

**The Entangled Anthropocene:
Creative Experiments with Thready Geographies**

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Declaration of Authorship

I, Sarah Miriam Burke, hereby declare that this thesis and the work presented in it is entirely my own. Where I have consulted the work of others, this is always clearly stated.

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Abstract

In the context of debates around the Anthropocene and its destabilisations of ideas of nature and culture, this thesis proposes and examines a series of creative experiments with 'thready' geographies. Three artist-led participatory thread-based making projects (focused on knitting and spinning) are the empirical focus of this thesis, each brings a different yarn into focus: one animal, one plant and one plastic, and each involves a different method; one project I instigated; one I participated within; one I studied in retrospect.

Adopting a feminist approach, I set debates about the Anthropocene and the need for experiments to understand and cultivate lively nature cultures in conversation with the geographies of making literature to unpick the different entanglements that thready geographies might constitute. Critically engaging with ideas of 'making as connecting' and especially extending these to multi species encounters; I explore; the form of the entanglements, the practices of the creation and maintenance of these entanglements; and the labours (including my own) of the artist and participant in constituting these entanglements.

As such I explore doing and worlding with humans and non-humans through ideas of tangles, snarls, lines and practices of spinning, knitting and knotting. This work is done in the hope of furthering understanding of how we can create more generative and ethical sensibilities through the work of tying, knotting and spinning new kinds of ecological relations and understandings.

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Homemade sweaters contain a code
To be read by initiates. This bobbling here's
A marriage proposal, the Fair Isle cuff
Says: 'The dog is a spy. Meet me in town
On Tuesday.' Even more arcane
Are garments made by knitting machine.
I once had a sweater that must have declared:
'I only like men with facial hair.' They came.
The way you knit is how you make love,
How you are with your God.
It's a question of soul, of daily repair.
If space is made of superstrings,
Then God's a knitter, everything
Is craft, and perhaps we could darn
Tears in the space-time continuum.

The Symbolism of Ancient Sweaters

Gwyneth Lewis (2015)

Chapter 1:

Introduction

In August 2016, the Anthropocene was formally designated the current geological epoch at the International Geological Congress (Carrington, 2016). The idea of the Anthropocene has caught fire in the imagination of scientists, social scientists, art and humanities scholars and practitioners, for whom it has provided a powerful framework through which to account for and represent the entangled forces of human and nonhuman activity within planetary systems (Grusin, 2017). The Anthropocene can be conceived of one great (if ill-advised) global experiment, we are all part of it, and if we are so entangled and thus we cannot separate ourselves from our sticky webs of connectivity, all our actions and knowledge structures are world-making (Roelvink and Gibson-Graham, 2009).

Our framing of the ‘problem’ of the Anthropocene is inextricably linked to the type of responses that are open to us (e.g. Dalby, 2016, Moore, 2017). Some of the most entrenched concepts of western thought and capital are based on a flawed but deep-rooted understanding of humans as separate to, and apart from ‘nature’ (Latour, 2013, Moore, 2017). This thesis follows Haraway in arguing that the future of many things as we have known them is at stake, and it is ‘only with intense commitment and collaborative work and play with other terrans, flourishing for rich multispecies assemblages that include people will be possible’ (Haraway, 2015: p160). To be able to imagine and enact possibilities for on-going lives – of many kinds and in many configurations, we need ways of understanding our entanglements in ways that are arguably different to those of our entrenched intellectual heritage of separation thinking (Gibson-Graham, 2011). Therefore how we tell these stories, and how we understand, make and remake our entanglements becomes critically important, in Donna Haraway’s words, it ‘matters what thoughts think thoughts. It matters what knowledges know knowledges. It matters what relations relate relations. It matters what worlds world worlds. It matters what stories tell stories.’ (Haraway, 2016: p35)

The scale of the Anthropocene is daunting; it is hard to not to feel hopeless in the face of such monumental problems. Stacey Alaimo (2016) contends that given the scale of the problems, ‘surely all activism, all politics, all ethics, and all government policies will have been colossal failures?’ (Alaimo, 2016: p6). This thesis does not attempt to halt the carbon economy, the clear-cutting of forests, the devastation of ocean environments, or the proliferation of plastics; instead it is about being in the world, of forming connections, of trying practices and tying practices, and of the unanticipated and missed connections that we make, fail to make, and reimagine over time. This framing of a focus on the everyday Anthropocene draws on the feminist contention that the personal *is* political (Katz, 2001, Mitchell et al., 2004). It is in this understanding that the everyday is political, as well as the assertion that we need to pay heed to the ‘stuff’ of politics (Braun and Whatmore, 2010a).

But still, it is hard to know where to begin. For this, I turned to Gibson-Graham (2011), who suggest to ‘start where you are’ (Gibson-Graham 2011: p4), as a way to question what different conceptions of connectivity and belonging mean in different contexts and practices. From their perspective, ‘to adopt an experimental orientation is simply to approach the world with the question, ‘what can we learn from things that are happening on the ground?’” (Gibson-Graham 2011: p8) and it is in this spirit of starting where I am, participating in and investigating the kinds of entanglements that are already in existence, already being made, that I approach this research.

This thesis explores three experiments which propose that participatory art practices centred around thread-based making practices (knitting and spinning) can help cultivate the kind of ethical entanglements that are important for the Anthropocene; between humans and between humans and nonhumans, matter and earthly forces. Such entanglements have impact on how we understand research, as we cannot of course stand apart from these entanglings and thus research cannot make claims to be anything but situated and active, and we would be as well as to start researching as we are to start living; by *doing* and *being* active yet careful participants in the process of worlding with others (Haraway, 2016).

