

Socially Engaged Art and Agriculture: Experimenting with Extension

Lucas Ihle - University of Wollongong

Laura Fisher - Sydney University

Kim Williams - University of Wollongong

Simon Mattsson - Central Queensland Soil Health Systems

Abstract: Solutions to environmentally damaging human practices require cooperation between many different communities. This article explores sustainability-focused education through the lens of a current work-in-progress, *Sugar vs the Reef?*, which involves collaboration between sugarcane farmers and artists in the arable catchment of the Great Barrier Reef in North Queensland. This is a socially engaged art project that is addressing the fraught relationship between the region's agriculture and the fragile ecology of the Reef. We introduce some of the specific aspects of socially engaged art (SEA) which commend it as a cross-disciplinary method for bridging diverse individuals and organisations - in particular, the notion of a "holding environment" for complex socio-ecological situations. We consider how this approach might broaden the agricultural practice of "extension" which aims to transform farming through educational outreach. Ideas emerging from contemporary socially engaged art practice may contribute to a toolkit for researchers and practitioners within and beyond the academy who are searching for ways to overcome the limitations of current methodologies and movements for social change.

Key Words: Socially Engaged Art, agriculture, extension, Great Barrier Reef, Sugarcane.

Socially Engaged Art and Agriculture: Experimenting with Extension

Solutions to environmentally damaging human practices require cooperation between many different communities. This article explores sustainability-focused education through the lens of a current work-in-progress, *Sugar vs the Reef?*, a socially engaged art project addressing the fraught relationship between Queensland's agricultural industries and the fragile ecology of the Great Barrier Reef. The project is a collaboration between Wollongong artists Lucas Ihlein and Kim Williams, and a community of farmers in Mackay including John Sweet and Simon Mattsson. What distinguishes these farmers is their deep concern with climate change, and with the way industrial agriculture negatively impacts both terrestrial and marine environments.¹ In response, some farmers are adopting innovative methods to enhance the cycling of water, carbon and nutrients in their soils.

In exploring strategies for education around sustainable farming, we have two discrete starting points: the methods of socially engaged art, and the conventions of agricultural extension. Both are concerned with generating knowledge through on-the-ground participation, but they operate in very different ways. The key question we pose in this article is whether the two practices might be creatively interwoven, as a means to support the spread of environmentally beneficial farming systems. We address this question by providing an insider's perspective on *Sugar vs the Reef?* as a live socially engaged art project that has ventured into this terrain. Further, as we regard *Sugar vs the Reef?* to be inherently cross-disciplinary, we draw upon artistic, sociological, farming and scientific knowledge to offer a layered picture of how the project might demonstrate some of the components of a new model of sustainability education.

This article begins by outlining some of the methods of socially engaged art and agricultural extension. We then introduce the reader to the *Sugar vs the Reef?* project by recounting the project's first major public event, *Sunset Symphony in the Sunflowers*, which took place in July 2017. We explain how this event was realised through a collaborative process in which different cultural, agro-ecological and economic dimensions of the farming + Great Barrier Reef nexus were brought out into the open for people to engage with collectively. The latter part of the article pursues a more in-depth analysis of *Sugar vs the Reef?*. We suggest that what is distinctive about this kind of socially engaged art project is its creation of a "holding environment" which binds together seemingly incommensurable points of view that are in tension with each other for an extended period of time. It is this convivial holding-in-tension which, we argue, may help encourage positive cultural adaptation in society, in contrast to the stagnation that often occurs when different points of view become polarised.

Socially Engaged Art and Cross-Disciplinarity

Art, agriculture, and education are usually considered distinct fields of human endeavour. Our work attempts to bring them together. It does so in a spirit of cross-pollination (to borrow a term from biology) with the assumption that sharing ideas and methods between disciplines may be mutually beneficial. As artists, we are buoyed by practitioners from other fields who assert that collaboration beyond the comfort zone of specialist areas may be the key to making unusual discoveries. This is certainly the case for marine scientist Stephen Campana. In an article reflecting on the progress of his long career researching the inner-ear structure of fish, Campana describes the importance of his regular visits to the library to immerse himself in "other" fields of enquiry. He writes:

[I]t is the topics largely unfamiliar to the mainstream scientists in a discipline which can lead to the “breakthroughs,” whether it is the conceptualization of a new theory of gravity (not so likely) or the adaptation of concepts and approaches used in other fields that can lead to new insights in your own field (much more likely). (Campana 2017, p. 2)

Our own field is socially engaged art (SEA) - a discipline which emerged in the late twentieth century as an offshoot of the visual arts, and which has come to maturity during the last decade. SEA shapes social interactions as a key material for creative practice, with the intention of creating positive effects in the social sphere. Three of the key characteristics of SEA as it is practiced today are: the participatory involvement of communities; a desire to work in the public sphere beyond the boundaries of the artworld; and the ambition to actively transform (not just represent) reality (Thompson, 2012). A well-known example is Jeremy Deller’s *The Battle of Orgreave* (2001), an orchestrated re-enactment of the infamous 1983 confrontation between unionised coal miners and police in England. This confrontation marked a turning point in England’s history, when the Thatcher government embraced trade liberalisation and privatisation. Around the country coal pits that had employed thousands of workers were closed down. Speaking of his move into making socially engaged artworks, Deller says: “I went from being an artist who makes things, to being an artist who makes things happen” (Thompson, 2012, p. 17). In developing *The Battle of Orgreave*, Deller involved many of the original police and union members, as well as an historical re-enactment society (Thompson, 2012, p. 142). Taking place 17 years after the original “battle” in the same location, the re-enactment used people’s direct embodied experience as a medium for creating a work of socially-engaged art. The work drew to the surface a set of still-unresolved class tensions in Britain - and this is palpable in the video documentary about the event created by Mike Figgis (Figgis, 2001). Deller has described the event as “digging up a corpse and giving it a proper post-mortem” (Deller, *The Battle of Orgreave*, 2001).

