achieving human-defined outcomes. Participant 20 demonstrated this saying,

> "…farming with intuition is really what a lot of regenerative agriculture farmers do once they really get into it because they're walking the landscape, they feel the landscape, they sense what's going on. A lot of them will use the dowsing, they'll use their pendulum or they'll use their muscle testing to work out what minerals the landscape is lacking. They are so disciplined in how they can use these alternative intuitive models because they're actually just tools that they utilise."

However, as already established, adherents to this discourse also perceive the land as inspirited. This belief creates tension around using the tool metaphor. Participant 19 said, "subtle energy is great as a tool, but it also helps you become more empathetic to Country than I would have thought. It's actually picking up on the subtle nuances of what the land wants." This shift from focussing on practices and outcomes, to focussing on relationships is also beautifully articulated by participant 21. They said, "I might be out in the paddocks doing the most amazing high density rotational grazing or cover cropping and ticking all the boxes, but if I'm angry in my spirit or arrogant in my attitude or not responsive and tuning in to the forces beyond myself, then I don't think that's regenerative farming."

Chapter five: relationality for agricultural transformation – an action-oriented case study in regenerative agriculture

This chapter has been prepared for submission to *Agroecology and Sustainable Food Systems*. It examines a volunteer led co-operative, the Institute of Ecological Agriculture (IEA), as a case study on how advocates of regenerative agriculture are pursuing agricultural transformation. This chapter addresses research questions six and seven.

- How are advocates of regenerative agriculture pursuing agricultural transformation in Australia?
- How effective are these attempts at generating agricultural transformations?

Abstract

Agricultural landscapes have been reshaped globally to drive unsustainable increases in profit and production. This is contributing significantly to the degradation of planetary systems and the vulnerability of food systems. The discourse coalition that has formed around the storyline of regenerative agriculture (RA) promises to address these issues by transforming food production and repairing ecosystems. The coalition has diverse contributors that interpret RA differently. This discursive diversity will be difficult to retain as RA moves towards discourse structuration and institutionalisation. There is a risk that institutionalisation might be achieved by shedding the more transformative elements of RA – such as relational paradigms. This paper examines a volunteer led co-operative, the Institute of Ecological Agriculture (IEA), as a case study on how RA advocates are pursuing agricultural transformation. Subsequently, it evaluates these efforts in the context of discursive structuration and institutionalisation.

Introduction: transformations through the discourse of regenerative agriculture (RA)

Since the beginning of Green Revolution programs, agricultural landscapes globally have been reshaped to expand profit and production (Gliessman, 2007; Lawrence et al., 2013; McKeon, 2015). Farmers have unsustainably increased yields (Anderson & Rivera-Ferre, 2021) by relying on industrial processes, fossil fuel inputs and artificial fertilisers, pesticides and herbicides supplied by multi-national corporations (Horrigan et al., 2002; Kimbrell, 2002). Agriculture currently occupies 38% of the planet's terrestrial surface (Foley et al., 2011) so unsustainable agricultural practices contribute significantly to the degradation of earth systems (Campbell et al., 2017; Rockstrom et al., 2009). Ironically, over-reliance on these industrial practices to serve global markets is contributing to the vulnerability of food systems by making food production dependent on fragile supply chains (Clapp & Moseley, 2020). Transformation is consequently needed to prevent these systems breaking down (Linnér & Wibeck, 2020) and to protect agricultural landscapes (Neufeldt et al., 2013).

Roux-Rosier et al. (2018) point out that agriculture is a critical site for transformation because the re-organisation of land use and food production systems is essential to addressing

ecological crises. Agricultural transformation requires "major, purposeful action undertaken at the farm and supra-farm level" (Rickards & Howden, 2012, p. 240) and involves 'seeing' agricultural land use differently (Campbell et al., 2009). For the purposes of this paper, transformation is broadly defined as a radical shift in shared socio-cultural structures, as well as technological, economic, and ecological processes (Linnér & Wibeck, 2020). Many different approaches have been proposed to transform agricultural systems, including agroecology and organic agriculture. Here, we focus on one such approach – regenerative agriculture (RA).

Depending on the farm context (Grelet et al., 2021), RA integrates different agricultural approaches (Duncan, 2015) to restore and realise the potential of damaged landscapes (Francis & Harwood, 1985; Massy, 2013, 2017; Wahl, 2016). Proponents of modern agriculture often seek to invalidate RA's transformative potential by downplaying its scalability, comparative yield, economic viability, and capacity to address climate change (Ahmed et al., 2021). Despite this rhetoric, RA continues to gain popularity (O'Donoghue et al., 2022). Due to its integrative approach, "there is a large amount of diversity in the regenerative agriculture movement" (Seymour, 2021, p. 106). This includes diverse people, political views, locations, farm types, landscapes, and practices. The discursive origins of RA are also diverse (Gordon et al., 2023).

Discourses are shared social practices or ways of speaking that inform behaviour and decision-making (Fairclough, 1989). They draw on systemic constellations of meanings, phrases, assumptions, and storylines (Dryzek, 2013; Hajer, 1995; Riedy, 2020) to shape these social practices. Gordon et al. (2023) documented nine discourses contributing to RA. To make sense of how these influence the movement, they drew on the related concept of discourse coalitions (Hajer, 1993). A discourse coalition is, "a group of actors that, in the context of an identifiable set of practices, shares the usage of a particular set of storylines over a particular period of time" (Hajer, 2006, p. 70). Discourse coalitions and storylines are middle-range concepts that show how discursive orders are maintained or transformed (Hajer, 1995). RA has become a shared storyline for restoring, reviving, and renewing agricultural environments (Gordon et al., 2023). The political power of this storyline, "comes

from its multi-interpretability" (Hajer, 1995, p. 61). That is, it can have multiple interpretations and create space for inclusive conversations (Seymour, 2021).

Transformation or co-optation?

RA is a relatively undefined term (Newton et al., 2020), which has contributed to its multi-interpretability as a storyline. It also means that "governmental agencies, industries and sector organizations have their own interpretation of regenerative agriculture, depending on particular interests" (Tittonell et al., 2022, p. 2). This has been identified as a potential greenwashing strategy (Giller et al., 2021; Tittonell et al., 2022); which means misleading people about environmental benefits (de Freitas Netto et al., 2020). In this way, multi-interpretability is an invitation for powerful actors to shape the storyline in ways that suit their interests. Nonetheless, it also means that consensus is not required for coordinated action because individuals can act together while retaining their own interpretations (Gordon et al., 2023). As such, the storyline of RA is a powerful "starting point for political action" (Edenborg, 2021, p. 2).

However, if a discourse is to support the ambitious goal of transforming agriculture, it needs to navigate the difficult transition from marginal idea to mainstream acceptance. As a discourse gains widespread participation it undergoes structuration whereby many people use it to conceptualise the world and a particular framing of the discourse becomes dominant in society (Hajer, 2006). This process is often the precursor to institutionalisation, which occurs when a discourse solidifies into institutions and organisational practices (Hajer, 2006). The success of a discourse correlates to the success of specific institutions and actors tied to the discourse (Hajer, 1993). The risk is that such institutionalisation will be achieved through an accommodation with dominant productivist discourses. This may fail to retain the more transformative discursive elements of RA, resulting in incremental change rather than transformation.

This dynamic has been observed in organic agriculture, whereby certification and regulation pushed organics to fit into a model of "profitable and high productivity agriculture, hence going against the intentions of the original organics movement in reaction to the green

revolution" (Elrick et al., 2022, p. 4). This could be understood as a process of co-optation, whereby the discursive concepts embedded in a movement are adopted whilst their intent is subverted (de Jong & Kimm, 2017). As such, the original claims of a movement are diluted as it is aligned with dominant institutional requirements and political agendas. By contrast, agroecology has a core political framework around food sovereignty (IPC, 2015) that challenges the dominance of corporate power in the food system (Chaifetz & Jagger, 2014). It consequently resisted co-optation by agri-food companies when it was endorsed by the Food and Agriculture Organisation (de Molina et al., 2019).

Whether RA resists co-optation is yet to be seen. Institutionalisation in RA and its impact on transformation has only been marginally addressed in the literature; see Elrick et al. (2022) and Day and Cramer (2020). Currently, many groups are working to institutionalise their own versions of RA through certification, verification, or accreditation programs. These include: regenagri / regenerative certified (2022); Regen1 (2022); AGW Certified Regenerative (2022); Regenerative Organic Certification (2022); Regenified – formerly Regen Earth Verified (2022); Soil Regen Regenerative Verified (2022); Savory Institute Land to Market Ecological Outcomes Verification (2022); the Soil Carbon Initiative (2022); Roots Regenerative (2023); and Southern Cross Certified (2023). Elrick et al. (2022) says many believe that RA will need to have clearly defined principles and regulations to build a certification system that works; but this view is not shared by all practitioners.

In Australia, one organisation that has been exploring the role that accreditation of RA can play in expanding discourse coalitions and transforming agriculture is the Institute of Ecological Agriculture (IEA). This paper reports on the IEA as a case study of how regenerative agriculture advocates are pursuing transformation. It utilises action-oriented research through practice as a conceptual framework for exploring this case study. Two research questions were developed to guide the research through practice:

- How are advocates of regenerative agriculture pursuing agricultural transformation in Australia?
- How effective are these attempts at generating agricultural transformations?

Conceptual framework: action-oriented research through practice

To explore how advocates of RA are pursuing transformation, this research took an action-oriented approach. This combines knowledge creation with simultaneous intervention so that "action is occurring in tandem with the research" (Bradbury & Divecha, 2020, p. 278). In a context where transformations are urgently required (Feola, 2015), action-oriented research aspires to help generate changes through the way we do research (Bradbury et al., 2019). It is inherently political because, "it involves exploring how incumbent systems and power might break down allowing for a broader societal shift towards transformative alternatives" (Fazey et al., 2018, p. 63).

To act and research simultaneously, the lead author undertook a process of "research through practice, where the act of practice itself becomes the research" (Fazey et al., 2018, p. 62). This approach comes under the umbrella of 'practice-research' (Hope, 2016). He joined a group of ten IEA members exploring the development of an accreditation for RA between 2020-2022 and engaged fully in these discussions. In this sense, the practice of developing the accreditation alongside IEA members was a means to discern communicable knowledge about how RA advocates are pursuing transformation. This approach involves a paradigm shift towards viewing *researchers as practitioners* (Hope, 2016) and breaking down the researcher-practitioner dichotomy.

As researchers we are inevitably "embedded within, and not separate from, the systems [we] seek to observe" (Fazey et al., 2018, p. 56). The lead author has farmed regeneratively and been a member of the IEA co-operative throughout the research period. He participated in IEA conversations and introduced ideas that were incorporated into the accreditation. The author was shaped in return by the IEA community. As Bradbury et al. (2019, p. 8) say, "it is not just about changing something 'out there,' but it is also about both changing ourselves and our mental models, and our relationships between the out there and the in here."

As per Hope (2016, p. 77), "a non-practice-research project might start with a defined research question, a methodology, and set of methods to find answers. Research that starts with practice can often complicate these dynamics as the questions and methodology emerge through making, doing, and testing things out." This does not mean the practice-

research process was less rigorous. It simply means that the research question and methodology emerged at different points within the practice-research journey (Haseman, 2006). Fundamentally, this enquiry was about thinking *through* making (Ingold, 2013) the accreditation. As Hope (2016, p. 77) remarks, "in research that privileges practice the researcher does not necessarily know what they are going to do before they do it and this may rub up against other research approaches which place theory and methodology before practice."

Case study: the Institute of Ecological Agriculture (IEA)

Alongside other examples listed in the introduction, IEA is similarly exploring the institutionalisation of RA discourse through an accreditation scheme. Examining the IEA approach to accreditation sheds light on how advocates of RA are pursuing transformation. IEA is a volunteer-led co-operative that advocates for ecological thinking in food, farming, and forestry (IEA, 2022f). IEA use the terms regenerative and ecological either together or interchangeably; e.g. "an ecological agriculture that is regenerative" (IEA, 2022f, p. para 3). When first formed in 2009, IEA was known as the Ecological Agriculture Australia Association (EAAA). In 2016 the EAAA dissolved and the Australian Institute of Ecological Agriculture Co-operative Ltd was registered – this was unofficially shortened to the current name.

The IEA community began to discuss an accreditation process in 2012. It was known originally as the *Farmer Endorsement Scheme (FES)* and imagined as a third-party accreditation. In this sense, a completely independent third party (IEA) would endorse the competence of the farmer in ecological approaches to agriculture. Eventually, IEA stopped referring to the FES and instead simply called it 'the accreditation.' As IEA is a co-operative that includes members who are farmers, complete third-party independence was not possible. The vision consequently evolved into a second party accreditation where someone related to the farmer endorses them. In this case, IEA as a co-operative to which the farmer belongs.

IEA intended to endorse farmers who embraced ecological and relational paradigms in agriculture. Paradigms include conceptual and metaphoric constellations that form the basis for scientific methods and theories (O'Brien et al., 2023). They can be validated or rejected

depending on the discourses operating in hegemonic cultural groups (Leichenko & O'Brien, 2019). Relational paradigms include "ontologies, epistemologies, and ethics that do not presuppose subject-object and nature-culture binaries" (O'Brien et al., 2023, p. 4). They are based on principles of interconnectedness and entanglement with the more-than-human world (Walsh et al., 2021; West et al., 2020). These paradigms are prominent amongst regenerative farmers (Seymour & Connelly, 2022), but have an older history with Indigenous thinking and scholarship (O'Brien et al., 2023). IEA therefore had the challenge of designing an accreditation based in a relational paradigm, rather than a quantitatively reductionist one.

The terminology of RA was not used extensively in Australia until after the publication of Massy (2017). As such, IEA did not use this terminology in their early discussions about accreditation. In fact, it was unclear why this endorsement was necessary. Only farmers selling direct to consumers could benefit from using the IEA brand in their marketing. This lack of clarity, combined with waning capacity within IEA, stalled progress until the emergence and popularity of RA grew between 2016 and 2020. During this period, IEA collaborated with the Regenerative Agriculture Alliance (RAA) at Southern Cross University (SCU) to write, develop and deliver the Bachelor of Science (Regenerative Agriculture). RAA is a collaboration between RA researchers and practitioners in Australia to improve the health of rural landscapes and communities. The degree was a world first (SCU, 2019) and the Good Universities Guide 2020/21 ranked SCU as first in Australia for undergraduate overall experience in agriculture (GUG, 2021). Such pedagogical institutionalisation provided formalised access and credibility to RA in Australia.

The lead author became involved with IEA in 2020. At the time, accreditation was seeing renewed interest from RAA at SCU as a post-degree pathway for students studying RA. Due to IEA and RAA's shared history, many IEA members were also involved with RAA. As such, particularly from 2019 onwards, RAA's interest in the accreditation concept led IEA to renew discussions about its development. Not many work opportunities existed in RA for graduating students, so a professional endorsement from an industry organisation was appealing. As such, some of the demand for accreditation was coming from students emerging from the SCU degree.

This practice-research was undertaken between 2020 and 2022 alongside ten IEA members (core group). This group met monthly during the research period (thirty-six meetings) and sought to establish the basis for accreditation – a set of ethical and professional standards, which IEA members wish to emphasise in quality assurance. These were drafted by the core group in four documents:

- Knowledge circles (2022c): accreditees would be expected to have knowledge and experience across multiple areas listed in this document.
- Code of ethics (2022b): the general ethical code for accreditees.
- Rules of conduct (2022e): an expansion of the code of ethics with more specific detail about how accreditees should conduct themselves.
- Professional standards (2022d): the standards set to guide and monitor the professionalism of accreditees.