In recent years interest in the concept of the Anthropocene from within the art world has seen a huge growth, including many works and projects that have been studied within geography. These works include remediation projects (Ingram, 2013, Hawkins et al., 2015), knitting projects (Hawkins et al., 2015), works to sense atmospheric change (Engelmann, 2015), cave art (Yusoff, 2015) and mass extinction (Ballard, 2017). This project focuses on the growing field of participatory arts practices based around making, and within this, three case studies that focus 'making' around thread. From within this field I selected three projects to study, which I summarise here and give more details in the methods section in chapter three.

In this introduction, I begin by introducing my case studies and my research questions, following this, I summarise my theoretical background in which my work is situated. This is divided into three subsections, entanglement, thready geographies and the Anthropocene, and art and the Anthropocene. Next I describe my conceptual themes around which I structure my analysis of the case studies; these are, sites, practices and socialities. Next, I reflect on my use of the term 'experiment' in this research and summarise my own multiple backgrounds as a researcher-artist-maker which led me to this PhD and I end the introduction with a summary of the structure of the thesis overall.

The three empirical chapters of this thesis are based on three participatory artworks, which used different kinds of skills and threads as a way to make and understand the entanglements of participants, human and nonhuman, called *Bird Yarns*, *Knit and Natter* and *Linen*, respectively. All three of the projects entangled people and materials because they involve different kinds of threads; one of animal origin, one plastic and one plant based. The different materiality of the threads has different resonances for the kinds of connections made, as I shall explore. All of the projects entangled nonhuman animals at some point; sometimes their involvement was an intentional decision on behalf of the artists or participants at other times it was a welcome incursion into the project and once their involvement threatened to unravel the entire artwork, quite literally. The different relations between human participants and nonhumans, both animal and to a lesser extent plant, form the basis for each of the chapters. I had a different level of involvement for each of the case studies, once as an

observer, once as an artist and once as a participant; my different kinds of participation in the projects enabled me to reflect on different forms of work in making entanglements. Each of the case studies demonstrates how much labour is involved in making and maintaining these relations, echoing Haraway's (2015: p160) contention that it 'takes intense commitment and collaborative work and play' to make such assemblages.

The first of the empirical chapters, *Bird Yarns* was a project ran by artist Deirdre Nelson (b.1965). She invited local residents on the Isle of Mull in the Inner Hebrides, Scotland, to knit a flock of Arctic terns as a way to bring attention to the pressures faced by the birds because of climate change. The project was initially run in 2012 and the woolly terns were exhibited on Tobermory Pier, Mull, in June 2012. This project formed the basis for my master's research, a paper in *Global Environmental Change* as well as an article by Harriet Hawkins et al. (2015). After touring different galleries in the intervening years, the terns returned to Mull in November 2016, and I also returned to Mull with them, seeking to explore how the initial entanglements had endured.

The terns had been made out of local wool from Hebridean sheep on the island, tying the material connections firmly to local concerns and local histories. The first section of this chapter, *Tern*, considers the role of the terns, in their fleshy and knitted forms, and the artistic processes by which they had come to represent climate change in the artwork. Yet, what I found was that the women (and they were all women) who had knitted the birds were not just ambivalent to, but seemed actively opposed to the 'environmental' message of the piece. This unexpected, and frankly disappointing discovery, however, raised interesting questions about the functioning of different kinds of entanglements, and prompted me to rethink what it was I could hope to expect from these kinds of projects.

The woolly bird's animal origins (pure wool threads) left them vulnerable to being eaten by the larvae of webbing clothes moths. The clothes moths' unwelcome involvement is arguably emblematic of Anthropocene concerns in two key ways that I explore in the chapter, firstly, in terms of pestilence, secondly in terms of loss. Pests trouble perceived boundaries between home and

wild; between culture and nature (Power, 2009, Holm, 2015). Moths are especially troubling boundary transgressors as they are an entirely synanthropic species meaning that they only exist in human made habitats, such as museums and wardrobes; their involvement as a pest opens up larger discussions around ideas of what constitutes 'wild-lives' (Lorimer, 2015) in the Anthropocene. The destruction of the woolly terns by both moths and humans - on discovery of said moths - unravels entanglements. Their fleshy presence unravels the knitting by eating it, but their presence and the subsequent loss of the terns is also emblematic of the loss of liveliness and ongoingness in the Anthropocene.

The second case study, *Knit and Natter* was a participatory artwork ran by myself, drawing on my previous work as an artist and my hobby, knitting. I set up the knitting group in January 2014, in the community centre in North East London in which I had previously worked. In August 2014, I took the women (again, they were all women) of the knitting group on a trip to a local wildlife reserve to learn about the likely impacts of rising temperatures in their local area. I was keen that this project should reflect their personal understandings, entanglements and choices, and so my role as artist was to facilitate their discussions and the project overall. The art was in their processes of doing, learning to do, and choosing how and what to represent. As such, this research focuses on the process of making, and not on the final output. The knitters chose to knit an umbrella decorated with small knitted representations of plants and animals found locally as a way to celebrate the role that greenspaces, such as the nature reserve, play in moderating inner city temperatures, although the final output is less important than the process.

Like the *Bird Yarns* artwork, the analysis for this work focuses around the involvement of two nonhumans, a pink mouse and a grey slug. *Mouse* attends to the materiality of the yarn. For this project, financial cost was a large concern for the participants, and they exclusively chose to knit with manmade fibres such as polyester. The proliferation of plastics and their toxic effects is one of the key markers of the Anthropocene (Alaimo, 2010, Gabrys et al., 2013). While it may appear somewhat ironic to make an artwork explicitly about climate change from plastic, the use and reuse of the material in this project brings together

discussions on the lifespan of materials, and the deep and enduring connections we have to them, welcome or otherwise.