Since SEA shares the public sphere as its site – a site which is occupied by people from diverse backgrounds and occupations – it routinely involves collaboration with non-artists and non-art organisations (as was the case with Deller’s work with unionists, police and the re-enactment society). In this way, SEA is characterised by an inherent cross-disciplinarity.² In other words, it has a built-in mechanism for what Campana calls the “adaptation of concepts and approaches used in other fields”. According to artist and educator Pablo Helguera, the potential contribution SEA makes to society lies in its ability to trespass into established social practices, opening up the possibility of a different way of doing things. Helguera writes:

Socially engaged art functions by attaching itself to subjects and problems that normally belong to other disciplines, moving them temporarily into a space of ambiguity. It is this temporary snatching away of subjects into the realm of art-making that brings new insights to a particular problem or condition, and in turn makes it visible to other disciplines. (Helguera, 2011, p.5)

Art’s categorical ambiguity thus has the potential to produce new perspectives within complex multi-stakeholder situations. In the case of *Sugar vs the Reef?*, we have begun to use art as an incongruous form of agricultural education (or “extension”). As artists we ask: What possibilities might be generated by this disciplinary trespass to support transformations in human-environmental relations?

Agricultural Extension - practices and critiques

Before describing how the processes and products of *Sugar vs the Reef?* align and diverge from mainstream agricultural education, we offer a very brief history and critique of extension practices in Australia. “Extension” is a term used in agriculture to refer to the education of farmers about new techniques and technologies. It is akin to “continuing adult education”, generally taking place informally, outside of an institutional setting, without accreditation.³ The goals of extension in agriculture have varied in different times and places, but they often involve the desire to transfer scientists’ discoveries into the field, driving changes in farmers’ practices (Black, 2000). If adopted, farmers’ behavioural changes could result in increased yields, improved resistance to pests and diseases, or (increasingly the case in recent decades) better outcomes for the environment. Extension activities are often resourced by governments (through Natural Resource Management organisations), as well as by agribusinesses seeking to introduce farmers to new products.

In Australia, extension began in the late 1800s as a way to ensure food security in an environment not suited to European farming practices (Hunt et al, 2012, p. 10). Shaped by Australian government policy, support for extension programs waxed and waned throughout the 20th and into the 21st century, affected by disease outbreaks in crops, changes in the labour force, population booms, international trade, and participation in the world wars (Hunt et al, 2012). To take an example relevant to the project discussed in this paper: in recent years, the pressure on the Queensland sugarcane industry to reduce its negative impact on the water quality in the Great Barrier Reef lagoon has led to a new phase of extension focused on the environmental sustainability of agriculture (Di Bella et al, 2016).

Traditionally, agricultural extension has involved a model known as “transfer of technology” – a top-down process intended to transmit knowledge from scientist to farmer – but this has been shown to have limited efficacy. Social scientists researching extension have critiqued this “old paradigm” (Murray, 2000, p. 519). Australian agricultural researcher Patricia Murray argues that the transfer of technology model has not been as successful as hoped, for two reasons: first, this type of extension positions farmers as the passive recipients of knowledge generated elsewhere; and second, it principally serves the needs of government agencies rather than farmers themselves (Murray, 2000, p. 520). Similarly, Frank Vanclay argues that top-down extension methods do not consider the fundamental role played by farmers’ lives as a determining factor in behavioural change. Extension programs aimed at changing behaviours therefore miss a key factor: that farming is a socio-cultural practice rather than a technical activity, and it is rich in meaning for the people involved. Vanclay writes:

Agriculture has too long been thought of as a technical issue involving the application of science, and the transference of outputs from that science via a top-down process of technology transfer. It is not. Agriculture is farming, and farming is people. (Vanclay, 2004, p. 213).

In contrast to the top-down “technology transfer” model, the artists and farmers discussed in this paper build upon local trust-based social networks.⁴ For example, Central Queensland Soil Health Systems (CQSHS), which is currently led by the innovative sugarcane farmer Simon Mattsson, is an example of what Fiona McKenzie calls a “farmer group”. Reflecting on Australian farmers’ positive responses to extension techniques coordinated by such groups, McKenzie writes: “There was a view that a fellow farmer was ‘often better to listen to than someone who is actually trying to sell you a product’” (McKenzie, 2013, p.88).

Similarly, one of the fundamental principles for the artists collaborating on *Sugar vs the Reef?* is that people are an integral part of any environmental management system. We now turn to this project to show how the collaboration between artists and farmers might be considered an unusual instance of grassroots agricultural extension.

Sunset Symphony in the Sunflowers: Incongruity and Aesthetic Experience

In July 2017, artists Kim Williams and Lucas Ihlein worked alongside Simon Mattsson and media-maker Kim Kleidon to produce an ambitious cultural event in a sugarcane field in Mackay, North Queensland: *Sunset Symphony in the Sunflowers*. The team carved out a circular amphitheatre from within a crop of sugarcane and sunflowers, and staged a concert featuring the local Mackay Youth Orchestra and Jazz Band, the Sakwolo Islander Dancers, and presentations about soil health from farmers. The project had multiple aims:

- To increase the audience for Simon Mattsson's ideas about regenerative agriculture beyond the farming community;
- To bring together diverse communities who do not usually encounter each other (farmers, Australian South Sea Islanders, and the "cultural classes" of Mackay);
- To create an opportunity for artists and farmers to collaborate, in order to explore the connections between their different practices and investigate the role socially engaged art might play in complex environmental management situations.