These documents were sent to twelve additional IEA members (contributors 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 23) and four non-members (contributors 25, 26, 28, 29) for review and comment. A further five non-members (contributors 24, 27, 30, 31, 32) and one member (contributor 22) did not comment directly on the documents but still made contributions to accreditation discussions. There were twenty-two contributors altogether, in addition to the core group (see *table 10*). Document review occurred between January and June 2022. Documents were emailed to contributors who had three weeks to respond. Once feedback was collated, the core group met weekly between July and October (an additional sixteen meetings) to fine tune the documents and the accreditation concept. Fifty-two meetings were had altogether.

Table 10: contributor demographics

Occupation	Contributors*	Collective agricultural knowledge
Educators	3 (He/him); 10 (He/him); 21 (He/him); 23 (She/her); 25 (She/her); 28 (They/them); 30 (He/him)	Systems thinking, holism, human ecology, regenerative agriculture, holistic management, permaculture, agroecology, indigenous foodways, carbon farming
Consultants	4 (She/her); 8 (He/him); 11 (She/her); 15 (He/him); 17 (He/him); 18 (He/him); 27 (She/her); 30 (He/him)	Ecological agriculture, natural resource management, sustainability engagement, organic agriculture, regenerative agriculture, landscape hydration, permaculture, holistic management, carbon farming

Farmers	1 (He/him); 6 (She/her); 7 (He/him); 10 (He/him); 13 (He/him); 19 (She/her); 20 (He/him); 22 (He/him); 24 (She/her); 25 (She/her); 26 (He/him); 29 (He/him)	Biodynamics, subtle energies, holistic management, permaculture, plasma science, GANS technology, adaptive farming, horticulture, no-kill cropping, self-herding, mushrooms, agroecology, holistic management, carbon farming, regenerative agriculture
Students	5 (She/her); 6 (She/her); 11 (She/her); 12 (She/her); 13 (He/him); 14 (She/her)	Sustainable agriculture, regenerative agriculture
Researchers	1 (He/him); 10 (He/him); 16 (He/him)	Regenerative agriculture, adaptive grazing, sustainable agriculture
Other	2 (They/them); 8 (He/him); 9 (She/her); 13 (He/him); 19 (She/her); 31(organisation); 32 (organisation)	Accounting, Landcare, environmental conservation, food systems transformation

*Contributors 1-10 were part of the core group; 1-23 were also members of the IEA; 24-32 were external contributors

Methods

Research through practice involves examining a question by making and doing (Frayling, 1994). As mentioned in the conceptual framework, the question can sometimes emerge from doing the practice (Hope, 2016). Our research questions developed this way. They asked: *how are advocates of regenerative agriculture pursuing agricultural transformation in Australia? How effective are these attempts at generating agricultural transformations?* To identify and address these questions, the lead author kept field notes and wrote analytic memos throughout the research period (Saldana, 2009).

Field notes included the lead author's written observations and personal interpretations of the process and goals of accreditation (summarising the process and insights). Analytic memos were devoted to analytic reflection and thinking critically about what IEA was doing and why (reflecting and expounding upon insights). Both field notes and analytic memos were interlinked and functioned as, "a site to 'dump your brain' about the participants, phenomenon, or process under investigation by thinking and thus writing and thus thinking even more about them" (Saldana, 2009, p. 44). By using field notes / analytic memos as a central data point, we made space for uncovering information via informed hunches, serendipitous occurrences, and intuition as per Saldana (2009) and the practice-research approach (Hope, 2016).

Contributors were involved at different stages between 2020-2022. They were approached by the core group based on (a) their philosophical and practical perspective on RA – attempting to get input from a wide range of approaches; (b) their availability. All accreditation conversations (fifty-two meetings) were recorded in minutes and email correspondence. The core data points used in the analysis were: (1) core group meeting minutes; (2) core group emails; (3) contributor feedback and notations; (4) analytic memos/field notes; (5) both draft and final versions of the four accreditation documents. We analysed the data to identify themes. A theme is an "extended phrase or sentence that identifies what a unit of data is about and/or what it means" (Saldana, 2009, p. 199). The themes are shaped by the primary questions, goals and frameworks being used (Saldana, 2009). The process was as follows:

1. The lead author read and annotated texts actively. He was already familiar with them because he was involved in their creation.
2. Analysis: themes were recorded and consolidated in iterative cycles of analysis, constructed as simple statements identifying what an item of text was about in relation to the research questions.
3. Categorisation: the lead author looked for how various themes were similar, or different, and what relationships exist between them in and across texts. In this way, he grouped them into broader themes.
4. Review: broader themes were reviewed by considering whether they made sense in the wider data set and comparing them with the original data extracts to ensure integrity was maintained in analysis.

This process was useful for making sense of the research through practice, which is based on observation and reflection whilst doing (Hope, 2016). To authentically communicate the outcomes of the practice-research, this paper will also make use of vignettes. These are the lead author's personal reflections demonstrating how the practice-research contributed to major shifts in the accreditation's design. Each theme correlates with a vignette that explores an 'action tipping point' – moments in the practice-research where major shifts in thinking occurred. The themes and vignettes work together to portray the multiple cycles of tension

and resolution that occurred whilst undertaking the practice-research. Sometimes evidence cited will rely on personal knowledge. Any insights that rely on personal knowledge from participating in this process will be cited in-text as: (personal knowledge). E.g., *there was a sense of urgency to launch the accreditation (personal knowledge).* See *figure 6* for practice-research timeline.

Figure 6: practice-research timeline

Findings of the research through practice

The analysis identified four themes that illustrate how IEA, as RA advocates, are pursuing transformation. The effectiveness of these attempts will be explored in the discussion.

Theme one: cultivating relational paradigms – the *why* of RA

Experts in RA have been criticised by Jonas (2021) for teaching the *how* of regeneration (e.g., cover cropping) but not the *what* (e.g., communities, landscapes) or the *why* (e.g., ethics of care). IEA is mostly concerned with the *why* as opposed to the *how* (analytic memo). For IEA, values and emotions are the heartbeat behind the *why* of RA (Cochrane, 2019). The IEA President, Kerry Cochrane (2019, p. 7) remarks, "the capacity to empathise with the environment and with all organisms (including people) is vital for the journey into the regenerative mindset." IEA draws on a relational paradigm where humans are one thread in the web of life (IEA, 2022a). Contributor 19 said that humility was a fundamental quality for being aware of something beyond ourselves and caring for other life – yet it was missing in many regenerative groups. The IEA core group became concerned that the *why* of RA would be lost as the term gained widespread appeal (personal knowledge). This challenged IEA to

consider how they might embed qualities (such as humility) into an accreditation system (personal knowledge). Despite being a structure for standardising the *how*, the accreditation was designed as an attempt to safeguard the *why* (analytic memo).

Vignette 1: inner transformations as an action tipping point

Whilst working with IEA, I was simultaneously researching nine discourses interpreting RA differently (Gordon et al., 2022, 2023). This *multi-interpretability* is potentially transformative if there is also common ground between discourses gluing actors together. I realised that (to varying degrees) these discourses framed knowledge about how and why to regenerate through relational paradigms. This means IEA's relational *why* might serve as glue for adherents to different RA discourses. Without relational paradigms, RA becomes a suite of greener farming practices. This is not enough to address deeper food system issues of equity, power, and identity. IEA felt RA's popularity was putting it at risk of co-optation because practices were being adopted whilst subverting relational paradigms. It is by separating practices from relational paradigms that some First Nations approaches have been co-opted under the banner of RA. Therefore, we decided the accreditation should foster *inner transformations*. That is, the shifts in values, emotions, and assumptions needed to experience the world relationally and with care. As IEA says, "at the heart of the transformation of a farm business to greater ecological integrity is the farmer's continuing transformation of the self" (2022g, p. para 2). This was a tipping point. There are many ways to regenerate (how), and many structures, places and communities that require regeneration (what) – so multi-interpretability makes sense. Relational paradigms (why) became a source for common ground to avoid co-optation whilst respecting these differences. This made accreditation logistics difficult. The *how* (practices) is more visible than the *why* (paradigms), which make them easier to evaluate and accredit. IEA was attempting to work with the non-quantifiable side of RA.

Theme two: engaging politically

The accreditation expects practitioners to learn about, "indigenous sovereignty; racial parity; land accessibility; the unequal distribution of resources; concentration of ownership; and over-reliance on external inputs" (IEA, 2022c, p. 6). Contributor 13 was concerned that it was becoming "quite political" and contributor 20 deleted this section entirely. There was discussion about whether equity and power needed to be singled out or if an emphasis on holistic thinking would naturally address them (contributor 3). Others urged for this power-focus to go further (contributors 1, 2, 23, 25, 28) pointing out that it didn't, "push the edge of meaningful social change" (contributor 28). Contributor 23 said IEA should consciously look to include migrant and Indigenous farmers as opposed to just drawing on Indigenous

knowledges. The code of ethics (2022b) and rules of conduct (2022e) emphasised *respect* for First Nations people. Contributor 28 said,

> "Our current economic, agricultural, and social models don't actually have the literacy or competency to meaningfully respect First Nations cultures in a way that doesn't ultimately uphold the systems of violence that impact Indigenous Peoples in the first place. This section needs to include the pathways to actions of respect and align a commitment to this as an Ethic."

In identifying pathways to actions of respect, contributor 25 referred to the Australian Food Sovereignty Alliance's (AFSA) First Peoples First strategy. This outlines how AFSA is supporting First Peoples' food sovereignty through free membership, promotion, allyship, land sharing, solidarity training, and by Paying the Rent (AFSA, 2022). Contributor 28 said, "there should be more accountability woven [into the accreditation] … change occurs via action, we must hold space for that action within every professional." The accreditation needed to shift its stance from having a "willingness" to help rectify these issues, to having a "commitment" (contributor 28). If IEA wanted to avoid upholding institutional power imbalances through the accreditation, it would need to contemplate further its role in decolonisation (contributor 23, 28).

Vignette 2: directionality of transformation as an action tipping point

Regeneration is in part a political act, to renew what has been degraded. To be unaware of political issues is to potentially reinforce oppressive structures. This led me to consider the directionality of our transformation efforts – who is our primary audience? Many certifications are being established to endorse farmers, but farmers are not the only RA actors. We began discussing the role of accreditation in building the capacity for extension, consultation, education, and training in RA. Further, graduates-to-be in the Bachelor of Science (Regenerative Agriculture) did not have clear employment pathways. Inhibitive land prices meant many would not be farmers. Therefore, a fundamental difference in the IEA accreditation today, compared with 2012, is a shift in focus from farmers to consultants and educators. These are more accessible employment pathways for students. There are companies hoping to benefit from RA by relabelling themselves and supplying 'regenerative' products or services, thus changing the product but not the thinking. This is a form of co-optation. Unregulated advice puts farmers, landscapes, and transformation efforts at risk – including the credibility of genuine RA consultants and educators. IEA is thinking about the systems of support that are needed to build an authentically transformative agricultural sector.

Theme three: valuing multi-interpretability without compromising relational ethics

The core group did not want to restrict the interpretation of RA and potentially lock-out marginal voices (IEA, 2022c). They valued multi-interpretability so long as it didn't compromise the relational ethics of their *why* (personal knowledge). As IEA (2022c, p. 1) says, it "is not accrediting a specific skillset. It is accrediting a broad range of ecological approaches to agriculture, each of which have their own goals and measurements for success. The core of this accreditation is to share and abide by ethical and professional standards as a community of educators and consultants – regardless of each applicant's specific background or training." As such, a diverse range of approaches to RA were listed as eligible areas of speciality in the accreditation (IEA, 2022c).

These had different goals (e.g., social transformation, ecological improvement); measurements of success (e.g., community engagement, ecological monitoring); and definitions of RA (e.g., practice-based, outcomes-based). Consequently, this list was controversial and there was a desire for a clearer "explanation of what is 'in' and what is 'out'" (contributor 20). Pushing back on this in-out dichotomy, accredited members would be expected to, "interact responsibly with people who are different to them, and reflect critically on their own knowledge, advice and position" (IEA, 2022c, pp. 9-10). Contributor 30 commented that accreditation was a way of setting arbitrary boundaries around what people do. However, this accreditation took a very different approach and focussed on how a plurality of RA knowledges could be enabled and allowed to exist.

Vignette 3: collective learning as an action tipping point

Whilst collaborating on the accreditation, I informally shared ideas from my research. I was working from the premise that RA draws on nine discourses. Sharing this view significantly impacted how we thought about the accreditation – and it was designed to include diverse approaches. Finding common ground (relational paradigms) between discourses is important. However, equally as important to transformation is respecting agricultural diversity in context and approach. IEA did not want to accredit siloed expertise through a box-ticking endorsement. We envisioned a community of practice where diverse practitioners could commune and uphold shared standards for quality of work. In this way, adherents to different RA discourses could share knowledges and collectively learn. Many adherents to environmental discourses impede their own learning through over-confidence in the correctness of their interpretations (Dryzek, 2013). This impacts

opportunities for transformation because groups sharing similar goals become semantically divided. IEA hoped to break down barriers to connection in RA. Collective learning was identified as a transformative opportunity in my research (Gordon et al., 2022). It is central to IEA's theory of change – communing around commonality (ethical/professional standards based in relational paradigms), collectively learning around differences (nine RA discourses).

Theme four: re-imagining accreditation

There was apprehension from contributors 27 and 31 that an accreditation would structurally reinforce uneven power dynamics. Contributor 31 was concerned about locking out grassroots knowledge holders who wouldn't go through an accreditation process by deeming their knowledge 'invalid.' This was reinforced when experienced agriculturalists told IEA they did not think they were worthy of being accredited (personal knowledge). It was suggested by contributors 7 and 2 that IEA replace the term 'accreditation' with 'commendation' – or *IEA commended member* (meeting minutes 5/9/22). However, contributors 3, 4 and 8 thought this would lead to a drop in interest (meeting minutes 5/9/22). Nevertheless, it became obvious that the accreditation needed to be structured in a way that was inclusive and avoided elitism.

Contributor 27 pushed the core group to consider ways in which they might redesign accreditation systems. They emphasised First Nations co-design referring to inter-generational totemic knowledge systems. A person's totem is attached to a body of knowledge that they are bound to learn. What would this look like in a contemporary system for ensuring quality of work? IEA was eager to initiate First Nations partnerships (personal knowledge). This was jointly inspired by the Hua Parakore verification process in Aotearoa for Māori food sovereignty (Hutchings, 2015). A challenge going forward will be ensuring that the accreditation is decolonised and structurally supports the credibility of First Nations' consultants and educators through co-design (analytic memo).