In *Slug*, I concentrate more explicitly on the question of what and why the knitters choose to make what they make. A somewhat uncharismatic slug is arguably an unlikely choice of creature to represent either climate change, or affection for one's local nature reserve. In this section I trace the embodied experiences of the knitters as they walked, watched and investigated the nature reserve and how these experiences subsequently came to be represented in the artwork. In order to do this, I draw explicitly on David Crouch's (2003) concept of spacing and Jamie Lorimer's (2007) analysis of nonhuman charisma.

The final case study *Linen* works with artist Kate Poland's (b. 1970) artwork *Grow a Ball of String*. This project invited participants in London to make linen thread from seed, by planting a crop of flax, then processing it by traditional means such as retting, scutching, heckling, and finally spinning (the process of which is explained in length in the chapter). Kate worked with community gardeners across London to grow the flax plants over the summer, she then facilitated workshops in the autumn after the crop was harvested to process and spin the plants into threads. I became involved in the project in the spring of 2015, attended spinning workshops in the autumn and winter of 2015 and planted my own crop of flax plants in a small community garden that I set up in the spring of 2016.

This chapter draws on similar themes of materiality and processes as the previous two, although it differs from them in a number of ways, firstly, I was involved in the artwork as a participant, and therefore the empirical work draws heavily on auto-ethnographic methods and my own embodied relations with the flax plants and the becoming threads. Secondly, the artwork utilised traditional and historical making skills that are no longer in (widespread) use today. Because of the historical and temporal element to this work, I apply Caitlin DeSilvey's (2012) concept of 'anticipatory history' as a way to think about the different resonances and entanglements that we have in the past; and the way that these have potential to help us imagine different presents and still-possible futures. Thirdly, this artwork is about human-plant relations, whereas the other two have focussed more heavily on human-animal relations. Despite the fact that

plants are essential to all life on earth, they are often backgrounded in research (Head et al., 2012), and so this chapter takes seriously the entanglements between flax plants and humans through the embodied relations of growing, tending and working with plants. The chapter is composed of four smaller sections, earthworm, upheaval, spinning and the labour of the artist.

Of these case studies, I ask three questions:

- 1) What are the natures of the entanglements?

This includes: who and what are being entangled, and who and what are not? How are entanglements forged, built and tied? How do they hold together, how long for, and in what places? And what of the broken entanglements, those that failed, or those that were unexpected?

- 2) What is the 'work' of building, sustaining and practicing these entanglements, for the artists, for the communities and for the threads themselves?
- 3) How can creative experiments with 'making' help researchers come to grips with the methodological challenges of the Anthropocene?

Theoretical background

Having described my case studies, this next section will introduce the theoretical background that underpins my research questions and my research approach. This is divided into three subsections, entanglement, thready geographies and the Anthropocene and art and the Anthropocene.

Entanglement

I have discussed my research here in relation to the word entanglement; it is the title of the thesis and an important framing for my research. Entanglement is an interesting concept. The word itself comes from the Old English 'entanglen', meaning to involve (someone or something) in difficulty; it refers literally to twisted threads, to interweaving and capture and including complications, which make extrication difficult, a kind of ensnarement (Cambridge English Dictionary,

2018). It has a specific meaning in quantum physics, in which two particles or bodies are bound together; they are entangled (Greene, 2000). Whatever happens to one has an immediate reaction on the other; this reaction is not a function of communication (it happens faster than the speed of light, a physical impossibility according to the laws of relativity), it is instead a function of entanglement – or as Einstein referred to it ‘spooky interaction at a distance’ (Bohm et al., 1987: p331). However, the basis of entanglement that I draw on is more connected to concepts of relationality rather than physics (although I acknowledge that these things are themselves interconnected), so this next section situates my use of the concept within geographical and philosophical literatures.

The circulation of relations and interdependent interactions between the actions of things and people is a primary concern in relational theories, be they through proximity (Bennett, 2009), aesthetics (Yusoff, 2010), vulnerability (Butler, 2004) or exposure (Alaimo, 2016). These circulating relations become political forces as assemblages and matters of concern (Latour, 2005) or matters of care (Puig de la Bellacasa, 2017), hot topics (Callon and Rabeharisoa, 2003) or cosmopolitical subjects (Stengers, 2010a). All of these ideas are about the things in and of themselves and their relation to other things (and people), as a way to draw attention towards the interactions: the entanglements.

Questions around what we know about the world, and how we know it are of critical importance in how we understand the Anthropocene because they play a large part in our responses; thereby they are intrinsically political concerns. We are always, already a part of the world, and what we see and know of it comes from our specific point of view; this concept of *situated knowledge* is often attributed to Donna Haraway (1988). Using the metaphor of vision, Haraway criticises what she calls ‘seeing everything from everywhere’ (1988: p581) in favour of an account of knowledge that is about a ‘particular and specific embodiment’ (1988: p582). For the purposes of my study, this argument forms the basis for a pressing need to better understand the ways that we are entangled in situations and world-making, not separate from it.

Returning to notions of quantum physics, Karen Barad develops a theory of *intra-action* in which the very essence of matter is based on relations and ‘the

mutual constitution of entangled agencies' (Barad, 2007: p33). Working with theories of quantum physics, she argues that not only knowledge, but the very existence of all 'agencies are only distinct in relation to their mutual entanglement; they don't exist as individual elements' (Barad, 2007: p34). Kathryn Yusoff (2012, 2013b) puts these theories into conversations with Anthropocene issues such as biodiversity loss (2012), and our bodily connections to the geological (2013b), to emphasise how our embodied, material connections – as well as the things that are left out - are always both political and ethical.