Particular aspects of the organisation of the event (the creation of bespoke composting toilets; the timing of the day to conclude just as the sun was setting; catering with high-quality locally grown food and drinks) were designed to shape the audience's experience. This was a "gala" event in an incongruous setting. In wine-growing regions in the southern states of Australia, such cultural events are commonplace. Vineyards, growing in neat lines along rolling hills in temperate climates have a bucolic aesthetic which provides a pleasant backdrop for weddings or concerts. By contrast, this sort of pleasant aesthetic experience is generally not associated with sugarcane crops in the hot tropics. "This is not the kind of thing that normally happens up here", as one audience member reported in feedback after *Sunset Symphony in the Sunflowers*. And yet it was precisely this incongruity which gave the event its transformative educational potential, creating a site-specific convivial framework for deeper discussions about soil health and regenerative agriculture.



Sunset Symphony in the Sunflowers, July 2017, photograph: Cherrie Hughes

Farmer Simon Mattsson first recognised the power of bringing together incongruous entities in 2015 when he began experimenting with planting sugarcane and sunflowers in alternating rows. Initially, Mattsson’s hunch was of a biological kind: that breaking the sugarcane monoculture with a companion crop would help generate a more diverse subsoil environment with manifold benefits (increased soil carbon content, better water holding capacity, positive nematode and fungus growth and so on) (Stirling et. al, 2016, pp. 170-174; Stirling & Mattsson, 2018). Coupled with this, the two crops proved to be compatible in their relative timing: the sunflowers grew more rapidly from germinating seeds than the sugarcane, thus shading out weeds, and at maturity the two metre tall sunflowers could be harvested (or “knocked down”) over the top of the sugarcane without damaging it. After harvest, the sunflower stalks remain in the field as mulch, contributing an extra layer of biological matter to the soil. Beyond these biological benefits, Mattsson made an observation of a *cultural* kind: that sunflowers, out of place in the tropics where they are not usually grown, attract attention from passing humans, who stop their cars and get out to take photographs of themselves amid a sea of giant yellow orbs (Ihle and Mattsson, 2017, pp. 20-21). The combination of these incongruities (both agricultural and cultural) led to *Sunset Symphony in the Sunflowers* - and to the emergence of another incongruous relationship - the collaboration between artists and farmers.



Sunset Symphony in the Sunflowers publicity flyer, July 2017

Artist/Farmer Collaborations: CQSHS and *Sugar vs the Reef?*

We now sketch the background to the collaborative relationships between artists and farmers which made *Sunset Symphony in the Sunflowers* possible. One of the principles underpinning ethical practice in socially engaged art is the development of deep connections between those involved. It can take a long time for trust to develop to the point where artists and farmers are able to work together on a shared project, and, we argue, this process of trust-building is an integral part of the artwork, not just the means to an end.

The Farmers. In 2015-16, Simon Mattsson and a group of sugarcane farmers in Mackay founded Central Queensland Soil Health Systems (CQSHS) - a grassroots coalition with a focus on regenerative agriculture. In recent years the Queensland sugarcane industry has come under pressure to reduce fertiliser, pesticide and sediment run-off, which adversely affects water quality in the Great Barrier Reef (Queensland Government 2015; 2017). Fertilizer residue in run-off encourages the growth of the crown of thorns starfish which predate on coral (AIMS 2016). Pristine water is essential for supporting the resilience of the reef, which has been severely bleached in recent years though elevated water temperatures caused by global warming, and the evident connection between agricultural land use and reef ecology has prompted farmers like Mattsson to re-evaluate farming practices. Coupled with declining yields and ageing infrastructure in the network of mills which process the harvest

into raw sugar, the sugarcane industry has been under greater than usual stress (Stirling et. al., 2016, p. 165). Frustrated by the slow response of peak body industry groups, Mattsson and a small group of Mackay farmers were motivated to form their own farmers' organisation, CQSHS. CQSHS is one of many grassroots farming collectives shaping the contemporary field of regenerative agriculture. In their study of the "communities of practice" created by innovative farmers in Australia, Rebecca Cross and Peter Ampt (2016) observe that it is informal networks of farmers trialing new ideas at the local level that are seeding sustainable methods. Such networks are often compelled to work at arm's length from the structures of industrial agriculture which inhibit agro-ecological innovation. The philosophy of CQSHS is to "lead from below", focusing on the practical intelligence of the farmer as a key to addressing the complex problems of the sugarcane industry in Queensland. The group hosts regular "soil health field days" to share ideas and practices among its members, who are mainly sugarcane farmers from the Mackay district. Sugarcane is farmed extensively across more than 2000 kilometres of coastal land in central and northern Queensland. Arguably, a shift to rotational mixed species cropping systems (including animals) would improve soil health, clean up run-off, and provide food for local consumption. However, any aspiration for such a massive transition towards regenerative agriculture is not realistic without first laying the groundwork through farmer-led education *within* the sugarcane growing community, and this is the core mission of CQSHS. This is an example of farmer-led extension, where the trialling of new methods, and the sharing of discoveries takes place within a ground-level feedback loop, rather than being imposed on farmers from the outside.

Proudly brought to you by: **CQSHS**
APRIL 26-27 | 2016

3RD ANNUAL Marian SOIL HEALTH Field Day

CQSHS membership is open to anyone interested in soil health.
 For membership email: info@cqshs.com.au
www.cqshs.com.au

Dr GREG BENDER, Australian Soil Management Pty Ltd
 Greg is passionate about smarter land management, meaning the integration of sophisticated natural systems with modern farming practices to build better soils, landscapes and businesses. Greg has a family background in farming. He was a research scientist specialising in plant-microbe interactions at ANU during the 1980's. He moved into industry in the 1990's manufacturing microbial inoculants using microbes supplied by CSIRO, Universities and state DPI's. The business supplied about one-third of Australia's legume inoculants for pulse crops and pastures. During the 2000's he was Coordinator for Australia's first National Soil Biology R&D Program (GRDC), a National Pasture Breeding Program (IWI) and a National Pulse Breeding Program (GRDC). In 2011, Greg co-founded Australian Soil Management (ASM) Pty Ltd to deliver structured soil management programs to landholders for economic, environmental and social benefits.