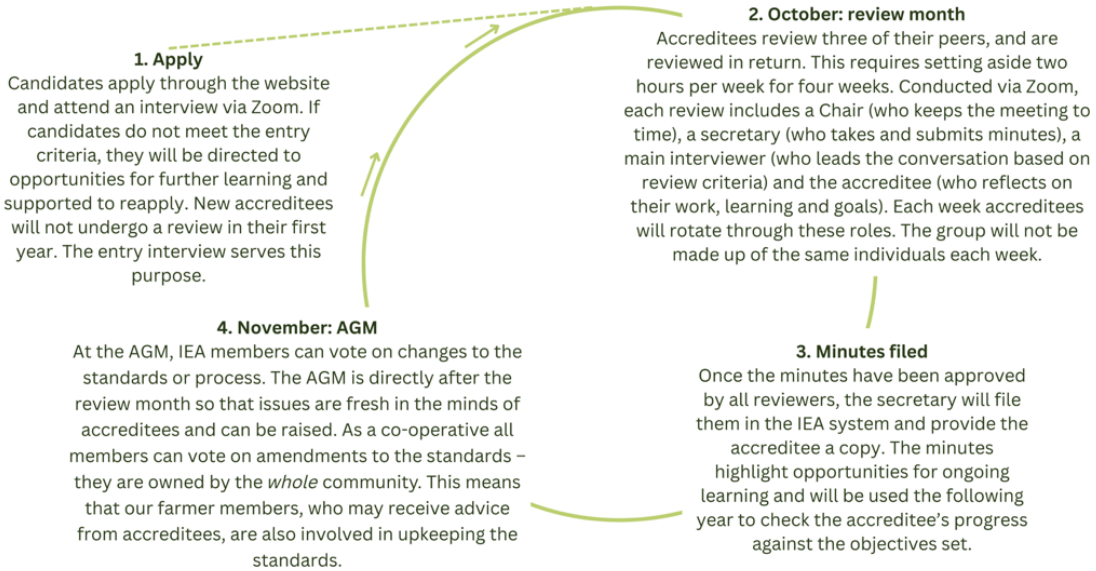
These discussions resulted in the inclusion of more horizontal knowledge sharing opportunities (analytic memo). A peer-to-peer Participatory Guarantee Systems (PGS) approach was adopted (email correspondence 10/10/22). PGS are "locally focused quality assurance systems. They certify producers based on active participation of stakeholders and

are built on a foundation of trust, social networks, and knowledge exchange" (May, 2019, p. 3). They are inspired by first-party, grassroots certification systems common in the 1970/80s (Cuéllar-Padilla & Ganuza-Fernandez, 2018). PGS are prevalent in organic agriculture and agroecology as an alternative to third-party certification (Bouagnimbeck et al., 2017) – which has received extensive critique (Montefrio & Johnson, 2019). *Figure 7* demonstrates how this peer-to-peer approach would work in the context of the IEA accreditation.

Vignette 4: peer review as an action tipping point

In 2022, I proposed redesigning the accreditation around PGS principles, prioritising peer review. The responsibility of accrediting would be distributed amongst the *accreditees themselves*. There would be no independent IEA inspectors. All accreditees would jointly determine the standards, participate in decision-making, carry out actions, and take responsibility for assessing quality of work. The standards could be amended via a vote from IEA's membership at the annual general meeting. This means the community could either water down or strengthen them over time. This approach is low cost, allowing IEA to keep the accreditation financially accessible. Each accreditee may not go through the process in *figure 2* every year, it may be split over two years – e.g., you review someone one year, you get reviewed the following. Peer review provides an opportunity for accreditees to discuss their work and explore how they might improve by exchanging experiences and sharing knowledge. The focus is on support, accountability, and learning. Accreditees would be commended to farmers by their peers because: a) they have sound experience and knowledge in RA; b) they can therefore give sound advice to farmers; c) they are committed to a shared integrity (ethical and professional standards freely available on the IEA website); d) they are accountable to their peers; and e) they are actively committed to ongoing learning.

Figure 7: peer review in the accreditation



Discussion: towards effective agricultural transformation

The four themes illustrate how IEA, as RA advocates, are pursuing agricultural transformation. The potential effectiveness of these attempts is less clear. We first discuss the connection between relational paradigms and IEA's goal of inner transformations. We then highlight the tension in retaining relational paradigms amidst processes of discursive structuration and institutionalisation.

Relational paradigms and inner transformations

Gosnell (2021) argues that agricultural transformations cannot be understood without considering the interiority of farmers. A farmer's feeling of kinship with nature is an underappreciated leverage point for transformation. Interior lives have been identified as *deep* leverage points (Abson et al., 2017; Leventon et al., 2021; Meadows, 2008). This is because the values and emotions of people determine their motivations and decision-making (Ives, 2020). IEA's commitment to the "interconnectedness of everything" (IEA, 2022g, p. para 2) recognises an interdependent and dialectical relation where humans and environments shape each other (Booth, 2013). This sense of interconnectedness is foundational to their relational paradigm in theme one.

There is a clear connection between relational paradigms and inner transformations. As Seymour (2021, p. 56) says, it is this way of thinking that "makes people within the regenerative movement radical and transformative because viewing the world relationally and with care challenges deep-seated values, attitudes, and assumptions about how agriculture should exist." In theme one, empathy is a pathway for withholding assumptions, critiquing personal perspectives, and adopting new paradigms (Ives, 2020) – e.g. relational paradigms. It is important for cultivating action (Ericson et al., 2014) because it encourages pro-environmental behaviour (Berenguer, 2003). Ives (2020, p. 211) remarks, "the scale of the sustainability crisis extends all the way from planetary systems to the heart and soul of every human being."

Seymour (2021) makes a distinction between the technical practice of RA (e.g., rotational grazing; cover cropping) and 'being regenerative.' Being regenerative draws on a more-than-

human ethics of care that critiques, “hierarchical normative ethical frameworks – which place the human at the top or centre – and instead proceeds with a vision of a horizontal web of interdependency between all matter” (Beacham, 2018, p. 539). This way of thinking is also prominent in many First Nations worldviews that consider how we might, “extend our sense of society to include the agencies of non-human beings and places … [and] learn to recognise ourselves within our local ecological family” (Poelina et al., 2022, p. 10). This does not mean an ecological family is necessarily equitable – it has complex interrelationships, competing allegiances and tensions (Sanford, 2011). However, in recognising the power dynamics between themselves and the environment, regenerative farmers shift the control they hold over more-than-human actors (Seymour & Connelly, 2022).

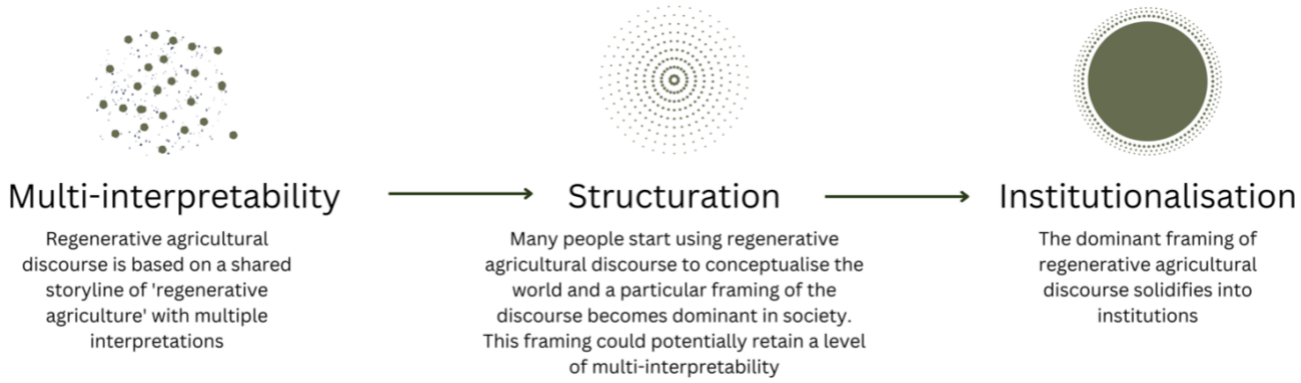
IEA are attempting to institutionalise a non-quantifiable paradigm that “demands a connection to the earth and the people around them that is deeper than simply filling a tick box exercise to achieve a regenerative certification” (Seymour & Connelly, 2022, p. 11). A PGS-inspired peer-to-peer approach to accreditation is relational in structure, and so embeds a relational paradigm at the institutional level. If processes of structuration and institutionalisation are to successfully support agricultural transformation, they will need to similarly navigate the complexity of supporting these non-quantifiable perspectives as opposed to simply standardising regenerative practices.

Relational paradigms in discursive structuration and institutionalisation

By imagining a future in which RA is institutionalised through accreditation processes, IEA triggered an important series of structuration dialogues amongst members. According to Hajer (1995, p. 60) structuration occurs “if the credibility of actors in a given domain requires them to draw on the ideas, concepts and categories of a given discourse.” If the discourse is then translated into institutional arrangements – (e.g., theoretical concepts become concrete policies), then institutionalisation has occurred (Hajer, 1995). Both these processes are required for a discourse to become hegemonic. This discussion departs slightly from the usage of structuration and institutionalisation in Hajer (1995) by applying these processes to a discourse that is not yet hegemonic (see *figure 8*). Hajer (1995) uses them as *markers* of hegemony. Instead, we are referring to a particular regenerative discourse becoming

dominant within RA, before challenging the broader hegemonic agricultural discourse (industrial agriculture). We also suggest the possibility that RA takes over industrial agriculture whilst retaining multi-interpretability.

Figure 8: multi-interpretability, structuration, and institutionalisation



As per themes one and three, multi-interpretability is potentially transformative so long as there is common ground between discourses. IEA is trying to structure a set of meanings about RA that reinforces its connection with relational paradigms. In theme three, they value multi-interpretability so long as it doesn't compromise their relational ethics. This means that as structuration takes place, multi-interpretability can be retained within the boundaries of a relational paradigm. The accreditation is guided by this commitment. However, advocates led by other paradigms may promote very different views of RA – creating confusion about the term that can be exploited. The hegemonic agricultural discourse is already *structured* in society, such that RA is always under pressure to cave into this existing structuration and frame its core ideas in that way. As such, a regenerative discourse that uses similar rhetoric to hegemonic agricultural discourse can be privileged by powerful actors (Gordon et al., 2022) allowing them to ignore the issues outlined in theme two.

Haslet-Marroquin (2022) says the desire to define RA is a form of colonisation. This is because definitions can become tools for ensuring that RA conforms to the hegemonic structuration in agriculture, which is colonial and reductionist. Structuration and institutionalisation can easily privilege the quantifiable aspects of RA because Western science is the pre-existing form of knowledge. As such, "knowledge which cannot conform to the norm of numerical science risks being side-lined" (Seymour, 2021, pp. 155-156). This is

clear in current definitions that reduce RA to processes and/or outcomes (Newton et al., 2020). See: California State University (CSU) Chico (2017), Brown (2018) and Mills (2020). These are easily adopted by an industry that already adheres to that structuration. Seymour (2021, p. 153) remarks, "attempting to communicate 'regenerative agriculture' through science by reducing it solely to practices and outcomes ignores the transformative mindset shift that is a new way of thinking and being."

Defining RA purely within the agri-science paradigm (e.g., practices and outcomes) as it moves through processes of structuration and institutionalisation is questionable. Such definitions are unlikely to initiate transformations because they exclude the more transformative, non-quantifiable aspects of RA (Seymour & Connelly, 2022). Whilst IEA have a relational paradigm, they still inadvertently risk watering this down because accreditation (as a format) privileges quantifiable approaches to knowledge. In vignette one, IEA's commitment to inner transformations made accreditation difficult because practices are easier to evaluate. Nonetheless, the PGS-inspired approach (theme four) and the community of practice (theme three) create dialogues that encourage a more transformative structuration in RA that could challenge hegemonic agricultural discourse.

Vignette 5: final reflections

Gosnell (2021) found that communities of practice (theme three) played an important role in ongoing learning particularly whilst farmers were solidifying new 'regenerative' identities. Similarly, peer-to-peer learning networks (theme four) are strong environments for supporting different types of thinking and practice in RA (Seymour & Connelly, 2022). Consequently, IEA is contributing to discursive structuration around relational paradigms by having these discussions *as a community* – regardless of whether an accreditation is successful. IEA has fostered such paradigms in me, which has impacted how I relate to my responsibilities on the farm. This practice-research has helped me tell a more realistic story about the relationship between knowledge and practice in RA. I don't know whether these efforts will contribute to structural and systemic transformation. However, "[hope] is not conviction that something will turn out well, but the certainty that something makes sense, regardless of how it turns out" (Havel, 1990, p. 181). The inner transformation that I've experienced whilst conducting this practice-research is enough to re-assure me that IEA's attempts at change are not arbitrary.

Conclusion

This paper examined a volunteer led co-operative, the IEA, as a case study on how advocates of RA are pursuing transformation. We took an action-oriented research through practice approach. The practice of developing an accreditation alongside IEA members became a means to discern communicable knowledge about generating agricultural transformations. We suggest that defining RA purely within the agri-science paradigm as it moves through structuration and institutionalisation is unlikely to achieve the social transformations required to support equitable and sustainable futures. Transformation requires that actors: a) engage in collective learning around differences, and b) find common ground in relational paradigms. This partnership can help *structure* a shared regenerative discourse that challenges hegemonic agricultural discourse. Relational paradigms are potentially transformative because they defy hegemonic values and attitudes in modern agriculture. If definitions used in structuration and institutionalisation exclude this non-quantifiable side to RA, they may inhibit transformation.

Chapter six: discussing implications for transformation on and beyond the farm

The running goal of this thesis is to understand the discursive characteristics of regenerative agriculture and the implications for transformation. In alignment with this goal, my discussion will focus on the following question: *what are the implications of this study for agricultural transformation on and beyond the farm?* To answer this question, I will discuss two over-arching themes in the study and their transformative implications:

1. On the farm: more-than-human relationality in regenerative agriculture
2. Beyond the farm: sharing storylines whilst retaining place-sourced interpretations of regenerative agriculture

In exploring the big picture implications for agricultural transformation on and beyond the farm, I will use personal vignettes (as I did in chapter five) to reflect on my own farming practice at Moffat Falls. As a practice-research thesis, this will compliment and enliven the themes and offer further insight into the transformative potential of regenerative agriculture. As per the research design (chapter one), this thesis is underpinned by the belief that agricultural landscapes and mindscapes need to be transformed to prevent further socio-ecological destruction. As both a PhD Candidate and practitioner of regenerative agriculture, I consider myself a central actor in this process – hence the inclusion of the vignettes.

On the farm: more-than-human relationality in regenerative agriculture

An emergent theme of this thesis is the role of relationality in regenerative agriculture. The further the discourses articulated in chapters three and four depart from industrial-productivist agriculture, the more knowledge about how and why to regenerate is framed with relationality instead of productivity – see tension four (departure) in chapter three. Whilst relationality and productivity are not dichotomous, they nevertheless represent two different ways of viewing agriculture. As suggested in chapter three, regenerative agricultural discourses exist on a spectrum between these perspectives. In chapter two, this spectrum is referred to as a *scale of departure* (theme six) whereby discourses depart from the status quo to differing degrees. This is also reflected in Page and Witt (2022) where *regenerative* approaches believe that farming does not require environmental control and *productive* approaches believe that it does.

Many regenerative farmers talk about *working with nature* or *getting out of nature's way* (Massy, 2013, 2017). This entails shifting towards a non-anthropocentric view of their place in ecosystems. Such a shift is the difference between talking about animals and ecosystems as tools (Big Picture Holism) compared with kin (First Nations). A tool is wielded by the human-maker – who has all the agency. In contrast, Yandaarra-with-Gumbaynggirr-Country et al. (2021, p. 3) say, "Country itself has agency, the winds have agency, people have agency, we act upon each other as we emerge together: like family, like and as kin." This makes farming a more-than-human collaboration.