Along similar lines, Stacy Alaimo (2010: p16 - 17) develops the concept of *transcorporeality* to argue that 'ethical considerations and practices must emerge from a more uncomfortable and perplexing place where the 'human' is always already part of an active, often unpredictable material world'. This approach stresses the agency of the nonhuman environment in the making of knowledges and worlds. It also suggests that the material interchanges between bodies, objects and substances become the site for ethical-political engagements (Alaimo and Heckman, 2008, Colebrook, 2011). For the purposes of this research, this means that attending to these interchanges and interactions between bodies is important because it is in the very practice of *doing* that material, ethical and political entanglements are made.

However, as Nina Lykke (2009: p38) describes, it is important 'to recognise that the knower's embodiment is not only about his/ her individual body in a bounded sense, *but* about the unbounded bodily embeddedness in the material, earthly 'environment'' (emphasis in original). Taken together, this recent feminist research has stressed the importance of a focus on the ethical, everyday doing of life, rather than an abstract code, and to look hopefully towards these discourses rather than grand critique (Gibson-Graham, 2011).

One of the critiques of thinking of assemblages, relations and discrete things upon which forces act and interact, is that there can be a tendency to focus on the ways in which these things co-create one another, so a focus on the things as 'blobs which have partially ran into one another, while yet retaining something of their individuality' (Ingold, 2015: p7). Tim Ingold therefore argues instead for a way of thinking in lines, because relations 'must bind in some such

way that the tension that would tear them apart actually holds them fast. Nothing can hold on unless it puts out a line, and unless that line can tangle with others' (Ingold, 2015: p3). Perhaps instead then, if what is often missing from these theories is the tension and friction that form the interwoven ways in which these things sit, rest, and move together, we can think of the ties themselves (Barad, 2007a). Thinking with entanglement is a way to think with the tensions and friction, and to remain with the flexibility and fluidity inherent in these connections.

Therefore entanglement is about lines: it is about threads, and resonates with Haraway's recent work in 'Staying with the Trouble' (2016). As she writes of string figures, such as the game of *Cat's Cradle*:

'Playing games of string figures is about giving and receiving patterns, dropping threads and failing but sometimes finding something that works, something consequential and maybe even beautiful, that wasn't there before, of relaying connections that matter, of telling stories in hand upon hand, digit upon digit, attachment site upon attachment site, to craft conditions for finite flourishing on terra, on earth.' (Haraway, 2016: p10)

In this work, threads come to the fore, threads as a way to tie and bind us to one another, to other creatures and to alternative futures. Haraway (2016: p79) describes the crocheting of a coral reef, in which 'the crafters stitch 'intimacy without proximity,' a presence without disturbing the critters that animate the project, but with the potential for being part of work and play for confronting the exterminationist, trashy, greedy practices of global industrial economies and cultures'. She argues that these material practices built caring publics.

This thesis then takes up this spirit of thready, material, multispecies practices of entangling and considers the detail, the micro-politics and the interactions that constitute these concepts. The next section considers in more detail the physical practice of entangling through the idea of thready geographies.

Thready Geographies and the Anthropocene

Life is, and always has been, dependent on material things (Ingold, 2010). And it is precisely the use, misuse and abuse of the industrialised production of material worlds by certain sectors of western societies that have driven the great, devastating effects of the Anthropocene – climate change, resource overuse and toxicity to obliquely name three (Braun, 2013). Therefore, the Anthropocene demands more attention to materiality and the material processes that constitute our world; of which an attention to the practices and materials of making are integral (Carr and Gibson, 2015). Chantel Carr and Chris Gibson (2015: p300) describe the Anthropocene as a ‘moment of profound material crisis’ in which we need research which looks beyond existing modes of industrial production, and instead ‘towards opportunities to revisit fundamental questions of how humans manipulate materials, compose objects and construct economies and societies around material things – as well as how this might be done differently’ (Carr and Gibson, 2015: p300 - 301).

Studying creative making practices therefore becomes a way to ‘foreground the on-going material making and shaping of the world’ (Hawkins, 2013b: p65). If we are to take seriously different ways of constructing material things, economies and societies, we need to pay sustained attention to making practices and how:

‘embodied, material, relational and situated practice... spins connections between corporeal practices and formal institutional and political spaces, between governance and policy practices and practices of resistance, and between highly professionalised practices as well as amateur, vernacular and mundane practices’ (Hawkins and Price, 2018: p5).

In his 2011 book of the same name, sociologist David Gauntlett contends, that ‘making is connecting’. He puts forwards three basic propositions for this assertion; firstly that ‘making is connecting because you have to connect things together – materials, ideas or both, to make something new’; secondly, ‘these acts of creativity usually involve a social dimension and connect us to other people at

some point'; and thirdly 'through making things and sharing them in the world, we increase our engagement with our social and physical environments' (Gauntlett, 2011: p2). Gauntlett argues that it is in acts of everyday creativity that people take an active and participatory role in making their own life worlds, and making meaning; is ultimately a political act (Gauntlett, 2011).

The connections and relationships between human and material are complex and multidirectional. Making is not simply a process by which a human acts upon a material, but a relationship between the maker and the material in which the recalcitrance, energy and other qualities of the *thing* has a tangible effect on the maker and results in something of a collaborative process between maker and material (Sennet, 2008, Ingold, 2013).