DAVID HARDWICK, MC, Agricultural Ecologist
 David Hardwick is an agricultural ecologist who uses soil psychology to help address soil management issues. He has a broad experience in sustainable agriculture. After completing a dairy traineeship he has worked in various roles including in agronomy, biofertiliser R & D, training and Landcare. He currently works across a range of sectors helping farmers to build skills in soil management, fertiliser use and composting. He also runs Digging Deeper soil management programs in NSW and Queensland.

LIVE DEMONSTRATIONS DAY 1
 The first demonstration will be the distribution of fine lime products through a dry applicator and then through a wet applicator.
 Following this will be a demonstration using a similar fine lime product with distribution via a helicopter.
 • The helicopter demonstration is subject to availability on the day.

DAY 1 SOUTHS LEAGUES CLUB
 181 Milton Street, Mackay
 • 7am breakfast
 • Presentations—Dr Greg Bender followed by Dr Neil Wilson
 • Interactive Q&A Panel
 • Barbecue lunch at Simon Mattsson's Farm & Sponsor
 Presentations followed by viewing trial sites and live machinery demonstrations.
 Simon's Farm, 171 Newman's Road @ Marian
COST: \$30 per person Day 1 Or \$10 for CQSHS Members.

DAY 2 SIMON MATTSSON'S FARM
 • 8am half day hands on in-field soil assessment workshop hosted by Ag Ecologist David Hardwick
COST: \$35 per person Day 2

NEIL WILSON, GRDC Postdoctoral Research Fellow, Faculty of Agriculture and Environment
 A revolution in agriculture is on the horizon, and it has the potential to change conventional agricultural practices on a massive scale. At the core of this revolution is microbial ecology and soil health. Microbes underpin the health of all animals and plants, and recent technological advances have allowed scientists to study the interactions between microbes and multicellular organisms at previously unimaginable levels of detail. In plants, interactions with microbes are key determinants of a range of factors, including susceptibility to diseases and pests, yield potential, environmental stress resistance, and flowering time. My presentation will highlight developments in the field of soil and plant microbial ecology over the past decade, and highlight the ways in which these discoveries are likely to change agricultural land management practices.

Sponsors: eco growth, Mackay Regional Council, BMS 1200 TRIMBLE, BAYER, BEET CAPTURENT, CANEGROWERS

Central Queensland Soil Health Systems - Marian Soil Health Field Day Flyer, 2016

The practical research conducted by the members of CQSHS is also extended outside their own community, with Mattsson presenting regularly at agricultural conferences both within Australia and internationally. However, his ambitions go further: Mattsson has a strong desire to communicate to a wider general public about the under-recognised role farmers play in economies of food and land management in Australia, and the critical role they can play in mitigating climate change, and this means going beyond the safety zone of farmer groups. As he says in a recent video documentary, the profile of farming has declined over the last fifty years, resulting in a loss of connection between farmers and the wider population:

[...] today, less than 1% of the Australian population is actually actively engaged in agriculture. Back before World War Two, most people were either a farmer, knew a farmer, or were related to a farmer. So they had that connection. That connection's been lost today, and subsequently I've been struggling and looking for ways to re-establish that connection with agriculture and the general public. (Kleidon et.al., 2017)

In this way, Mattsson's enthusiastic collaboration with socially engaged artists is an integral part of a suite of activities which he hopes will reconnect farmers, and the land they manage, with the wider world of human practices.

The Artists: Lucas Ihle first visited Mackay in 2014, at the invitation of retired farmer John Sweet. Sweet had worked in the late 1970s with PA Yeomans, the Australian agricultural pioneer and inventor of the Keyline Design system of landscape management (Ihle and Milliss, 2013). The collaboration between Ihle and Sweet was built on shared respect for Yeomans' ingenious principles of landscape design. Yeomans' Keyline system was built around topography and hydrology, maximising the capacity of dry agricultural farmland to catch and store water and build soil (Hill, 2003; Massy, 2017). In early 2014, Ihle had just completed a collaborative project with artist Ian Milliss, investigating the significance of Yeomans' work as a form of "land art" – which included facilitating several educational field trips exposing urban art audiences to working examples of Keyline farming in the peri-urban zones of Sydney and Melbourne (Ihle, 2015). For the artists, these field trips were the beginnings of an aesthetic trespassing into the realm of regenerative agricultural extension, with a view to transforming urban/rural relationships with food production systems (Fisher 2017a). Inspired by this, Sweet recognised the potential contribution that socially engaged artists could make to the complex social and environmental problems facing the sugarcane industry. He facilitated a range of meetings between Ihle and communities of farmers, scientists and natural resource managers in Mackay. In early 2015, Ihle met Mattsson, and the two began exploring what collaboration between artists and farmers could look like. Ihle drew together a team of artists (including Kim Williams and Ian Milliss) and sought funding for an open-ended artistic research project. What role, the artists asked, could socially engaged art play in complex environmental management situations like the Queensland sugarcane industry? This was the basis for the ongoing project entitled *Sugar vs the Reef?*.