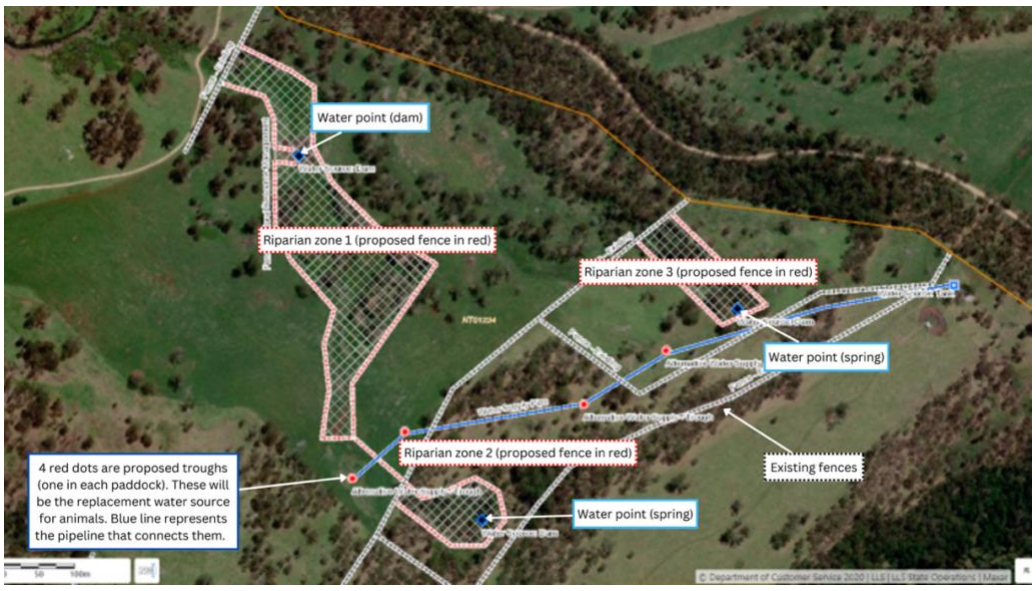
As elaborated in chapter five, this collaboration has complex interrelationships, competing allegiances and tensions (Sanford, 2011). However, Seymour and Connelly (2022) demonstrate how regenerative farmers remain open to alternative thinking that challenges commonplace power dynamics in farming. As demonstrated in chapter two, many regenerative farmers have proclaimed that they are addicted to ongoing learning (Massy, 2017) and demonstrate an openness to alternative ideas (Gosnell et al., 2019). A principle of regenerative food systems is to "acknowledge and include diverse forms of knowing and being in the world" (Duncan et al., 2020, p. 5). Evidently, this includes more-than-human forms of knowing and being. As mentioned in chapters one and five, more-than-humanism

embeds humans within a web of interdependent relations (Beacham, 2018). This web includes diverse beings with diverse ways of being (Massey, 2005). In *vignette 6*, I reflect on our farming practice as a negotiation of power with the more-than-human world.

Vignette 6: farming with more-than-human beings at Moffat Falls

At Moffat Falls agricultural production is not our only purpose; my family and I also feel a need to care for this place as a more-than-human habitat. Therefore, our role is not to produce commodities but monitor ecosystems. Good monitoring requires listening with our eyes and our hands, as well as our ears. This means being present and attentive; having local knowledge (e.g., where the best path to the river is and which animals use it); and being open and curious enough to learn from the more-than-human world. Our grazing animals know our routine and are responsive to certain patterns of behaviour – e.g., they'll wait by the gate when it's time to move. All the creatures here co-evolve their routines in response to other creatures. We are aware of each other. This is what it looks like to be *worlding with, in company* – as explored in my positionality. Each of us are participating in world-making through our interactions on the farm. For us, regenerative farming does not mean mimicking how things might work 'in nature.' We *are* nature. Our relationships, routines and patterns in the landscape co-emerge with non-human beings.

Image 9: protecting three riparian zones at Moffat Falls



By listening we have noticed that the wet season is becoming more unpredictable and typically starting a month later every year, which impacts our climate (e.g., wet winters instead of wet summers). This change in weather patterns means we need to change how we manage our water supplies. We are fencing off ten riparian habitats that feed into important waterways, and support wildlife corridors, wetlands, peat moss and threatened species. Each of these habitats are fed by springs. If grazing animals compact these springs, they

could disappear off the farm – so it is important to keep those animals away. Because we have many springs, the flow of the river increases dramatically as it passes through the farm. We therefore have a responsibility to protect the level of the water as it moves into habitats downstream. Moffat Falls is nestled between 120,000ha of state forest and national parks. The health of our farm is interlinked with the health of this broader bioregion. *Image 9* shows three of the riparian zones we are protecting.

As a child, I used to stick-pick paddocks. The purpose of this was to make them look clean and ensure that the grass was not covered because: grass = fat animals = profit. This is a redundant activity that perfectly demonstrates our desperate attempts to control ecosystem processes. We busy ourselves trying to suppress the agency of a tree (to drop a stick) and make farms 'clean.' However, a messy farm lets ecological systems express themselves and enact agency. This means there are more sticks on the ground. It means fences are constructed to allow better movement of native animals across the landscape – e.g., removing or leaving the bottom wire of a fence broken because that is where the kangaroos hop through (it's their routine). It is futile constantly fixing the fence and fighting the agency of the kangaroo. Some Indigenous people call for the complete removal of fences. Currently, we cannot facilitate healthy grazing without them – nor can we protect riparian zones. However, this may not always be the case. Ecosystems are always in tension and negotiating themselves in messy ways – this is good messiness. Bad messiness is when farms become hazardous or dangerous to animals and people. For example, scrap metal and wire get left on the ground or around sheds, big holes in tall grass are not filled in.

Image 10: my little brother Huntly Gordon checking on the animals in the fog

Good messiness involves a conscious decision to relinquish fantasies of control over the more-than-human. Both human and more-than-human beings have lots of power to change the environment. When grazing animals' privilege particular plants in their diets, that can change the ecological constitution of the farm.

We've found that if a paddock gets dramatically overgrazed, often introduced species return faster than native ones. However, it is the native grasses that respond well to drought and fire. If a paddock gets burnt, the native grasses will return faster than the introduced grasses. Having native grasses in a drought, alongside carbon and water in the soil, shifts the power dynamic between the ecosystem and the climate. Water, carbon, native pastures – these are all more-than-human beings that can collaborate to build resilience into the landscape. As farmers, if we do not foster these relationships, we will be more vulnerable when faced with a changing climate.

I am not always the most powerful actor in the more-than-human family. I am significantly powerful; but weather, climate and large kangaroo populations can impact the farm in ways that are outside my control. E.g., large kangaroo populations can impact the amount of time our animals are able to graze a paddock because they may compete for the pasture. Too much rain and our pastures become water dense, lose their nutrients, and subsequently impact the weight and value of the animals. Power can also shift depending on the context of the relationship – e.g., collaborating with fire via a cool burn (see *image 11*) has a different power dynamic to the 2019/20 bushfires. This is because one occurs in partnership with us and benefits the pasture – the other is destructive and out of control.

Image 11: cool mosaic burns at Moffat Falls 1980's

In this way, all beings in this place are embedded in unequal and fluctuating power dynamics. Humans and non-humans co-constitute each other by negotiating this power. Death is also a big part of this negotiation because ecosystems are always in the process of devouring themselves. Everything is eaten, and everything eats everything else. Participating in this cycle is all about negotiating power – and none of us escape being eaten for long. Finally, all creatures here have a collective responsibility to safeguard this place for the human

and more-than-human generations to come. As humans, it is not only important that we accept this responsibility, but that we allow more-than-human beings to enact that responsibility in their own ways. This may be the soil holding water, plants putting carbon in the ground, or insects pollinating plants. For me, part of living in right relation with this place means creating room for all creatures to live out their own lore.

Implications for transformation

If structural and systemic agricultural transformations are to be possible, personal transformations in the way people experience and view the world need to simultaneously occur (Gosnell, 2021; Gosnell et al., 2019). This must happen in small-scale, local contexts where relationships between human and more-than-human beings can exist. This is because people often make bad decisions if they are spatially, temporally, and relationally remote from the consequences of their actions (Gaard, 2017). When people are remote from non-human actors, their livelihoods remain undisturbed (at least for a time) despite making decisions that negatively impact the lives of other human and more-than-human beings (Plumwood, 2002). As such, the converging crises that agriculture is contributing to (Campbell et al., 2017) cannot be overcome if we make decisions that are not grounded in a real-world, more-than-human relationality and care. As Seymour and Connelly (2022) point out, it is this relational perspective that is transformative because it challenges commonplace values, assumptions, and storylines in agriculture.

A more-than-human ethic of care

Despite having beneficial environmental outcomes (Newton et al., 2020), regenerative agriculture will not lead to transformative change without addressing the root cause of the Anthropocene – the imagined separation between society and nature (West et al., 2020). More-than-human relationality brings these back together (Verlie, 2022) and "this togetherness requires an attention to the ethical responsibilities of care that emerge when we live, think, act and attend as part of the world, rather than distinct from it" (Bawaka-Country et al., 2013, p. 188). Beacham (2018) observed food production that welcomed non-human beings (e.g., pests) into the agricultural system rather than attempting to remove them. These farmers recognised that they had an ability to practice care for more-than-

human beings – who had otherwise been allocated very little agency in Western thought (Bennett, 2004).

An ethic of care is based on recognising the interdependencies between all beings (Beacham, 2018). This decentres "human ethical subjectivity by not considering humans as masters of, but part of earth's living beings" (Puig de la Bellacasa, 2010, p. 152). As demonstrated by the more-than-human power dynamics in *vignette 6*, we all need to negotiate how we are implicated in the existence of others (Gibson-Graham, 2006). This involves "actively connecting with the more than human, rather than simply *seeing* connection" (Gibson-Graham, 2011, p. 2) and therefore not being remote (Plumwood, 2002) but learning from what is happening in more-than-human communities (Gibson-Graham & Roelvink, 2010). As Beacham (2018, p. 544) articulates,

> "An ethics of care approach for the Anthropocene requires a recognition of the shared commonality of being. Too many ills of this age are derived from the primacy of the individual Western subject and its inalienable sovereignty. It is only through this singularity and bounded sense of being that the ability to act over a world it dominates comes to be possible. By instead recognising care for the more-than-human, we can recognise how we do not act over a world but exist within it together."

The terms regenerative agriculture (Massy, 2017), regenerative mindsets (Seymour & Connelly, 2022), or regenerative food systems (Duncan et al., 2020) do not need to be adopted for a farmer to have a more-than-human ethic of care. This is about relating with the potential of a place and the non-human beings that live there (Haggard & Mang, 2016) without romanticising 'nature' (Buck, 2015). As Ives (2020, p. 211) remarks, "the scale of the sustainability crisis extends all the way from planetary systems to the heart and soul of every human being." Agricultural transformation begins with that which is deeply personal – our capacity to care (Seymour & Connelly, 2022).

Relationality as a performance of femininity in masculine agriculture

A more-than-human ethic of care in agriculture has been championed by women (Layman & Civita, 2022). Shisler and Sbicca (2019, p. 885) found that many women farmers "imbued feminine carework into masculine agriculture" by nourishing their communities and more-than-human others (Jarosz, 2011). They said,

> "Articulating a relational feminine ethic of care, Joyce expressed, "[My womanhood] has to do with my love for people and my love for animals and my love for the Earth and taking good care of the soil." Joyce believed that her gender identity shaped her farming, which led her to performing femininity through her practices and creating spaces where care is the driving motivation" (2019, p. 887).

This more-than-human ethic of care subverts the masculine disconnection between people and their environment (Goldman & Schurman, 2000). It has been framed as "a feminine imperative in the face of industrialized, masculine-dominated agriculture" (Shisler & Sbicca, 2019, p. 885). Whilst the feminine is not necessarily associated with women, it is important to emphasise that the burden of care should not fall to women in regenerative agriculture. Transformation requires that (cis) men evaluate themselves and their masculinity in ways that shift their farming practices, this would serve radical equity. In the prologue, I explored the discomfort I found with a hegemonic masculinity in agriculture. Hegemonic masculinity is an obstacle to implementing regenerative agriculture because the transition entails a gendered shift in how men see themselves and evaluate their masculinity (Ferrell, 2012).

Fortunately, men farming sustainably are more likely to admit mistakes, listen to women, cooperate with others, and work with nature (Peter et al., 2000). The patriarchy is also subverted when women call themselves farmers because the role has masculine connotations, e.g., 'farmer's *wife'* (Leslie et al., 2019). Consequently, some women feel a heightened sense of masculinity using the term (Smyth et al., 2018) and others can find it difficult to be recognised as farmers (Keller, 2014). There has also been queer resistance to hegemonic masculinity (Leslie et al., 2019). For example, in the 1980's an intentional

community – the Radical Faeries – formed on rural lands (in some cases growing food) to undermine masculinity and embrace the earth in drag (Hennen, 2004).

A feminine and more-than-human ethic of care expands the role of farming and means gender performance in agriculture can be more diverse (Shisler & Sbicca, 2019). This is transformative because it challenges the dominant assumptions and paradigms in agricultural production (Seymour & Connelly, 2022) that are based in a hegemonic masculinity. E.g., divesting that masculinity through feminine carework. Adherents to regenerative agriculture have openly identified with feminine language and values in communicating their newfound perspectives (Massy, 2013, 2017). However, those women with the opportunity to farm are typically "white, well-educated, heterosexual, and married" (Pilgeram, 2019, p. 15). Indigenous people and African American communities must also be recognised for their contributions to alternative farming movements (Layman & Civita, 2022) like regenerative agriculture – which will be discussed in the next two sections.

Indigenous roots in relational and regenerative agricultures

As participant 9 said in chapter three, regenerative agriculture is a stepping-stone towards Indigenous ways of living and being. These ways of being approach agriculture in an animist and relational way (Layman & Civita, 2022) whereby the more-than-human are all viewed as relatives (Salmon, 2000). Native American ontologies see people as "part of all creation, living life as one system and not in separate units" (Duran & Duran, 1995, p. 15). Consequently, they do not acknowledge the society-nature split (Layman & Civita, 2022). There are countless examples of Indigenous peoples practicing a relational agriculture long before the concept of 'regenerative' was even conceived (Gammage & Pascoe, 2021; Joshi et al., 2020; Kimmerer, 2013; Salmon, 2020).

Regenerative agriculture is founded upon many Indigenous practices that have been de-contextualised and whitewashed (Angarova et al., 2020). These practices have been placed in a productivist context and dismembered from their ontologies, people, and places (Layman & Civita, 2022). They include agroforestry (González & Kröger, 2020), rotational grazing (Dong et al., 2009), intercropping or companion planting (Kimmerer, 2013), no-till (Rajaram et al.,

1991), crop rotation (Magcale-Macandog & Ocampo, 2005), soil amendments and biochar (Morcote-Rios et al., 2013). Ulloa (2017) points out that elevating the voices of humans and more-than-humans from non-Western contexts is an opportunity to transform mindsets, not just alter practices. This means re-connecting practices with the relational ontologies from which they emerged.

The agricultural knowledges of Indigenous and African American people have been exploited and appropriated for the purpose of production and profit – even in alternative agriculture movements (Layman & Civita, 2022). As such, elevating the voices of historically excluded farmers and more-than-human beings in regenerative agriculture requires addressing issues of equity and power in the food system (Fassler, 2021). How these are addressed impacts the transformative potential of regenerative agriculture (Ahmed et al., 2021). This is because transformation does not only entail a change in agricultural practices (Gosnell et al., 2019). It requires a radical shift in *shared socio-cultural structures* (Linnér & Wibeck, 2020). This is not possible without addressing colonisation and racial parity (Layman & Civita, 2022).