These arguments are particularly fitting in the context of the Anthropocene, not only because they are about the direct relationship between makers, materials and others, but because they also resonate with the movement around slow fashion which aims to bring people into a more considered relationship with the lifespan of clothing and textiles (Parkins, 2004, Pink, 2007, Hayes Conroy and Hayes Conroy, 2010). As Carr and Gibson (2015) argue the relationship between large-scale industrial manufacturing and small-scale vernacular craft practices are complex, and both are likely to be impacted by a future characterised by economic uncertainty and resource scarcity. Leading them to suggest a need for further research into the nuances and textures of what kinds of making, skills and materials will become increasingly important in ever more volatile futures (Carr and Gibson, 2015, Carr et al., 2018).

The connection between making practices, materials and the concepts of threads as described by Haraway (2016) and Ingold (2015) draws me to recent geographical work around knitting practices. Work by Laura Price (2015) and Joanna Mann (2015, 2018) in particular, attends to the ways that the thread-based practice of knitting makes embodied connection to other people and places. As Price argues, 'knitting is a vibrant craft, a process that brings together practical facility with materials, the capacity for thoughtful creativity and the making of richer social relations' (Price, 2015: p84). 'Knitted geographies' are performed and produced by historical geographies of the craft, including how it has been both work and leisure, both empowering and disempowering for

different people at different times (Price, 2015). It is a practice that continues to evolve in different contexts, be they contemporary and urban, the focus of Price's (2015) research or more historically situated and rural, as in the work of Mann's (2018) research into Shetland knitting.

Art and the Anthropocene

This research is not just about the geographies of making practices; it is also entwined with the geographies of creative art practices too. There is a growing body of geographical research looking at the ways that artists are engaging with environmental change and the Anthropocene (Yusoff and Gabrys, 2011, Miles, 2010, Duxbury, 2010, Davis and Turpin, 2015). Responding to calls from climate scientists, social scientists and cultural geographers (Hulme, 2011, Whitmarsh et al., 2011, Moser, 2007, Moser and Dilling, 2011) geographers have looked to art as a way to fill the perceived gap between people's understanding of climate change, and the emotional engagement that has the potential to drive much needed political change (Nurmis, 2016, Burke et al., 2018). Although, this gap between people's values and their day to day behaviour is only mystifying if we suppose that values do (or should) translate into action (Shove, 2010). This rationale also puts the onus on individual behaviour change without addressing the underlying and devastating systemic issues of resource intensive capitalism (Macgregor, 2006, Klein, 2014, Moore, 2017). One way of thinking about the role of the artist, arguably, is not to come up with answers to the great problems of the Anthropocene or facilitate individual low carbon behaviour change, but instead to engage people with the insensible nature of climate change, overcome abstractions and distance and to develop environmental relations other than those based on separation from and domination of nonhumans (Hawkins and Kanngieser, 2017).

Rather, then, a more generous and creative role for art is to challenge the supposed separation of humans and nonhumans, and use art making practices as sites of doing, making and thinking entanglement. Geographers have engaged with artistic practice as a way think human-nonhuman entanglements through the nonhuman aesthetics of spiders (Engelmann, 2016), Bower birds and

Thrombolites (Dixon et al., 2012), the experience of sensing atmospheres and atmospheric change (Engelmann, 2015), geologic liveliness and inertia (Yusoff, 2015) and mass extinction (Ballard, 2017).

I began this introduction by outlining a feminist, materialist and relational approach to participating in the making of new relations and entanglements. As such, I contend that the participatory nature of participatory artworks in particular can afford different kinds of understandings of these entanglements. Studies of participatory arts practices have considered the site of performance art as involving nonhuman participants in maker spaces and Hacklabs (Smith, 2017), as well as using participatory drama to discuss risk in coastal communities (Brown et al., 2017). By bringing humans and nonhumans together in creative and explicit ways, this research opens up ways of not only thinking entanglement, but also *practicing* entanglement. This enables the participants' opportunities for enacting different modes of being in the world that hold the potential to be more ethical and more engaged in active practices of making more than human social worlds (and hence responding to Whatmore, 2006).

Geographers have looked to these particular forms of participatory artwork that bring together humans and nonhumans as participants in world-making active discussions around remedial practices of human damaged landscapes such as the work of Frances Whitehead in *SLOW Cleanup* and Lillian Ball's *Waterwash* (Hawkins et al., 2015, Ingram, 2013). These practices enable the co-production of new environmental knowledges and relationships that are not instrumentalised, rather they allow space for humans and nonhumans to come together in varying degrees of interactivity and collaboration with risky collaboration and uncertain outcomes (Haraway, 2016). My contention is that participatory projects which combine both material making practices *and* participatory art practices as sites for the co-production of new environmental knowledges and relations have the potential to be especially fruitful.

Conceptual Themes

My research brings together work on the interlinked geographies of making and participatory art. As a way to structure my approach to this work, I developed

three conceptual themes to research different iterations of entanglement in the Anthropocene, namely 'sites', 'practices' and 'socialities'. Each of these three themes is investigated across each of the three chapters, although some feature more strongly than others in different contexts, each of the case studies opens up discussions around different facets of understanding entangling and entanglement. These three themes overlap and cross-fertilise one another, in arguing for knowledges, which reject the separation of nature from culture and hard and fast binaries, the idea of categorisation is slightly jarring. However, rather than cutting and exposing difference, I rely on these themes as a way to think through different iterations and their interconnections, rather than distinct and separate ideas.