Creating a "Holding Environment": Socially Engaged Art in action

As the descriptions above convey, both farmers and artists developed frameworks for self-initiated environmental extension, with the dual goal of expanding their own knowledge and influencing behavioural change in others. But this is not always a comfortable fit. Artists are not scientists, agricultural extension professionals or government policy makers. So what role can they play in this complex field in which human behaviours and environmental conservation are in tension with each other? In fact, we argue that it is precisely the

ambiguous position of the SEA artist which offers the possibility of a different sort of outcome. The various professionals described above each has an obligation to achieve a set of prescribed goals. By contrast, the functioning of socially engaged art is more open. Although artists may be motivated by a desire to create positive change in the world, they have the privilege to work from a position of *intentional non-instrumentality* – allowing the complexity of a situation to play out, without attempting to bring it to rapid resolution. We describe this as the creation of a “holding environment” – a framework in which an array of unresolved positions within a complex multi-stakeholder situation can be held in suspension. In a holding environment, each (human and non-human) position remains distinct, and the tensions between them are not resolved or smoothed over.

How might a holding environment work in practice? We’ll attempt to sketch out a scenario with specific reference to *Sugar vs the Reef*? As its title suggests, the immediate tension the project frames is between the sugarcane industry (the system which grows sugarcane and transforms it into a commodity) and the Great Barrier Reef (a vast natural heritage ecosystem). How can these two entities (one which serves human interests, and the other which has an unfathomably complex role to play in the earth’s biological functioning) co-exist? This is the seemingly unresolvable tension which lies at the heart of the artistic intervention. Each agent in this scenario is bound to follow a behavioural script or template: an *environmental activist* might attempt to shut down the sugarcane industry altogether; *scientists* might research new strains of sugarcane plants which need less water or fertiliser; *agricultural extension officers* might try to encourage farmers to adopt the principles of Best Management Practice developed by the industry; and *government policy makers* might introduce a funding program to support these extension efforts. By contrast, the socially engaged artist has no outcomes-based “agenda” as such. Our role has been to open up the question posed by the opposition between “sugar” and “the reef” and allow it to be held in tension for an extended period of time. This holding in tension of seemingly irreconcilable elements is what we mean when we use the term “holding environment” to describe what is created by the art project. We do this by *listening without judgement* to the points of view of all these professional practitioners, and recognising that their points of view are rational from within the framework of their own experiences. We draw a diverse group of people into awareness of the complexity of the socio-environmental situation that underpins the relationship between sugar and the reef through a diverse set of methods of contemporary artmaking, including exhibitions, blogging, video production, and especially via the creation of events and social gatherings (Ihle et. al. 2017).

The philosophy underpinning this approach grows from the realisation that complex multi-factor situations, like the environmental impact of industrial agriculture, should not be reduced to simplistic partisan positions (although they often are). The reduction of complex situations in this way (by the two-party political system and its associated media feedback loops) creates scapegoats and heroes, further polarising positions in the political field and thus moving the situation further away from workable, broadly socially acceptable solutions. While our project focuses on a specific situation prevailing in Queensland, the same principles can apply on a wider scale: with “sugar” standing in for human-centric activities generally, and “the reef” for the myriad of biodiverse lives that coexist on the planet. We ask: is there a way beyond the oppositionality embodied in the “vs” of *Sugar vs the Reef*?

Boundary Objects and Collaborative Learning

The concept of “boundary objects”, developed by social scientists Susan Leigh Star and James Griesemer, might be useful for understanding how artists and farmers can move

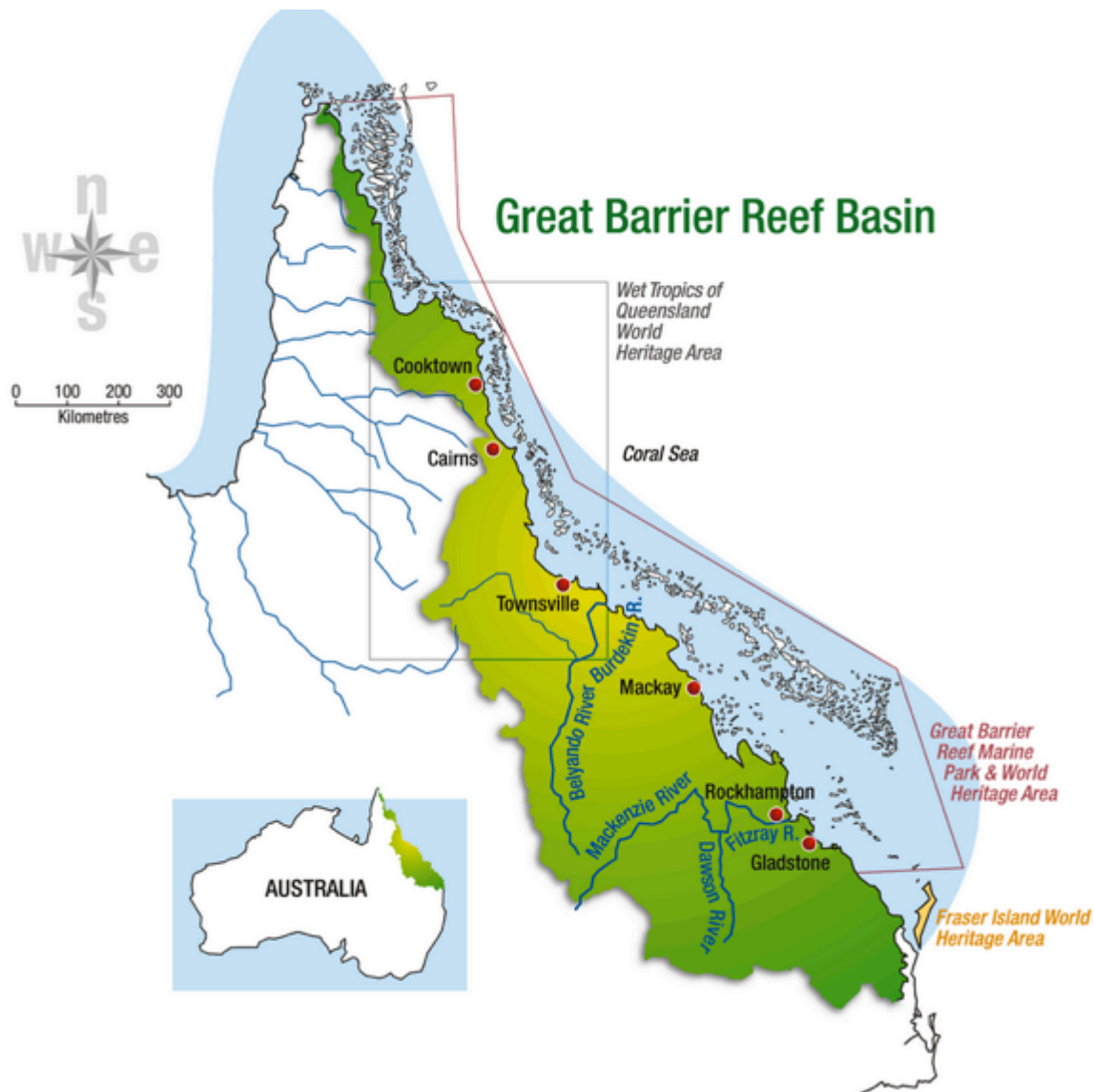
beyond oppositionality. Star and Greisemer explain that “since all science requires intersectional work,” scientific knowledge depends upon negotiations between stakeholders (or stakeholder communities) who attach different meanings to the phenomena they temporarily share an interest in (Star and Greisemer, 1989, p. 392). When viewed through this sociological lens, science is an evolving constellation of artefacts and representations crafted through cooperation between members of different social worlds: amateur naturalists, archivists, taxidermists, research scientists with different specialisations, museum professionals and so on. These artefacts and representations attain credibility if they serve the needs of each social world, even though each of them has only “partial jurisdiction over the resources represented by that object” (Star and Greisemer, 1989, p. 412). One of the most important points to be drawn from Star’s and Greisemer’s analysis is that cooperation – *often without consensus* – is what generates useful science.