Decolonising regenerative agricultural transformations

Layman and Civita (2022, p. 975) refer to *re-membering* as "the ability to re-include people, places, and patterns as core members and actors within agriculture." The need for re-membering is demonstrated by the fact that African Americans such as George Washington Carver and Fannie Lou Hamer have not been recognised for their contributions to alternative agriculture movements (White, 2018). The suggestion that regenerative agriculture and other alternative food movements have been whitewashed (Angarova et al., 2020) is a sad political reality. 96.4% of organically certified farmers are white and only 0.5% are Black farmers (Formiga, 2021). In white middle class communities, alternative food movements promote environmental benefits and personal health (Slocum, 2007). However, Black communities are reliant on these movements due to structural inequalities such as land inaccessibility, limited food sources, education, and capital (Reese, 2018). Responding to these inequalities, Layman and Civita (2022, p. 966) argue that "confronting colonial constructs and the ways they

continue to shape our present is a precondition for dismantling and rebuilding equitable food systems."

Decolonisation is a multi-faceted, long-term process of divesting colonial power (Smith, 2012). It means dismantling and making visible the logic of coloniality (Mignolo, 2011) and includes returning Indigenous land and sovereignty (Tuck & Yang, 2012). Stengers (2018) refers to the West as a world-destroying machine that does not recognise the existence of multiple non-Western worlds. This image is further consolidated by Layman and Civita (2022, pp. 976-977) who remark that,

> "The white agricultural narrative in the US is not the only one, it is merely a monocultural story that gets plowed, planted, machine harvested, and replanted across vast swathes of the American agricultural imaginary. This narrative, the practices it preferences, and the world it remakes season after season take root only because it gets re-seeded."

As such, decoloniality also means "contributing to building a world in which many worlds will coexist" (Mignolo, 2011, p. 54). This entails welcoming and elevating the stories and experiences of Indigenous, Black, women and queer farmers without appropriating them (Layman & Civita, 2022). Haraway (1988) uses the term situated knowledges to describe how all knowledges are partial and based on positionality. This concept recognises that everyone exists in different worlds, and therefore embody different knowledges that can be brought together without losing their individuality through assimilation with an all-encompassing West. Layman and Civita (2022, p. 967) support this view arguing that, "situated knowledges shape how people relate and interact with others, including humans, land, and other beings. Situated knowledges allow agriculture to become relational." Agricultural transformation requires enabling the existence of diverse agricultural worlds, which does not completely exclude the more reductionist approaches that currently dominate.

In my Australian interviews (see chapters three and four) I found some non-indigenous regenerative farmers starting to engage with the issue of Indigenous sovereignty in settler states (participants 4, 5, 7, 10 and 21). Some of these participants (4, 7 and 21) felt that the

regenerative movement couldn't go further without placing Indigenous sovereignty at the centre (see chapter four). Participant 21 referred directly to shutting up and listening, shifting the structures of power and participation in the food system, and being prepared to give up privileges and ownership. They were still working out what that meant at the farm level. Having five of my non-indigenous participants raise this issue without prompt is significant. An openness to addressing fundamental flaws in the socio-political fabric of society, particularly when a farmer is benefitting from those flaws, is a powerful stepping-stone towards transformation. It means they are open to change despite having much to lose. However, in the literature adherents to regenerative agriculture remain largely silent on issues of equity and power (Newton et al., 2020). As such, my experience with these farmers could be an anomaly and such issues may still be insufficiently addressed by regenerative agriculture.

A farmer interviewed by Layman and Civita (2022, p. 974) in the USA said that regenerative farmers they spoke with had no idea what was meant by the term *Indigenous practices*. This is despite these practices being used in regenerative agriculture, which demonstrates the dangerous decontextualization that is occurring. They said, "it's just that continuing narrative of centering whiteness in agriculture … The regenerative lingo happens because other voices are being suppressed." In chapter three, participant 9 made the point that the first to benefit from regenerative agriculture will be the most privileged – typically white men with resources (Cabral et al., 2022). If regenerative agriculture "allows minor modifications of agri-capitalism but stops far short of questioning its premises" (Layman & Civita, 2022, p. 969) then it will not be transformative. Transformation requires contextualising both the relational view and regenerative practices within the history and contributions of women, Indigenous, and Black communities.

Beyond the farm: sharing storylines whilst retaining place-sourced interpretations of regenerative agriculture

Having established relationality as a core theme throughout this thesis, a second finding is the role of storylines in practice and transformation. Storylines are powerful symbols

suggesting common understandings between groups (Hajer, 1995). As demonstrated in chapter three, regenerative agriculture is itself a storyline for *working with nature to restore, revive and renew our environments*. The first theme in this chapter, alongside chapter five, suggests that this storyline should orbit around viewing the world relationally rather than through the lens of productivity. It promotes this view as common ground between the nine discourses (chapters three and four). Whilst some discourses prioritise productivism (Restoration for Profit), they all draw on relational ideas to various degrees – e.g., in Restoration for Profit there is reciprocity between people and soil (see chapter four).

When diverse actors are collectively drawn to certain storylines, they can form a discourse coalition (Hajer, 1993). However, each actor has a different discursive practice through which these storylines are re-produced (Hajer, 1995). This is referred to as *multi-interpretability* in chapters three and five; that is, the storyline of regenerative agriculture can be interpreted in multiple ways. Multi-interpretability in regenerative agriculture is reflected by the nine discourses in this thesis (chapters three and four). These discourses are not functioning in human-only contexts, nor do they emerge from human-only interactions. They are entangled within patterned interactions "between humans and responsive aspects of material reality" (Strong, 2015, pp. 15-16). As such, the more-than-human world is mutually implicated with discourse (Barad, 2007). Barad (2007, p. 133) sees discourse as a performative engagement with "the world in which we have our being." In *vignette 7*, I explore how the storyline of regenerative agriculture is discursively performed at Moffat Falls.

Vignette 7: how the storyline of regenerative agriculture is discursively performed at Moffat Falls

The storyline of regenerative agriculture is translated into four discursive performances at Moffat Falls – Restoration for Profit, Big Picture Holism, Deep Holism, and First Nations. Each are supported by different institutions and groups beyond the farm, which impact the farm's material-discursive reality. Like many regenerative farmers, we are tapping into more-than-human networks to support these discourses – whether that be soil microbiology or the regenerative agriculture Facebook group with 51,000 members.

<u>Big Picture Holism</u>

In this discourse, regenerative agriculture is looking at how everything is connected on the farm to make good management decisions and enhance quality of life. Adherents are largely focussed on holistic grazing – which is where our participation in this discourse originates also.

- On-farm networks: we connect animals and pastures in ways they're co-evolved for. In our rotations, the grazing animals turn up soil, encouraging new seed growth. They then fertilise the ground with their waste; and do not return for a long time. This means the pastures can rest and recover. Through grazing we keep our pastures at a height that is best for photosynthesising. The animals keep the pastures energised by helping them soak up more sun for longer. This energy means that plants can deepen their perennial root systems, which builds carbon and contributes to the soil's water holding capacity. We never spray out or till paddocks; we want long term, perennial grasses with 100% groundcover all the time.
- Beyond-farm networks: we have put all our staff through holistic management training and paid for refresher courses with both Resource Consulting Services (RCS) and Inside Outside Management. These education and training institutions have almost single-handedly introduced holistic management to Australia. The Inside-Outside Management course ran over multiple months. Once it finished, our trainer, Brian Whelburg, helped establish a local community of practice with the thirteen farmers who undertook the course. We continue to visit each other's farms for field days and share progress on our Facebook group. *Image 12* shows the change in our pastures since being exposed to this discourse and associated practices.

Image 12: change in pastures management at Moffat Falls

Restoration for Profit

In this discourse, regenerative agriculture is about restoring soil health to increase productivity and profitability. It includes rhetoric on carbon farming to address climate change whilst adding another profitable enterprise to the farm.

- **On-farm networks:** with pressures from Covid-19, we explored opportunities to diversify our farming enterprise through carbon farming. To sequester carbon, we work with our pastures and grazing animals to deepen perennial root systems – which contributes to our carbon farming discourse. As per *image 13,* there were worms and grubs in all our core samples when we measured our baseline carbon levels in the soil. Seeing the richness of our soil in these samples makes us want to continue improving our carbon as much as possible.
- **Beyond-farm networks:** Australian Soil Management (ASM) is a company that assists farmers with building soil organic matter and soil organic carbon. As ASM's website says, "soil with more Organic Matter is more productive, more profitable, and more sustainable. The benefits are savings on fertilizers, pesticides, and water. You spend less to make more and your profits increase" (ASM, 2022, p. para 3). We are working with ASM in our carbon farming journey, which draws us directly into Restoration for Profit. We also avoid working in a utopic silo; by constantly checking our thinking with non-regenerative farmers – such as Ebor Beef and Hoffman Cost of Production Consulting. These are long-standing farmer groups that have formed to support local famers in our region.

Image 13: carbon baselining at Moffat Falls

Deep Holism

In this discourse, regenerative agriculture is a pathway for empathising with the more-than-human world and experiencing ecosystems as inseparable from yourself. Our participation in this discourse has come from our connectedness to this place.

- On-farm networks: we have a sense of material oneness with this land – like being made of clay from the earth here. This partly comes from using imagination and observation to empathise with the more-than-human. For example, we see trees as social beings. They must live in community (close together) amongst multiple generations so that succession can occur between them. If we have mature trees but no saplings, that is not a temporally healthy landscape. The 2019/20 bushfires and preceding drought left many trees dead and those remaining with signs of dieback. Dieback is a protracted decline in the health and vigour of trees that involves a thinning in their crown and new shoots emerging directly from the trunk (see *image 14*). If the tree has enough energy to keep producing shoots, it can fight this decline. If not, it will become exhausted and die. Tree communities need to be protecting from these stressful events, which can lead to the death of entire forests.
- Off-farm networks: my involvement with the Institute of Ecological Agriculture (IEA) whilst undertaking this research has been a conduit for this discourse on the farm. In 2021, alongside Kerry Cochrane the IEA President, I lectured into the subjects *Ecological Perspectives: Human Ecology* and *Ecological Perspectives for Transformative Change* at Southern Cross University. Sharing stories and experiences with the students highlighted the entanglement of my humanness with the more-than-human. E.g., through me the trees can speak beyond the farm and create avenues for collective action, that might protect them by preventing future disasters. Moffat Falls cannot be protected without protecting all places – so our care network needs to become extended.

Image 14: symptoms of dieback post 2019/20 fires

First Nations

In this discourse, regenerative agriculture is a new name for practices that First Nations people have been doing for tens of thousands of years. Adherents consider the implications of the farm's cultural and historical context – particular in settler states where colonisation is ongoing.

- **On-farm networks:** in this place, Country speaks the languages and dialects of the Dunghutti, Anaiwan and Gumbaynggirr people. These languages have co-evolved with specific forests, rivers, and outcrops here – one Gumbaynggirr story tells how language was given through the shaping of the rivers. Connection to land is embedded in the language and stories, which explain management relationally. Morelli et al. (2016, p. 23) says, "because each country is given its own language it is proper to use that country's words." Indigenous stories retain the language of the Country they came from – "it is good for a story belonging to a particular country to be told in the language of that country." When I hear Indigenous people speaking language at Moffat Falls, it feels like Country is listening – like those specific sounds are old friends in this place and fall very comfortably on the ears of the land.
- **Beyond-farm networks:** I've been fortunate to learn some Gumbaynggirr from the Muurrbay Aboriginal Language and Culture Co-operative, who have a more-than-human, online introductory course in Gumbaynggirr. The Gumbaynggirr people allowed me to learn the language, and consequently I can refer to some places where I live by their actual names. As discussed in the prologue Point Lookout is *Marlawgay Miilarl*. Our relationships with traditional custodians from the Dunghutti, Anaiwan and Gumbaynggirr Nations have helped us educate ourselves and consider what our responsibilities are as second peoples and settlers in this place. Cultural educator and Gumbaynggirr artist Matthew Flanders identified a scar tree whilst walking Country near Moffat Falls – this is pictured in *image 15.* These are old trees where Aboriginal people have removed the bark for various purposes (e.g., canoes or shields). They are significant cultural places that should be protected and provide clues to the pre-European history of Moffat Falls.

Image 15: scar tree behind Moffat Falls

Implications for transformation

> "There is a risk that the mainstreaming, scaling up, and globalising of a singular model of regenerative agriculture will ride roughshod over the pre-existing diversity of agro-ecological practice. In its yet to be determined future, regenerative agriculture risks perpetuating colonial relations but also has the potential to learn from, integrate with, and enhance existing transformative practices" (Cusworth et al., 2022, p. 1022).

Cusworth et al. (2022, p. 1022) refers to the above process as "the McDonaldisation of regenerative agriculture." This is contrasted with agroecology, which gets locally adapted to the climate, ecology, markets, and food sovereignty approaches in specific places (Holt-Giménez & Altieri, 2013). The overlap between regenerative agriculture and agroecology is explored in chapters three and four in the *Agroecology and Food Sovereignty* discourse. In a similar way to agroecology, regenerative agriculture might contribute to agricultural transformation if it blends local embeddedness with global connectedness. Therefore, multi-interpretability in regenerative agriculture is potentially transformative because it allows for situated knowledges and practices to lead.

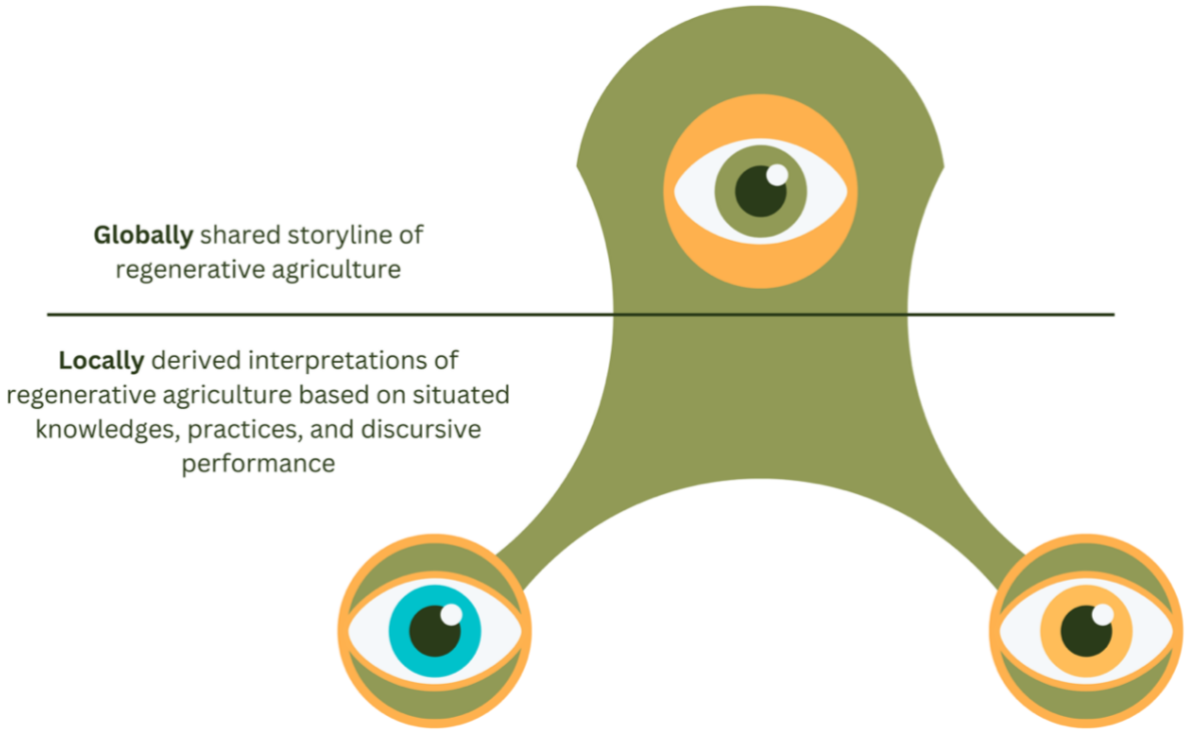
Vignette 7 demonstrates how the storyline of regenerative agriculture is discursively performed at Moffat Falls, which is different to regenerative agriculture in other parts of the world. The four discourse we engage with in *vignette 7* are shaped by our context as Australian beef producers in the New England Snowy's – which includes specific climatic, cultural, and ecological conditions. E.g., First Nations discourse is relevant in an Australian context where colonisation is ongoing, and our livelihood relies on introduced animals that have directly contributed to the desertification of traditional lands and management (Pascoe, 2014). This means that a *regenerative* agriculture must be practiced differently here compared to places where farmers are working with practices and animals that are indigenous to the place. Whilst regenerative agriculture is typically associated with integrating livestock – removing livestock may emerge as a requirement for regeneration in Australia.