'Sites', attends to the place and context in which making thready geographies and knowledges takes place. This is about identifying the types of sites in which making takes place, and how these practices are in turn shaped by the experience of different sites. The sites in my research include homes and care homes, community centres and community gardens, islands and urban wetlands, galleries and cafes. This diversity of spaces and the different kinds of making they enable echoes the work done by geographers researching making practices in homes, rubbish tips and allotments (Edensor et al. 2009, Gregson et al., 2009, Gibson and Warren, 2016). Sites of making are expanding beyond the home, workshop, or studio, therefore practices of making 'often require that we keep open and challenge fixed imaginaries of places' (Hawkins and Price, 2018: p7), and attend to the way that different spaces are unsettled and remade through practices of making. It is also contextual; each of these projects takes place, not only in a specific (if often distributed) site, but within particular social, political and economic contexts which in turn have their own power and influence and should not be overlooked.

'Practices' relates both to the physical embodied practice of actually making material stuff (looping yarn over fingers over needles, for instance) drawing on the rich geographical literature of skilled making practices, and learning to make and do (e.g. Warren and Gibson, 2014, Mann, 2018, Straughan, 2015, Holmes, 2018). Practices also refers to the interconnected labour of creating and maintaining the spaces in which these practices take place, the

emotional work of the artists in running the projects and the ‘behind the scenes’ labour which holds the projects together. For this, I draw in particular on the work of art theorist Shannon Jackson (2011) who calls attention to arts practices which ‘provoke reflection on the contingent systems that support the management of life’ in order to develop a more complex sense of ‘how art practices contribute to inter-dependent social imagining’ (Jackson, 2011: p29, p14). I also draw on theories of relational art from Claire Bishop (2004), Nicholas Bourriaud (2002) and Hal Foster (2003). Many of these practices are particularly gendered, both in terms of the physical practice of knitting and spinning (Parker, 1984, Hackney, 2013, Turney, 2012), and they also relate to feminist accounts of social reproductive labour (Mitchell et al., 2004, Katz, 2001, Morrow and Dombrowski, 2015).

‘Socialities’ refers most directly to Gauntlett’s (2011) idea of ‘making is connecting’, and considers the social ties made through the process of making. These include human social worlds, such as the friendships and quiet politics of making (Askins and Pain, 2011, Askins, 2014) as well as a consideration for the way that making practices can engage different material sensibilities (Straughan, 2015, O’Connor, 2007), embodied connections to environments (Mann, 2018) and can contribute to how we co-constitute and understand more than human social worlds (Hawkins et al. 2015). Sometimes, there were discrepancies between my own understandings of socialities made through making practices and those of the other participants. As I researcher I found that at times, I was writing about connections, material or social that my participants were not, or chose not to be, aware of. The productive tension between participants’ conscious engagement and my own reading of the more than human social practices taking place is something I reflect on in more detail in the thesis.

Creative experiments

This thesis is entitled *creative experiments* with thready geographies. In this section, I reflect on my choice of the word *experiment* in this thesis. I chose the term ‘*experiment*’ in light of Gibson-Graham’s (2011: p8-9) suggestion that

“The experimental orientation is another way of making (transformative) connections; it is a willingness to “take in” the world in the act of learning, to be receptive in a way that is constitutive of a new learner-world, just as Latour’s concept of ‘learning to be affected’ describes the formation of new body-worlds (2004; Gibson-Graham and Roelvink, 2010). In experimentation there’s no active transformative subject ‘learning about’ a separate inert object, but a subject-object that is a ‘becoming world.’”

Gibson-Graham’s (2011) approach highlights specifically the interconnection between research and researcher, emphasising embodied presence, action and reflection on these processes of which the researcher is intrinsically and inescapably a part. This is a useful approach to researching participatory art practices, which enables me to critically reflect on my different roles throughout this thesis as observer, participant and artist.

The term experiment in geography has been critiqued by other researchers; notably Gail Davies (2010, 2011) in her work around laboratory mice and Angela Last (2012). Davies (2010) works with the boundaries and sites of laboratories as alternative sites of critical intervention and observes that participatory experimentation is ‘less of what can be known through precisely controlled conditions and more about creative forms of world-making’ (Davies, 2011: p261), echoing Gibson-Graham (2011). In the participation and making of artworks as part of this thesis, this work resonates with these descriptions.

In choosing my case studies, I was keen to respond to Brace and Geoghegan’s (2010) call for more lay understandings of what climate change (and in this case, the Anthropocene more broadly), means on a day-to-day level to people. The lay creative responses to the issues of climate change came not only from the participants themselves, but also the artists, in particular Deirdre who describes herself as ‘not knowing very much about climate change’ before she started the *Bird Yarns* project (fieldwork interview, 2016). In researching gendered practices such as knitting and spinning, I also was aware that these practices attract certain audiences, notably older women, particularly working class women who’s voices are not often represented in the literature. Including their opinions and understandings then was particularly important to me.

Last (2012) describes a vast diversity of approaches which align themselves with the term 'experimental', including participation in 'world-making' and the desire to bring other participants into the research process and widen those who are included in knowledge making, in particular nonhumans. Last (2012) also suggests that experimental geographies are those, which are open to the unexpected. However, she cautions against an over-use of the term, which can serve to dilute its meaning, as well as devalue research which does not term itself experimental is seen as less important or innovative. Last (2012) emphasises a critical reflection on the power differentials of attempting to transform the world of others, with particular reference to geography's entrenched colonial heritage.

With this in mind, I suggest that my thesis is an experimental way of making knowledge and conducting research; it aims to distribute knowledge making about the Anthropocene and climate change across diverse audiences using creative methods. In light of Last's (2012) cautions, I pay particular attention to the work and the politics of these kinds of research practices.