Socially engaged artists are often engaged in producing boundary objects, particularly when they work in situations in which different perceptions of a particular event, place or problem coexist in a state of friction. Whereas in science a boundary object might take the form of a taxonomy, repository, or a museum display, for socially engaged artists boundary objects could include the creation of a collaborative performance, a film, or a participatory workshop (Halpern, 2011). Jeremy Deller’s *The Battle of Orgreave* (2001) is a case in point, where the boundary object – the battle re-enactment – enables a range of diverse participants to reconsider the history of unionism and labour politics without requiring a simple resolution acceptable to all. Similarly, in the case of the *Sugar vs the Reef?* project, the *Sunset Symphony in the Sunflowers* event operates as a boundary object, drawing together multiple stakeholders invested in both the sugarcane industry and the Great Barrier Reef, including Indigenous land and sea custodians, marine scientists and natural resource managers, farmers and e activists (and that’s only the human stakeholders).



Lucas Ihlein and Kim Williams, *Partial Map of Human and Non-Human stakeholders, Sugar vs the Reef? 2017*

Through the boundary object of the convivial event that takes place on Simon Mattsson's farm, the urgency of the ecological threat to the reef thus pushes back against terrestrial agriculture practices. This boundary object temporarily reframes the land catchment in which sugarcane farming is practiced as an integrated part of a whole-reef ecosystem.



Map showing relationship between terrestrial catchment and the Great Barrier Reef. (photo: WWF)

This is where the ethical foundations of socially engaged art are critical. The objective of a project like *Sugar vs the Reef?* is not to *persuade* a particular community of the artist's point of view (and thus compel people to relinquish their pre-existing views of the world). Rather, with *Sunset Symphony in the Sunflowers*, the artists create a social environment which holds together diverse voices around this boundary object. The project elicits certain truths about the sugarcane farming/reef intersection, and then makes those truths available for contemplation and dialogue by as diverse a group as possible who also have a stake in the future of the region's agriculture, and the future of the Great Barrier Reef. To use the language of Star and Griesemer, an artwork like *Sunset Symphony in the Sunflowers* (both the event itself and the collaborative processes that produced it) is an exercise in "many-to-many-mapping" between stakeholder communities. The boundary object helps to craft a "constellation" out of the concerns those stakeholders diversely lay claim to (Star and

Griesemer, 1989, p. 390). Thus *Sunset Symphony in the Sunflowers* demonstrates how boundary objects may “act as anchors or bridges” for cross-disciplinary knowledge creation (Star and Griesemer, 1989, p. 414).

Considering the farming/reef nexus in this light suggests how socially engaged art might have something to offer to agricultural extension as an educational practice. Echoing the critiques of top-down extension practices discussed earlier, Star and Griesemer argue that the protocols employed to serve *collaborative* scientific inquiry “are not simply the imposition of one world’s vision on the rest; if they are, they are sure to fail” (Star and Griesemer, 1989, p.414). The practice of socially engaged art has much in common with those of the “communities of practice” discussed by Cross and Ampt, in which farmers are engaged in empirical science themselves, on their own land, sharing their knowledge through grassroots networks. In this way, education is “extended” two ways – with farmers being proactive in educating other farmers, as well as informing the wider public about regenerative agricultural practices.⁵

Conclusion: Moving towards Cultural Adaptation

For some readers of this article, the processes and products of *Sugar vs the Reef?* and *Sunset Symphony in the Sunflowers* will be unfamiliar as modes of contemporary artmaking. By way of conclusion, we want to provide some context by introducing a particular lens for understanding this unlikely permutation of art practice: the concept of *cultural adaptation*. Our discussions above around how we might deploy cross-disciplinary art methodologies to encourage sustainable behaviours are framed by the need to constantly *adapt* ourselves and our cultural norms to a rapidly changing social and ecological environment. The idea of cultural adaptation informing our work takes its lead from Australian philosopher Donald Brook’s critique of the artworld. Brook’s premise is that experimental acts (which he labels “memetic innovation”) have been occurring for a lot longer than we have had the institutions and discourses – the “artworld” – that currently define art (Brook, 2008a). Brook argues that human culture would in fact *never evolve* unless these acts of memetic innovation were occurring in *all* streams of social life. He suggests that the term “art” should thus be redeployed to describe any activities that enable humans to discover “new possibilities for regular action that we did not know were available to us until somebody or something unexpectedly showed us how” (Brook, 2008b, p. 4). In the context of *Sugar vs the Reef?*, Simon Mattsson’s discovery of new possibilities for multi-species intercropping with sugarcane could thus be reframed as art.