Translocal organising as a transformative opportunity

When local initiatives across the globe become connected, they can create translocal networks that exchange and diffuse ideas (Avelino et al., 2020). This means globally sharing principles, identities and storylines that get translated differently at the local level (Loorbach et al., 2020). For example, the storyline of regenerative agriculture is "plastic enough to adapt to local needs … yet robust enough to maintain a common identity … weakly structured in common use … more strongly structured in individual use" (Star & Griesemer, 1989, p. 393). Page and Witt (2022) refer to it as a boundary object – a tangible item or abstract concept that can be adapted across multiple viewpoints whilst maintaining the continuity of its identity (Brand & Jax, 2007; Star, 1988). Through translocal networks regenerative agriculture can be interpreted vaguely at the global level, yet specifically at the local level – see *figure 9.* In chapter two, this translocality was identified as a transformative opportunity.

Avelino et al. (2020) argues that translocal networks can increase the transformative potential of local initiatives by empowering them to engage with institutional change. Day and Cramer (2020) point out that institutions themselves are powerful members of networks that can lift the voices of marginal farmers (e.g., small-scale, Indigenous, immigrant). Farmers are more likely to adopt learning and explore the viability of new methods via peer-to-peer networks (Seymour & Connelly, 2022) because they can discuss what does and does not work with other farmers (Day & Cramer, 2020). These networks provide opportunities for interaction and social learning (Gosnell, 2021). Day and Cramer (2020) suggest they should (a) identify farmers succeeding with locally appropriate methods; (b) have a focus on learning together (not passing down knowledge); (c) set group goals collaboratively; and (d) involve cycles of action and reflection (e.g., on-farm experimentation). As such, being globally connected but locally rooted is evidently important – e.g., having a local community of practice to walk around farms with (Cross & Ampt, 2017). In this way, local practices, conditions, and actions can be emphasised whilst also drawing on people and knowledges in other places (Loorbach et al., 2020).

Figure 9: translocal networks for regenerative agriculture



More-than-social movements: regenerative farms as translocal infrastructures

At the local level, transformative action includes rebuilding quiet places (Haraway, 2016) and changing "the immediate ontological conditions of life" rather than accumulating socio-political power (Papadopoulos, 2018, p. 18). When material spaces are transformed into new configurations, that material change results in an alternative way of being (Ghelfi & Papadopoulos, 2022). At Moffat Falls, changing our material-discursive landscape (see *vignette 7*) changed our way of being in that landscape – our ontology. Resisting the hegemonic way of inhabiting the land is not apolitical. As Papadopoulos (2018, p. 11) says, "it is ultimately a political question which ontologies a certain actor participates in, and how." By physically reconfiguring the landscape, we can allow for alternate ways of being to exist – possibly contributing to the decolonial task of making many worlds (Mignolo, 2011).

Social movements that include more-than-humans in the political act of creating alternative ways of being are referred to as *more-than-social* movements (Papadopoulos, 2018). Ghelfi and Papadopoulos (2022) remark that, "the first direct aim of more-than-social movements is not to force institutional change as such but the creation of an alternative infrastructure of

material life that enacts a different form of everyday existence." This requires focussing on mundane practices that subvert the hegemonic power of established ontologies and institutions. Braun and Whatmore (2010) refer to it as the materialisation of politics, whereby more-than-human agencies help constitute the social worlds we occupy. More-than-social movements start with situated practices that construct alternative ways of inhabiting more-than-human worlds. As Haraway (2016) says "nobody lives everywhere; everybody lives somewhere." If the material and the discursive are mutually implicated (Barad, 2007) then transforming global discourse requires physical transformation in local more-than-human spaces.

Regenerating agricultural land creates alternative material-discursive realities that can be understood as *translocal infrastructures.* Ghelfi and Papadopoulos (2022, p. 17) refer to these as infrastructures that can be "replicated and recreated in other locales to allow for communities to maintain and defend the ontological conditions of their forms of life." In this way, the more-than-human world is still implicated in political actions (Scheidel et al., 2022) that occur beyond the farm. Ghelfi and Papadopoulos (2022, p. 17) push the point by asking, "is a self-managed non-privatised water system an infrastructure for sustaining access to water or an environmental justice campaign?" It can be both – the water system makes an alternative, environmentally just way of being possible at the local level. This can be translated into other contexts and serve as a storyline for environmental justice. As Loorbach et al. (2020, p. 256) argues, "the combination of local embeddedness and transnational connectedness enables actors to persist in challenging, altering and replacing incumbent, unsustainable regimes."

Discursive structuration: resisting hegemonic agricultural discourse

Discursive structuration occurs when a given discourse must be used to retain credibility in society – it is the process through which a discourse becomes hegemonic (Hajer, 1995). As mentioned in chapter five, I am applying the term structuration to a discourse that is not yet hegemonic, whereas Hajer (1995) uses it as a marker of hegemony. It is argued in chapter five that the discourse can undergo a level of structuration (by identifying shared storylines) without losing multi-interpretability, especially at the local level. In my interviews, farmers

were often participating in more than one regenerative agricultural discourse (as per *vignette 7*). Some of the discourses orbit each other in sub-alliances. E.g., RCS privileges Restoration for Profit, Big Picture Holism and Subtle Energies – so these discourses can often come as a package deal in Australia (RCS, 2019). Such sub-alliances may point towards actors (like RCS) who could be central to agricultural transformation. This is because they have greater capacity to demonstrate both the common ground between discourses (contributing to structuration) and the value in multi-interpretability (such as responding to context).

According to Hajer (1993) it's usually only after structuration has progressed that institutionalisation begins. This means the ideas of a given discourse become concrete institutional policies (Hajer, 1995). However, Phillips et al. (2004) points out that discursive institutionalisation is an iterative process because existing, structured discourses and associated institutions enable or constrain the emergence of new discourses. Deviating from an already structured, hegemonic discourse that values productivity (Lawrence et al., 2013) is challenging. Restoration for Profit is an example of this because that is where regenerative agriculture rubs up most against the mainstream. Emergent discourses are always under pressure to frame their core ideas through the existing structuration (Kaufmann & Wiering, 2022). As mentioned in chapter five, definitions can become tools of conformity by privileging the quantifiable aspects of regenerative agriculture (Seymour, 2021). Resisting this conformity requires including and supporting formerly silenced or marginalised voices in both structuration and institutionalisation processes. This also contributes to the decolonial task of enabling the existence of diverse agricultural worlds, as discussed in the previous theme.

Discursive institutionalisation: policy and pedagogy

The institutionalisation of regenerative agriculture will necessitate re-writing the values embedded in agricultural policies (Day & Cramer, 2020). These policies need to support multifunctionality on farms as opposed to favouring large scale, monocultural production. Unfortunately, small-scale (and often regenerative) producers are significantly disadvantaged by the policy landscape in Australia (AFSA, 2022a). Policies should also support rural livelihoods because agricultural transformation relies on vibrant rural communities that attract farm workers (Day & Cramer, 2020). If it were the predominant form of food

production, regenerative agriculture would require more farm workers with ecological knowledge (Carlisle et al., 2019; Gosnell et al., 2019). Similarly, new farmers are among the groups most likely to engage with agricultural conservation (Prokopy et al., 2019). Carlisle et al. (2019) advocates a rapid expansion in support for new farmers around land accessibility, capital, credit, insurance, and equipment.

Representative organisations play a role in highlighting marginalised farmer voices in institutional and policy settings (Day & Cramer, 2020). The Regenerative Agriculture Alliance (RAA) in Australia is a network that includes more than 30,000 primary producers, researchers, and consultants (Farming-Together, 2022). They have engaged policy makers through the *Parliamentary Friends of Regenerative Agriculture* group. This is a "non-partisan forum for MPs to meet and interact with organisations, farmers and academics" in regenerative agriculture, co-chaired by Mr Kevin Hogan MP and Ms Helen Haines MP (Australian-Parliament, 2022, p. para 99). RAA said, "we need to see regenerative agriculture practice incentives championed in parliament" (2020, p. para 5). As such, the group was initiated to gain support for the large-scale adoption of regenerative agriculture. RAA has also been involved with the pedagogical institutionalisation of regenerative agriculture through the Bachelor of Science (Regenerative Agriculture) at Southern Cross University (SCU).

Day and Cramer (2020) identify values and beliefs as a missing link in agricultural education, which can directly precipitate a lack of practice change in farmers. They highlighted that the industrial agricultural paradigm that values productivity over ecology is embedded in university faculties and the young people they teach. The standardisation and institutionalisation of education is an additional barrier to transformation (Cramer & Ball, 2019). As such, transforming agriculture also means transforming institutional pedagogy. Jones and Tobin (2018, p. 70) remark, "it is the values, and not the organizing principles of the system, that determine potential impacts of agricultural sustainability." The Bachelor of Science (Regenerative Agriculture) was a world first (SCU, 2019). Fortunately, it has two subjects that engage directly with the values and beliefs of students and their connection to the environment. These are *Ecological Perspectives: Human Ecology* (SCU, 2022a) and *Ecological Perspectives for Transformative Change* (SCU, 2022b). Acknowledging values and beliefs is transformative because contrary to the dominant perspective, economic concerns

are often secondary to cultural context and individual views in farmer decision-making (Carlisle, 2016).

Summary: agricultural transformation on and beyond the farm

The running goal of this thesis is to understand the discursive characteristics of regenerative agriculture and the implications for transformation. Chapters three and four consolidate the idea that regenerative agriculture is a shared storyline, discursively performed in nine different ways. The thesis explores the commonalities (chapter two), themes (chapters two and five), tensions (chapter three) and transformative opportunities (chapter two) that arise as discourses interact. It demonstrates how marginal voices that value relationality in agriculture (such as Indigenous people) are interacting with mainstream values of productivity (chapter four). Each discourse departs from productivism to varying degrees, acting as stepping-stones between Western and Indigenous ontologies (chapter three). Chapter five clarifies the role more-than-human relationality might play in transformation. In chapter two relationality is a common theme and translocal organising is identified as a transformative opportunity. Subsequently, in alignment with the thesis goal, this discussion has focussed on the following question: *what are the implications of this study for agricultural transformation on and beyond the farm?*

The findings demonstrate that agricultural transformation requires personal transformation in a farmer's way of being (ontology) in the landscape (Beacham, 2018). This needs to include a more-than-human ethic of care (Seymour & Connelly, 2022), which destabilises patriarchy by widening gender performance in masculine agriculture (Shisler & Sbicca, 2019). Transformation requires re-membering the contributions of Indigenous and Black communities in alternative agriculture movements (Layman & Civita, 2022), like regenerative agriculture. It requires divesting colonial power (Smith, 2012); dismantling the logic of coloniality (Mignolo, 2011); returning Indigenous land and sovereignty (Tuck & Yang, 2012); and allowing situated knowledges and practices to exist (Haraway, 1988); thus building a world of many worlds (Mignolo, 2011). For agriculture to be relational it also needs to be political because relationality resists the hegemonic way of inhabiting the land

(Papadopoulos, 2018). In this way, politics becomes material (Braun & Whatmore, 2010) and transformation begins at the local level in collaboration with more-than-human beings.

When material spaces are transformed at the local level, that results in alternative ways of being (Ghelfi & Papadopoulos, 2022). These can be communicated globally through translocal networks (Loorbach et al., 2020) and infrastructures (Ghelfi & Papadopoulos, 2022) that contribute to structuring regenerative agricultural discourses. These networks and infrastructures support place-sourced interpretations of regenerative agriculture to exist – whilst also sharing common storylines globally. Place-sourced interpretations mitigate the risk of one regenerative agriculture model (or discourse) making current agricultural diversity invisible (Cusworth et al., 2022). It means regenerative agriculture can enhance existing transformative practices – e.g., approaches in agroecology (Holt-Giménez & Altieri, 2013). These changes need to be supported by institutional policy and pedagogy (Day & Cramer, 2020). Highlighting marginalised voices (e.g., Indigenous, Black, women, queer) is both just and required for preventing the McDonaldisation of regenerative agriculture (Cusworth et al., 2022), which does not make room for decolonial, place-sourced interpretations.

Conclusion: narrative of the thesis

The goal of this thesis was to understand the discursive characteristics of regenerative agriculture and the implications for transformation. To address this goal, eight research questions were developed (see *table 1*). I took an action-oriented approach to the research design to ensure that intervention and action could occur in tandem with the research (Bradbury & Divecha, 2020). My farming practice (see prologue) and literature review demonstrated the need for transformations (Linnér & Wibeck, 2020) to avoid further ecological destruction in agriculture (Campbell et al., 2017) and build equitable food systems (Layman & Civita, 2022). With an action-orientation, three concepts made up the theoretical perspective of the thesis. These were: (1) regenerative agriculture (focus of the study), (2) transformations (normative intent) and (3) discourse (theoretical foundation). The thesis explored the knowledge gap at the crossroads of these concepts.