My Multiple Backgrounds

I started my career as an artist interested in the idea of entanglement a long time before becoming interested in environmental issues. This led me to a wish to 'communicate' these environmental issues as a way to promote caring practices towards the environment as well as to make climate change comprehensible 'on a human scale' through my artworks. I became disillusioned with the artworld during my postgraduate diploma, and it was at this point that I decided to shift my focus and pursue an MSc in climate change. This move was primarily as a way to advance my art practice through more in depth understandings of the science and politics of climate change. However, I discovered that I enjoyed researching art and climate change far more than I had enjoyed purely making art 'about' research. I embarked on the PhD as a way to entangle artistic practice and research as diffused ways of knowledge making in, of and about the Anthropocene; all of which I explore in more depth in the methodology section of the thesis.

Along with my academic and artistic background, I speak from a narrow and particular location. I am a (visibly) white, (unenthusiastically) Jewish, (culturally if not financially) middle class and (primarily) heterosexual woman, I live alone with my young daughter in a large, urban British city. Over the course of this PhD I have been diagnosed with cervical cancer while pregnant, had a baby, and split up with my partner after a decade of emotional abuse, intimate violence and gaslighting. I have my own gendered, raced and class relations that are at work in the choices I make and fail to make. There is no 'outside' of these experiences, and they deeply affect the ways I read theory and understand and hear the experiences of others. However, I do not believe that the specificity of my account invalidates it; in fact, it is the very specificity that permits the writing of this kind of research at all (Tsing, 2015, Baraitser, 2009).

I cannot but help to see parallels between the systematic abuse I endured at the hands of my partner and the systematic abuse of peoples, nonhumans and environments; in much the same way that Naomi Klein draws parallels between her own fertility and the destructive forces of toxicity and climate change (Klein, 2014). The process of being silenced through affective violence and having my voice and my opinions taken from me has deeply affected the way I understand, empathise with and care for those around me. In learning about the insidiousness of patriarchal oppression through theory books, I gained the tools and courage to reject it in my domestic life. And the material knowledge I gained through the process of rejecting the oppression of my personal and intimate life – which has been the single hardest thing I have ever done – gave me empirical understanding of what it is to live feminist and posthuman theory – in a way specific to my experience. I will never do him the honour of saying that I am grateful for what I went through. But I am in the process of becoming proud of the person that I am becoming on the other side.

In my relationship I was not allowed to make mistakes and I was not allowed to engage in processes different from his. Decision-making was on his terms, and his terms alone. Therefore, all my decisions became apologetic and inferior shadows of his. This thesis is also about learning to hold space for others (and perhaps for myself too), and to make room for other ways of knowing and knowledge production. We desperately need to accept that there are different

ways of understanding and being in the world for them, as Karen Barad (2007) reminds us, are one and the same. It is about making room for other voices that have been silenced by a very particular and westernised kind of epistemicide to exist and even, in my bolder moments I like to believe, to thrive. The environment, the climate and future generations are so inextricably intertwined it seems an inadequate response to consider social reproduction, care and the Anthropocene without bringing my own experiences into the discussion (Klein 2014).

My research methodology cuts across the personal and the political; it is at once theoretical and embodied, a part of my lived experience and my lived experience is a part of my research; just as for Gibson-Graham, university based research is a potential catalyst for 'going on in a different mode of humanity' (Gibson-Graham 2011: p20), then I hope that my own research is both informed by and informative of sparks of different ways of being in the world. Drawing on Jane Bennett's vital materialism, Gibson-Graham (2011) argue for active, experimental research as a way to think about our shared ethical connections to the earth and responsibilities through 'accepting our belonging to a planet made up of complex matter that cuts across personhood, animality and objecthood' (Gibson-Graham 2011: p20).

This in turn means that I use making practices as a form of research, inspired by the way that Tim Ingold (2000: p401) describes skill and making practices as interdependent and 'properties of the whole system of relations constituted by the presence of the practitioner in his or her environment', which in turn affects the environment in reciprocal ways. These ways of making and research are both specific and messy, reflecting a world that is always transient, in flux and rarely as neat as to fit into boxes predetermined by researchers (Law, 2004). Inspired by the work of Anna Tsing (2015) and Caitlin DeSilvey (2007), I also take a descriptive and specific approach to describing the practices, experiences and environments I encounter and co-create; for the entanglements and the worlds we make are as much about the stories we tell of them.

The structure of the thesis

Chapter two, my literature review – towards thready geographies for the Anthropocene positions the thesis in relation to two wider bodies of existing scholarship, work on the entangled Anthropocene and work related to thready geographies. The idea of the entangled Anthropocene is drawn together from the arguments that one of the key problems of the Anthropocene is one of relationality, so in this section I develop the material offered in this introduction to detail further the concept of entangled Anthropocene and why is it so important to take up this challenge. In the next section, I review relevant academic literature from social and historical cultural geography, which has approached human and nonhuman (animal and plant) relations. The last section of this half-chapter reviews the how geographical and art theory literature has approached the idea of relationality in respect to art in the Anthropocene. The second half of this chapter focuses on what I have come to call thready geographies, and in this section I chart relevant literature on the geographies of knitting, yarns, cloths and textiles as they relate to issues concerning making practices in the Anthropocene.

In chapter three, I outline my methods. I detail the rationale for my choice of case studies, how I found the case studies, and how this work fits into my own artistic practice before describing the three case studies themselves. I then describe my methods of semi-structured interviews, focus groups, artistic methods and means of recording and writing up the research along with the ethical considerations of the research.

Chapters four, five and six are the empirical chapters I described at the beginning of this introduction. Chapter four is based on Deirdre Nelson's artwork *Bird Yarns*. Following an introductory prologue, the chapter is divided into two main sections: *Tern* and *Moth*. Chapter five is based on my own project, *Knit and Natter* and again is divided into two core sections, *Mouse* and *Slug*. Chapter six, *Linen* looks at Kate Poland's artwork *Grow a Ball of String*, and is divided into four sections, *Earthworm*, *Upheaval*, *Spinning* and *Labour of the Artist*.