This redefinition not only challenges audiences for art, but also challenges artists themselves, particularly those who believe in the ethical and activist goal of contributing positively to social change. Following Brook’s lead, Australian artist Ian Milliss argues that in contemporary society “the most significant and innovative examples of cultural adaptation” tend not to be found in the formats we encounter in art galleries and museums. Rather, “they can be in any media or technology, and [are] no longer necessarily described as art nor made by people who call themselves artists” (Milliss, 2017, p. 6). The consequence of this redefinition of art as cultural adaptation is that practitioners must contemplate a broader, more relational and inclusive understanding of artistic work. They must let go of the image of the artist as an autonomous creator pursuing a unique vision through their mastery of a specialist idiom (see Ingold and Hallam, 2007).

We feel that the lens of cultural adaptation is useful because - as the theme of this journal issue attests - we urgently need human society to evolve environmentally sustainable ways of living and working. If artists are in general disposed to experiment and speculate, to take risks

and generate imaginative and compelling ideas, might they not make useful contributions to cross-disciplinary projects that seek to reconfigure the way we live? As we have discussed throughout this paper, socially engaged artists nurture collaborative relationships with people from outside the art world, and harness the different kinds of knowledge (professional, vernacular, experiential, ancestral) they possess. This has important implications for understanding how education can play out in contexts where the prioritisation of environmental imperatives is inhibited due to politicised social frictions. Our discussion of the social interactions that inform *Sugar vs the Reef?*, and the holding environment for complexity created through *Sunset in the Sunflowers*, demonstrates how socially engaged artists can effectively work in the boundary-crossing spirit Brook describes.

In an interview conducted after *Sunset Symphony in the Sunflowers*, Simon Mattsson enthusiastically characterised the event as an exercise in agricultural extension: “That's exactly what I see it as. It's extension, to the wider community, to educate them, so that they are better informed as to, ultimately, the cost of food” (Fisher, 2017). For Mattsson, this work of bridging the distance between farmers, environmentalists and consumers, and between urban and rural dwellers, embodies a critical point: that environmental custodianship needs to be a responsibility of the entire population. *Sunset Symphony in the Sunflowers* was an experiment in demonstrating the interconnection between land and sea stewardship, reef ecologies, farming livelihoods, and consumer responsibility. That we as artists can see Mattsson's multi-species cropping as a form of art, while Mattsson can see our work as a means to widen the scope of agricultural extension, suggests how socially engaged art projects can diversify the terrain of environmental education, bringing the skills and sensibilities of artists into dynamic play with those of other individuals who are tackling significant environmental concerns on the ground.

References:

- AIMS (Australian Institute of Marine Science) (2016). *Backgrounder: Impact of Land Runoff*. AIMS Website, Retrieved from <https://www.aims.gov.au/impact-of-runoff>
- Black, A.W. (2000). Extension theory and practice: a review. *Australian Journal of Experimental Agriculture*. 40, 493-502.
- Bourriaud, N. (2002). *Relational Aesthetics*. Dijon: Les Presses du Reel.
- Brook, D. (2008b) Experimental Art. *Studies in Material Thinking*, 8, 1-6. Retrieved from <https://www.materialthinking.org/people/donald-brook>
- Brook, D. (2008a). *The Awful Truth About What Art Is*. Adelaide: Artlink.
- Campana, S.E. (2017). Twelve easy steps to embrace or avoid scientific petrification: lessons learned from a career in otolith research. *ICES Journal of Marine Science*, fsx161, August 2017. Retrieved from <https://academic.oup.com/icesjms/article/4100496>
- Canegrowers. (2013). Smartcane BMP. Retrieved from <https://www.smartcane.com.au/home.aspx>
- Cross, R., & Ampt, P. (2016). Exploring Agroecological Sustainability: Unearthing Innovators and Documenting a Community of Practice in Southeast Australia. *Society & Natural Resources*, 30:5, 585-600.
- Di Bella et. al, (2016). The use of targeted extension strategies to improve water quality outcomes in the Herbert sugarcane industry. *Proceedings of the Australian Society of Sugar Cane Technologists*. Vol. 38, 170-179.
- Figgis, M. (2001). *The Battle of Orgreave*. Art Angel Media and Channel 4.
- Fisher, L. (2017a). Ecologies of Land and Sea and the Rural/Urban Divide in Australia: Sugar vs the Reef? and The Yeomans Project. *Culture and Dialogue*. 5 (1), 98-130.
- Fisher, L. (2017b). Interview with Simon Mattsson, 21 November 2017.
- Halpern, M. (2011). Across the great divide: Boundaries and boundary objects in art and science. *Public Understanding of Science*. 21(8), 922-37.
- Helguera, P. (2011). *Education For Socially Engaged Art: A Materials And Techniques Handbook*. New York: Jorge Pinto Books.
- Hill, S.B. (2003). Yeomans' Keyline Design for sustainable soil, water, agroecosystem & biodiversity conservation: a personal social ecology analysis. Wilson B.P. & Curtis A. (eds.) *Agriculture for the Australian Environment*. Proceedings of the 2002 Fenner Conference. Albury: Charles Sturt University, 34-48.
- Hunt, W., Birch, C., Coutts, J., & Vanclay, F. (2012). The Many Turnings of Agricultural Extension in Australia. *Journal of Agricultural Education and Extension*, 18(1), 9-26.