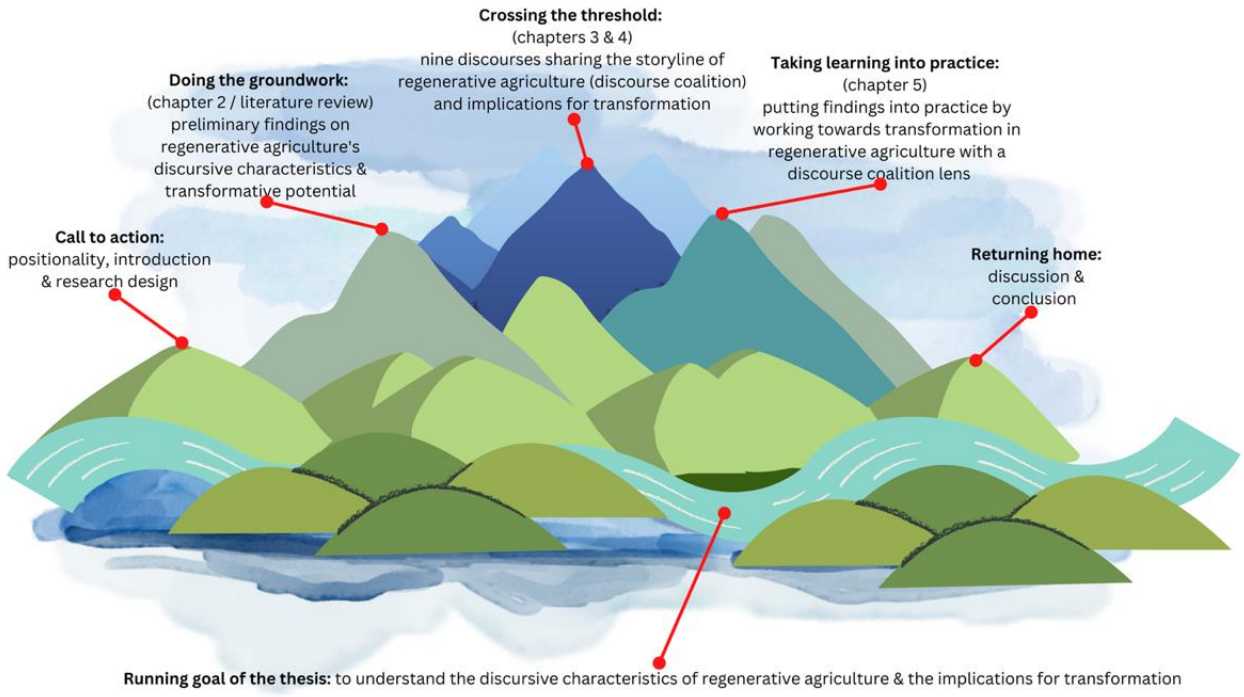
Revisiting the knowledge gap

There were many examples of transformations and regenerative agriculture overlapping in the literature (e.g., Gosnell et al. (2019) and Seymour and Connelly (2022)). However, when this included the role of regenerative agricultural *discourse* in transformation the literature became sparse. Massy (2013) is the only one to explore this nexus, and his work was conducted before the explosive popularity – and growing discursive complexity – of regenerative agriculture. Page and Witt (2022) identified three discursive typologies related to regenerative agriculture but these cannot be generalised to populations beyond their 28 participants. Regenerative agriculture has conflicting definitions (Newton et al., 2020) and disparate principles – some practice-based (Mills, 2020) and others mindset-based (Soloviev

& Landua, 2016). There is ambiguity around whether regenerative agriculture addresses social (Hes & Rose, 2019) and political (Tittonell et al., 2022) issues. All these differences reflect how regenerative agricultural discourse is disjointed and not well understood.

This research undertook a much broader analysis of regenerative agricultural discourse than either Massy (2013) or Page and Witt (2022). It delineated between nine contributing discourses in regenerative agriculture. Massy (2013) interviewed farmers in Australia, whereas this research engaged farmers and examined ninety-six international organisations talking about regenerative agriculture. Whilst Massy (2013) looked at farm management, this research went further to discuss how regenerative agricultural discourses might respond to processes of structuration and institutionalisation. Discursive transformation involves understanding how specific storylines and discourses are being created and performed (Riedy, 2022). The literature had no clear understanding of these processes in regenerative agriculture. Therefore, this thesis contributes to understanding these discursive processes. *Figure 10* visualises the narrative arc of the thesis.

Figure 10: narrative of the thesis



Contribution to knowledge

Through qualitative and ethnographically informed research, this thesis addressed eight research questions (see *table 1*) that led to the contributions to knowledge listed in *table 11* below. These findings contribute to the ongoing societal and scientific debates on regenerative agriculture. The identification of the nine discourses and the focus on discourse coalitions is a key contribution of this thesis.

Table 11: contributions to knowledge

Contribution	Description
Six discursive themes in regenerative agriculture	• regenerative agricultural work is conducted within nested, complex living systems; • farms are relational, co-evolution occurs amongst humans and other landscape biota; • the innate potential of living systems is place-sourced; • openness to alternative thinking and practice is transformative; • multiple regenerative cultures are necessary for deeply regenerative agriculture; • regenerative approaches depart from industrialism to varying degrees.
Three leverage points for transformation	• leveraging transformative opportunities through discourse coalitions; • leveraging transformative opportunities through translocal organising; • leveraging transformative opportunities through collective learning.
Four tensions to establish boundaries between discourses	• different genealogies and associated interpretations of holism; • emphasis on issues of equity and power in the food system; • differences in definition; • extent of departure from industrial-productivist agriculture.
Nine discourses contributing to regenerative agriculture	• *Restoration for Profit:* restoring soil health to increase profit and reverse climate change. • *Big Picture Holism:* making good management decisions that enhance quality of life. • *Regenerative Organic:* building on organic agriculture to regenerate soil health, animal welfare and social fairness.

	• *Regrarian Permaculture:* designing integrated farm systems to regenerate the land. • *Regenerative Cultures:* a spiritually rich practice at the heart of place-based cultures. • *Deep Holism:* experiencing ecosystems as inseparable from yourself. • *First Nations:* practices that Indigenous people have been using for tens of thousands of years. • *Agroecology and Food Sovereignty:* having people democratically involved in the food system. • *Subtle Energies:* working with the invisible dimensions of farming systems to restore energy imbalances.
Four themes illustrating complexity in transformation	• the importance of cultivating relational paradigms – not just standardising practices; • the importance of engaging with political ideas so that marginal voices are not lost; • the role of valuing multi-interpretability within relational ethics; and • re-imagining accreditation systems so they are potentially transformative.
Two overarching implications for transformation	• More-than-human relationality in regenerative agriculture is transformative because it challenges dominant agricultural ideas and values in agriculture. • Storylines are powerful symbols for common understandings between groups whilst allowing for different discursive practices. This is transformative because it allows for situated knowledges and practices to lead regenerative agriculture by becoming translocal.

Significance of contribution and implications for transformation

The above contributions to knowledge are significant because they demonstrate how regenerative agriculture can be understood by researchers and practitioners without resorting to over-simplified definitions. This includes privileging aspects of regenerative agriculture that are quantifiable in the scientific paradigm (Seymour, 2021) and may omit broader ontological shifts in the mindset of regenerative farmers. Definitions and principles in regenerative agriculture all emerge from discursive lineages, as outlined in this thesis. These discourses shape what is emphasised in these definitions and principles. This thesis

demonstrates how a discursive lens can bring a deeper understanding to what regenerative agriculture is and help identify where co-optation or greenwashing might occur.

Whilst storylines are powerful symbols for common understanding, different actors have different discursive practices through which storylines get re-produced (Hajer, 1995). In delineating between the nine discursive practices of the regenerative agriculture storyline, this study has mapped out a discursive landscape. This did not exist prior to the study (either in the literature or elsewhere). Consequently, it has articulated the multi-interpretability of regenerative agriculture. Multi-interpretability allows for situated knowledges and practices to lead. It might be transformative because it makes the storyline of regenerative agriculture easier to communicate through translocal networks (Loorbach et al., 2020) and infrastructures (Ghelfi & Papadopoulos, 2022) that contribute to structuring the discourse.

This research does not discern whether any of the discourses are 'good' or 'bad.' In fact, it assumes they are equally valid and useful to transformations work, depending on the audience. This was evident when working with the IEA, which reflected the difficulty of managing theoretical idealism with agricultural reality. The findings demonstrate that agricultural transformation requires personal transformation in a farmer's way of being (ontology) in the landscape (Beacham, 2018). This needs to include a more-than-human ethic of care (Seymour & Connelly, 2022), which destabilises patriarchy by widening gender performance in masculine agriculture (Shisler & Sbicca, 2019).

For agriculture to be relational it also needs to be political because relationality resists the hegemonic way of inhabiting the land (Papadopoulos, 2018). Currently, regenerative agriculture risks adopting and promoting Indigenous knowledge and practices without explicitly addressing issues of land ownership and historic land extraction. Transformation requires that the politics of land are made central to how 'being regenerative' is understood and practiced – which is key to the First Nations discourse. Transformation demands multiple storylines and discourses that are embedded in relationality. However, actors in regenerative agriculture also need to understand and address its discursive tensions and threats. This thesis explores the plurality of regenerative agricultural discourses but is limited in making visible the trade-offs between these discourses.

Limitations of the study and opportunities for future research

My inquiry sought to understand the discursive characteristics of regenerative agriculture through a social constructionist lens. It did not explicitly explore politics and power dynamics between discourses, unless relevant to understanding the discourses themselves – e.g., the four tensions in chapter three. Given regenerative agriculture's rapid uptake by actors who envision a mild adaptation of the status-quo, more research on the power of these actors to adopt, co-opt and monopolize the discourses would be useful. It would have been coherent to relate the analysis more explicitly to the structural challenges to transformation that were used in the framing. These include the logics and material effects of capitalism, the patriarchy, and racism. The absence of this is a limitation of the research.

Future research could deepen the critical reflection around the discourses by introducing theories of power. It could take a critical approach to exploring the power dynamics between discourses, and between regenerative agriculture and other movements. This includes the relationship between discursive power and actors such as multi-national companies, not-for-profits, and governments – which is not explicitly addressed here. Critical research would contribute to both understanding the discourses and allowing for greater inclusion of marginalised voices in the literature – which supports transformations. Overall, more research is needed on the role of power and equity in regenerative agriculture and how this influences the policy, pedagogy, and corporate dimensions of the discourses.

Whilst I drew on texts from other countries in my analysis, most of my interviews were with Australian farmers. My embeddedness in the Australian farming context also means that the findings may be more representative of regenerative agriculture in Australia, as opposed to other locations. I am also missing many perspectives on regenerative agriculture that fall outside the global North and English language. As such, future research could undertake further analysis in other countries and cultural contexts to either validate and/or revise the discourses presented in this study. It could also undertake a more detailed analysis of each discourse. For example, there is very little academic and non-academic literature on Subtle Energies – exploring the practices and beliefs of farmers who are using these approaches would be a significant contribution to the literature. My analysis instead attempted to discern

the discursive breadth in regenerative agriculture. However, a more detailed analysis on each discourse could include what sub-alliances are forming between them and the subsequent implications for transformation.

Future research could explore how high levels of discursive interest are translating into institutional change. The discourses could be analysed across scales, e.g., using the multi-level perspectives model. It would be interesting to see how each of the discourses are performing comparatively at the grassroots level, policy level (local, state, and federal government), and at the corporate or multi-national level. Identifying other storylines and potential common ground between discourses would also be valuable. This includes the transformative potential of relational approaches to agriculture. Futures thinking could be utilised to determine how these discourses and storylines might evolve over the coming decade – which futures are most desirable and how do the discourses need to evolve to get there?

This thesis used practice as a means for generating communicable knowledge about regenerative agricultural discourses and transformation. Consequently, it was action-oriented. However, participatory action research could go further in deepening our understanding of regenerative agriculture and transformation. This type of research is an opportunity to work with communities and ensure that academic knowledge is properly communicated and implemented. This is essential during a period when there is very little time to respond and prevent further (and more severe) social and ecological disaster. Such participatory action research could explore opportunities to create dialogue between the discourses, and what practical impact this has for transformation (similarly to chapter five). The nine discourses could function as a conceptual framework for action-oriented research in regenerative agriculture. This would give researchers a more nuanced understanding of the movement, and how they might interact with different actors.

Future research could use frameworks from areas such as post-humanism, political ecology, or eco-feminism to better understand the role of the more-than-human in regenerative agriculture and discursive transformation. This thesis was humanistic in the sense that human actors were positioned as more powerful in generating agricultural transformations.

However, future research could explore non-human agency in regenerative agricultural transformations more deeply. Such research could draw on the literature of more-than-social movements and translocal infrastructures. In this way, it would be significant to explore more extensively how more-than-human networks support different discourses. This would mean going further methodologically to understand and explore the materiality of discourse in regenerative agriculture.

Final reflections

There is no doubt that my path in the world has been reconfigured by this exploration of regenerative agriculture. For years I have lived this research and the knowledge has become entangled in me. These ideas bring me closer to the earth. I'm very fortunate to have had this learning opportunity. I believe that, as a collective, regenerative agricultural discourses offer society an opportunity to critically discuss important food system issues in ways that could be transformative. They also ask us to explore what being human means amidst processes of double death and anthropogenic devastation. In this regard, my own integrity requires that I take seriously the invitation of right relations. What does it mean to truly be responsible for the more-than-human relationships in my life?

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Appendix A: 267 grey and academic items reviewed for the literature review: transforming landscapes and mindscapes through regenerative agriculture (chapter two)

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Appendix B: 96 organisations included in discourse analysis (chapters three and four)

Organisation	Which discourses are these oganisations contributing to?	Website	Country of Origin	Access date
Regenerative Agriculture Alliance (RAA) USA	First Nations, Regenerative Cultures	https://www.regenagalliance.org/	USA	27-Jan-21
Regenerative Agriculture Alliance (RAA), Southern Cross University	Restoration for Profit, Big Picture Holism, Deep Holism	https://www.scu.edu.au/regenerativeag/	Australia	27-Jan-21
Farming Together Program, Southern Cross University	Restoration for Profit, Big Picture Holism, Regenerative Organic	https://farmingtogether.com.au/	Australia	27-Jan-21
Terra Genesis International (TGI)	Regenerative Cultures, Regrarian Permaculture	http://www.terra-genesis.com/	USA (with international projects)	27-Jan-21
The Regenesis Institute for Regenerative Practice	Regenerative Cultures	https://regenerat.es/	USA (with international nodes - New Zealand, Australia…)	27-Jan-21
Regenesis Group	Regenerative Cultures	https://regenesisgroup.com/	USA	27-Jan-21
Regeneration International (RI)	Regenerative Organic, Restoration for Profit, Agroecology Food Sovereignty	https://regenerationinternational.org/	International (Australia)	27-Jan-21

Australian Food Soveriegnty Alliance (AFSA)	Agroecology Food Sovereignty	https://afsa.org.au/	Australia	27-Jan-21
Australian Institute for Ecological Agriculture Co-operative Ltd.	Deep Holism	http://ecoag.org.au/	Australia	27-Jan-21
Resource Consulting Services (RCS); including their Quantum Leap workshops	Subtle Energies, Restoration for Profit, Big Picture Holism	https://www.rcsaustralia.com.au/	Australia	27-Jan-21
Carbon8	Big Picture Holism, Restoration for Profit	https://www.carbon8.org.au/	Australia	27-Jan-21
Aranya Agricultural Alternatives	Regrarian Permaculture	https://permaculturеindia.org/	India	27-Jan-21
Kiss the Ground	Big Picture Holism, Restoration for Profit, Regenerative Organic + biodynamic	https://kisstheground.com/	USA (Los Angeles, California)	27-Jan-21
RegenAG	Restoration for Profit, Big Picture Holism	http://regenag.com/web/	Australia	27-Jan-21
Rodale Institute	Regenerative Organic	https://rodaleinstitute.org/	USA	27-Jan-21
Savory Institute	Big Picture Holism	https://www.savory.global/	South Africa	27-Jan-21

Soil Capital	Restoration for Profit	https://www.soilcapital.com/	Europe	27-Jan-21
The Capital Institute	Regenerative Cultures	https://capitalinstitute.org/	USA	27-Jan-21
Regenerative Communities Network	Regenerative Cultures	https://regencommunities.net/	USA	27-Jan-21
The Berry Centre	Regenerative Cultures, Regenerative Organic	https://berrycenter.org/	USA	27-Jan-21
Regenerative Agriculture Association of Southern Africa	Big Picture Holism, Restoration for Profit	https://www.regenagsa.org.za/contact/	South Africa	27-Jan-21
Soil Foodweb Institute	Restoration for Profit	http://soilfoodweb.com.au/	Australia	27-Jan-21
Sustainable Harvest International	Agroecology Food Sovereignty	https://www.sustainableharvest.org/	Central America	27-Jan-21
The Carbon Underground	Restoration for Profit	https://thecarbonunderground.org/	USA	27-Jan-21
The Ecological Farming Association (EcoFarm)	Regenerative Organic, Agroecology Food Sovereignty, First Nations	https://eco-farm.org	USA	27-Jan-21
The Land Institute	Regenerative Organic	https://landinstitute.org/	USA (Kansas)	27-Jan-21

The Timbaktu Collective	Agroecology Food Sovereignty	https://timbaktu.org/school-of-regenerative-agriculture/	India	27-Jan-21
The Traditional Native American Farmers Association	First Nations	http://www.tnafa.org/	USA	27-Jan-21
Gaia University	Deep Holism, Regenerative Cultures	https://gaiauniversity.org/	International (headquaters Mexico)	27-Jan-21
The Regenerative Agriculture Network Tasmania (RANT)	Restoration for Profit	http://www.rant.net.au/	Australia (Tasmania)	27-Jan-21
Frontier Impact Group	Regenerative Cultures, Restoration for Profit	https://www.frontierimpact.com.au/	Australia	27-Jan-21
Regenerative Songlines Australia	Regenerative Cultures, First Nations	https://www.regenerative-songlines.net.au/	Australia	16-Mar-21
Permaculture Institute	Regrarian Permaculture	https://permaculture.org/	USA	27-Jan-21
Common Earth	Regenerative Cultures	https://common.earth/who-we-are-backend	Europe (UK)	27-Jan-21
Carol Sanford Institute	Regenerative Cultures	https://carolsanfordinstitute.com/	USA	27-Jan-21
Maia Grazing Program	Restoration for Profit, Big Picture Holism	http://www.rcsaustralia.com.au/wp-content/uploads/2028.2-Maia-Grazing-A4-Flyer-LR.pdf	Australia	27-Jan-21

2040 + Regenerate Australia	Regenerative Cultures	https://whatsyour2040.com/	Australia	27-Jan-21
Schumacher College	Deep Holism	https://www.schumachercollege.org.uk/	Europe (UK)	27-Jan-21
Eco-Villages Network	Regenerative Cultures	https://ecovillage.org/about/vision-mission-goals/	International (Europe)	27-Jan-21
Patrick MacManaway	Subtle Energies	https://patrickmacmanaway.com/	USA	27-Jan-21
SLM Partners	Restoration for Profit	https://slmpartners.com/	USA	27-Jan-21
Iroquois Valley Farmland REIT	Regenerative Organic	https://iroquoisvalley.com/	USA	27-Jan-21
The Regenerative Paradigm Institute	Regenerative Cultures	https://theregenerativeparadigminstitute.com/	USA	27-Jan-21
Re-Nature	Regenerative Organic, Regenerative Cultures, Restoration for Profit	https://www.renature.co/	Europe (Netherlands)	27-Jan-21
California State University Chico; Centre for Regenerative Agriculture & Resilient Systems	Restoration for Profit	https://www.csuchico.edu/regenerativeagriculture/ra101-section/ra101-definitions.shtml	USA	27-Jan-21

Green America	Restoration for Profit	https://www.greenamerica.org/what-regenerative-agriculture	USA	27-Jan-21
Holistic Management International	Big Picture Holism	https://holisticmanagement.org/the-regenerative-solution/	International (South Africa HQ)	27-Jan-21
Joyce Farms	Regenerative Organic, Big Picture Holism	https://joyce-farms.com/pages/regenerative-agriculture	USA	27-Jan-21
Southern Blue Regenerative	Big Picture Holism	https://www.southernblue.com.au/regenerative-agriculture/	Australia	27-Jan-21
Moffat Falls Pastoral	Big Picture Holism, Deep Holism, Subtle Energies	https://moffatfalls.com.au/about/	Australia	27-Jan-21
Mad Agriculture	Regenerative Organic	https://madagriculture.org	USA	27-Jan-21
Project Regeneration	Regenerative Cultures, Agroecology Food Sovereignty	https://regeneration.org/solutions	International (USA HQ)	2-Dec-21
The Quivira Coalition	First Nations, Big Picture Holism	https://quiviracoalition.org	USA	27-Jan-21
Regrarians	Regrarian Permaculture	http://www.regrarians.org	International (headquaters Australia)	27-Jan-21
Regen Network	Restoration for Profit, Regenerative Cultures	https://www.regen.network	International (headquaters USA)	27-Jan-21

Regenerative Organic Alliance	Regenerative Organic	https://regenorganic.org/	USA	27-Jan-21
Soil Health Institute	Restoration for Profit	https://soilhealthinstitute.org/strategy/	USA	27-Jan-21
Soul Fire Farm	Agroecology Food Sovereignty, First Nations	https://www.soulfirefarm.org/theland/	USA	27-Jan-21
Steward Help Centre	Big Picture Holism, Regenerative Organic, Regenerative Cultures	https://help.gosteward.com/article/m3tk6m0liy-3096175-what-kind-of-farms-are-eligible-for-funding	USA	27-Jan-21
Stone Barns Centre for Food and Agriculture	Regenerative Cultures	https://www.stonebarnscenter.org/the-farm/regenerative-agriculture/	USA	27-Jan-21
Permaculture Research Institute	Regrarian Permaculture	https://www.permaculturenews.org	Australia	27-Jan-21
Zaytuna Farm	Regrarian Permaculture	https://www.zaytunafarm.com/about-us/	Australia	27-Jan-21
Anthropocene Transitions Hub	Regenerative Cultures, First Nations	https://www.at-hub.org	Australia	27-Jan-21
Inside Outside Management	Big Picture Holism	https://www.insideoutsidemgt.com.au	Australia	27-Jan-21
General Mills	Restoration for Profit	https://www.generalmills.com/en/Responsibility/Sustainability/Regenerative-agriculture	USA	27-Jan-21

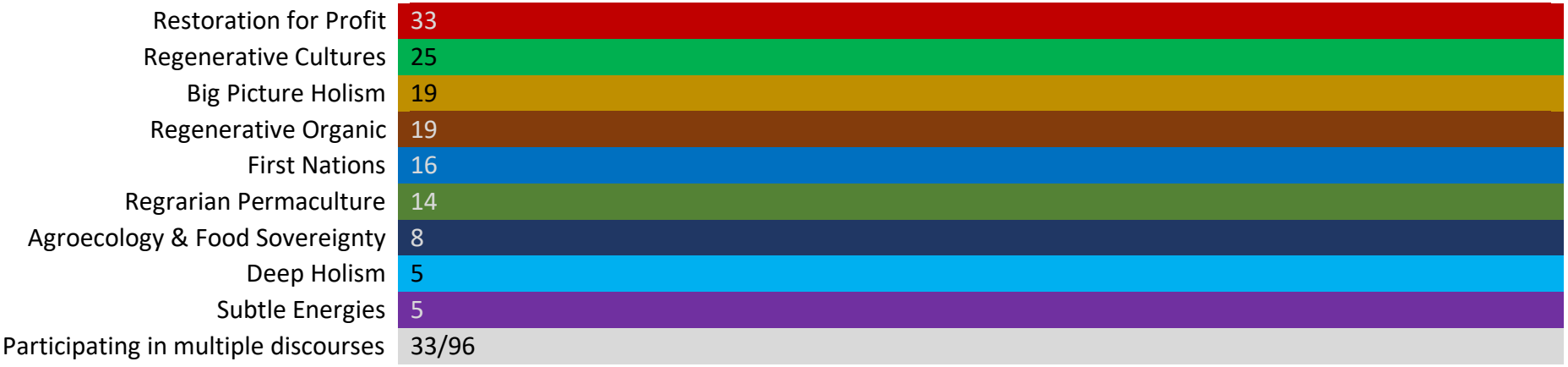
Regenerative Australian Farmers	Restoration for Profit	https://regenfarmers.com.au	Australia	27-Jan-21
Regenerative Agriculture Foundation	First Nations	https://regenerativeagriculturefoundation.org	USA	27-Jan-21
Climate Farmers	Restoration for Profit, Regenerative Cultures	https://www.climatefarmers.org/	International (Europe)	27-Jan-21
Mulloon Institute	Restoration for Profit	https://themullooninstitute.org/	Australia	16-Mar-21
The Living Classroom / Carbon Farm	Restoration for Profit, Regrarian Permaculture, Subtle Energies	https://www.bingara.com.au/the-living-classroom/	Australia	16-Mar-21
Australian Soil Management	Restoration for Profit	https://www.australiansoil.com.au/	Australia	16-Mar-21
Charlie Arnott	Biodynamics (Subtle Energies)	https://charliearnott.com.au/biodynamics/	Australia	16-Mar-21
Black Duck Foods	First Nations	https://blackduckfoods.org/	Australia	16-Mar-21
Brown's Ranch	Restoration for Profit	http://brownsranch.us/	USA	16-Mar-21
PermaQueer	Regenerative Cultures, First Nations, Regrarian Permaculture	https://www.facebook.com/PermaQueer/	Australia	16-Mar-21

Land to Market Australia	Big Picture Holism	https://landtomarket.com.au/about.php	Australia	16-Mar-21
Organic India	Regenerative Organic, First Nations	https://organicindiausa.com/regenerative-agriculture/	India	16-Mar-21
Cargill	Restoration for Profit	https://www.cargill.com	USA	16-Mar-21
Holmgren Design	Regrarian Permaculture	https://holmgren.com.au	Australia	16-Mar-21
Blue Mountains Permaculture Institute	Regrarian Permaculture	https://www.bluemountainspermaculturei nstitute.com.au	Australia	16-Mar-21
Patagonia	Regenerative Organic	https://www.patagonia.com.au	USA	16-Mar-21
Danone	Restoration for Profit	https://www.danone.com/impact/planet/r egenerative-agriculture.html	France	16-Mar-21
McDonalds	Restoration for Profit	https://corporate.mcdonalds.com/corpmc d/our-purpose-and-impact/our-planet/sustainable-agriculture.html	USA	16-Mar-21
Timberland	Restoration for Profit	https://www.timberland.com/responsibilit y/product.html	USA	16-Mar-21
Melliodora Hepburn Permaculture Gardens	Regrarian Permaculture	https://melliodora.com	Australia	16-Mar-21

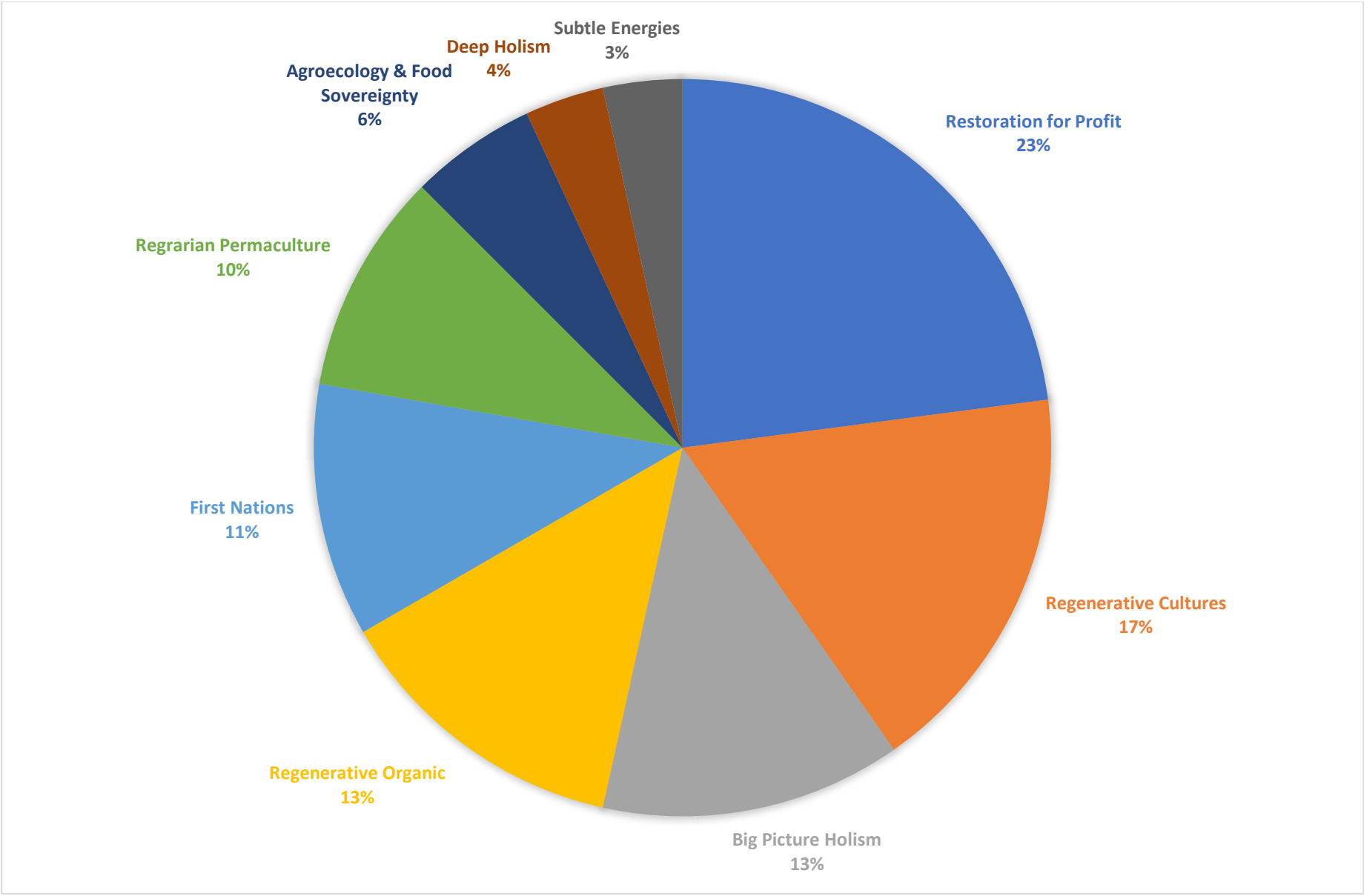
Organic and Regenerative Investment Cooperative (OriCoop)	Regenerative Organic	https://organicinvestmentcooperative.com.au	Australia	16-Mar-21
Goodman Fielder	Restoration for Profit	https://goodmanfielder.com/sustainability/better-planet/support-regenerative-agriculture/	Australia	16-Mar-21
Outback Academy Australia - Follow the Flowers	First Nations	https://outbackacademy.org.au/follow-the-flowers/	Australia	16-Mar-21
Milkwood	Regrarian Permaculture	https://www.milkwood.net	Australia	16-Mar-21
Sustainable Table	First Nations, Regenerative Cultures	https://sustainabletable.org.au	Australia	16-Mar-21
WWF Australia	Regenerative Cultures	https://www.worldwildlife.org	Australia	16-Mar-21
Navdanya	Regenerative Organic, Agroecology Food Sovereignty	https://www.navdanya.org	India	16-Mar-21
Happen Films	First Nations, Regrarian Permaculture, Big Picture Holism, Regenerative Organic	https://happenfilms.com	Australia	16-Mar-21
Soil Learning Centre / Farming Secrets	Restoration for Profit, Big Picture Holism, Regenerative Organic, Regrarian Permaculture	https://soillearningcenter.com	Australia	16-Mar-21
California Foodshed Funders	First Nations	https://www.cafoodshedfunders.org/about-us	USA	16-Mar-21

First Nations Development Institute	First Nations	https://www.firstnations.org/our-programs/nourishing-native-foods-health/	USA	16-Mar-21

Key (in order of most participation):



*Some organisations are participating in more than one discourse. As such, the number of organisations contributing to different discursive lineages adds up to 215 not 96 (which is the actual number of organisations included).


Subtle Energies
3%
Deep Holism
4%
Agroecology & Food Sovereignty
6%
Restoration for Profit
23%
Regrarian Permaculture
10%
First Nations
11%
Regenerative Cultures
17%
Regenerative Organic
13%
Big Picture Holism
13%