Ihle, L. et. al. (2017). *Sugar vs the Reef?* blog. Retrieved from <http://www.sugar-vs-the-reef.net/>

Ihle, L. (2015). The Yeomans Project: Peri-Urban Fieldwork. *Axon: Creative Explorations*. 5:1. Retrieved from <http://www.axonjournal.com.au/issue-8-1/yeomans-project>

Ihle, L. and Mattsson, S. (2017). Sunflowers as Agricultural and Cultural Change Agents. *Futurelands2 Newspaper*. Kandos: KSCA.

Ihle, L. & Milliss, I. (2013). *The Yeomans Project Newspaper*. Retrieved from <http://yeomansproject.com/>

Ingold, Tim & Hallam, Elizabeth (2007) Creativity and cultural improvisation: An Introduction in Hallam, E. & Ingold, T. (eds) *Creativity and Cultural Improvisation*, Oxford: Berg, 1 - 24.

Klein, J. (1990) *Interdisciplinarity: History, Theory, and Practice*. Detroit: Wayne State University Press.

Kleidon, K., Ihle, L., Williams, K., Mattsson, S., & Kotze, J. (2017) *Sunset Symphony in the Sunflowers: The Documentary*. Flow Motion Media.

Massy, C. (2017). Water in a dry land: How PA Yeomans uncovered Australia's hidden water systems. *Foreground: Cities, places and the people who make them*. Retrieved from <https://www.foreground.com.au/environment/pa-yeomans-australias-hidden-water/>

Milliss, I. (2017) Data Visual: Editorial Essay. *Artlink*, 37(1), 6-10.

McKenzie, F. (2013) Farmer-driven Innovation in New South Wales, Australia, *Australian Geographer*, 44:1, 81-95.

Martin, P. & Sheppard, M. (2011) What is meant by the social licence? in Williams, J. and Martin, P. *Defending the Social Licence of Farming: Issues, Challenges and New Directions for Agriculture*, Collingwood: CSIRO Publishing, 3-12

Murray, P. (2000). Evaluating participatory extension programs: challenges and problems. *Australian Journal of Experimental Agriculture*, 40, 519–526.

Queensland Government (2015). Recognising efforts to reduce pollutant runoff. *Reef 2050 Water Quality Improvement Plan*. Retrieved from <http://www.reefplan.qld.gov.au/measuring-success/report-cards/2015/efforts-reduce-pollutant-runoff/>

Queensland Government (2017). Reef protection regulations. *Farming in Reef Catchments*. Retrieved from <https://www.qld.gov.au/environment/agriculture/sustainable-farming/cane-farmers>

Star, S. & Griesemer, J. R. (1989) "Translations" and Boundary Objects: Amateurs and Professionals in Berkeley's Museum of Vertebrate Zoology, 1907-39. *Social Studies of Science*, 19 (3), pp. 387-420.

Stirling, G. et.al. (2016). *Soil Health, Soil Biology, Soilborne Diseases and Sustainable Agriculture: A Guide*. Melbourne: CSIRO Publishing.

Stirling, G. & Mattsson, S. (2018) Intercropping sugarcane with sunflower and mixtures of plant species: effects on the soil biological community. *Proceedings of the Australian Society of Sugar Cane Technologists*, 40, pp. 86-96

Thompson, N. (2012). *Living as Form: Socially Engaged Art from 1991-2011*. New York: Creative Time / MIT Press.

Vanclay, F. (2004). Social principles for agricultural extension to assist in the promotion of natural resource management. *Australian Journal of Experimental Agriculture*, 44, 213–222.

WWF. (nd). Case study on river management: Great Barrier Reef. *About Our Earth*. Retrieved from:

http://wwf.panda.org/about_our_earth/about_freshwater/rivers/irbm/cases/great_barrier_reef_case_study/

Acknowledgements:

Thanks to Stuart B. Hill for advice on agricultural extension and social ecology, and to John Sweet for ongoing guidance and wisdom.

Notes:

¹ Beyond its environmental impact, another factor which is of increasing importance to some farmers is the connection between agricultural methods, nutrition, and human health (Fisher 2017b).

² Contemporary artists often use terms like “interdisciplinary”, “cross-disciplinary” and “trans-disciplinary” interchangeably to describe practices which go beyond the traditional media areas of painting, sculpture, photography etc. In this paper, our use of the term “cross-disciplinary” refers to the direct collaboration between artists and other professionals (like farmers or scientists). We also use cross-disciplinarity to refer to the process of borrowing methods and ideas from other disciplines (like the social sciences) and incorporating them within our repertoire of contemporary art practices. For more on interdisciplinarity and the crossovers between professional practices see Klein, 1990.

³ Some industry-specific extension programs provide accreditation to farmers for adopting Best Management Practice– for example *Smartcane BMP* for the sugarcane industry. Farmer Simon Mattsson describes this as an attempt “to encourage adoption through acknowledgement”. See “Smartcane BMP”, 2013.

⁴ In a review of agricultural extension practices and theories, Black outlines a range of approaches, including the transfer of technology model, farmer-led group empowerment, one-to-one advice, and formal education and training, and argues that within this spectrum of approaches to extension (from top-down to bottom-up) “no single model or strategy is likely to be sufficient by itself” (Black, 2000, p. 500).

⁵ Simon Mattsson regards the role of farmers in educating the public as a factor in the ongoing process of maintaining a “social licence to farm”. For more on the concept of a social licence, see Martin and Shepherd, 2011.