In chapter seven I conclude the thesis by revisiting the research questions I posed in this introduction as well as suggesting some avenues for further research.

Chapter 2:

The entangled Anthropocene and thready geographies

Introducing the Anthropocene as a problem of relationality

The naming of the Anthropocene has sparked debate across physical and social sciences and beyond (for example, Crutzen, 2006, Steffen et al. 2007, Altvater et al., 2016, Bai et al., 2016, Dalby, 2016, Waters et al. 2016, Moore 2017, Moore, 2018). It is an age characterised by environmental uncertainties, which demand new understandings and critical engagements with material entities and processes and how entanglements take form, break apart and hold fast over time (Johnson et al., 2014). The Anthropocene is not ‘a problem’ for which there can be ‘a solution’, rather it names the geo-bio-social structures that fundamentally structure the ongoing world as we know it (Johnson et al., 2014: p477).

Geographers are particularly well placed to respond to the challenges of the Anthropocene (Braun, 2008, Braun and Whatmore, 2010b, Castree and Braun, 2001, Harvey, 1996, Lorimer, 2012, Smith, 1984, Whatmore, 2006), and responses have taken many forms. One of the most historically unsettling implications of the Anthropocene is how it disrupts traditional, western distinctions between ‘natural history and human history (Chakrabarty, 2009) or the politics of modernity, that is the division between ‘nature’ and ‘culture’ (Latour, 1993, Latour, 2013), leaving our familiar analytic tools looking somewhat inadequate. Or, as Morton (2010) suggests, the Anthropocene announces the end of a liberal human subject characterized by a biological and individuated self, and the subsequent rise of a distributed humanity that operates as a geological agent.

I find the most compelling aspect of the Anthropocene is that it highlights a problem of relationality; a troubling and unsettling of the traditional distinctions between nature and culture, which thus call for new and livelier understandings of the way in which humans and humanity are entangled with the planet; indeed there is no way of separating ‘us’ and ‘it’ as our bodies are

geological and we ourselves are geological agents (Yusoff, 2013a, Yusoff, 2015, Clark and Yusoff, 2017). This focus on relationality also responds to calls which warn against the centering of 'man' in the Anthropocene; encouraging instead a way of thinking in which humans are no more and no less a socio-material part of multi-species communities and the socio-geological fabric of the world (Whatmore 2006).

The Anthropocene, as geological epoch, is undoubtedly a crisis, but how we define the parameters of the crisis informs our response. On the one hand there are the responses that fear a post-political future of apocalyptic visions, decision-making based on free market logics and technical fixes (Swyngedouw, 2013), on the other are responses in which the blurring of traditional modes of social and material boundaries call for a new type of politics based on hybrid and more-than-human knowledge practices and experiments (Gibson-Graham and Roelvink, 2010).

This chapter takes the form of a literature review, divided into two sections; the 'entangled Anthropocene' and 'thready geographies'. In this first section, I consider the idea of 'the entangled Anthropocene'. I have begun by arguing that the Anthropocene raises critical problems of relationality. The next section of this literature review looks briefly to the work of philosophers and thinkers outside of geography who inspire me and whose generative and theoretical thinking informs my own worldview and the way that I undertake research. Following this, I then turn to look at responses from within cultural geography, and the ways in which other geographers are using these same philosophical ideas to inform their own research on relationality, and in particular the relations between humans and living nonhumans; both plants and animals. This work builds on the work done by nonrepresentational theorists such as Nigel Thrift (2008) and Ben Anderson (2016), in learning about the work through embodied actions and attending to – not just the relations made – but the texture and affective forms of entanglements within the socio-materials worlds they co-constitute. I argue that it is in the participation of the becoming of the world, and a close attention to its nuances that can shed light on different forms of relating to different situations in the Anthropocene.

A focus on participation leads me to the final aspect of this literature

review; that of participatory art. Although the artworld has all but fallen over itself to make art of the Anthropocene, I am interested specifically in the kind of art which resonates with participatory and experimental geographic practices; participatory art. This section then, explores how cultural geographers are working with participatory arts practices that stimulate and experiment with different modes of relating to nonhumans in the context of environmental change characteristic of the Anthropocene; climate change, waste and damaged landscapes.

Section 2. 1

The entangled Anthropocene

As I outlined in the introduction, this thesis takes a relational approach to understanding the problems posed by the Anthropocene. The term Anthropocene itself is contested (see for example Johnson and Morehouse. 2016, Lorimer, 2015, Castree, 2014). Yet it is still a hugely influential term, its main strength being in 'its capacity to unify humans and the earth system within a singular narrative' (Moore, 2018: p237). Its weakness, however, is in its generalizability, that is *how* we narrate the story. The Anthropocene poses the question of a nature/society dualism, but how we synthesise these powerful and abstract concepts is a political one. As Jason Moore (2018: p139) argues, 'while it is now commonplace to invoke – quite properly – 'system change, not climate change', we should take care with how we think that system.'

Moore argues that the central problem with the current crisis is not a generalised sociable humanity of the 'anthropos', but the capital system, characterised by 'the condition of some work being valued is that most work is not' (Moore 2018: p243). This relies on the amplification of the divide between 'nature' and 'culture' in order that forms of 'nature' can be cheapened (including people if they are able to be categorised as 'nature') so that it can be used in the interest of capital (Moore, 2017). These ideas develop the work of feminist thinkers such as Val Plumwood (1993), Sherilyn MacGregor (2009, 2013) and Serpil Oppermann (2013),

It is *how* we relate to nature that is crucial here, as Haraway (2008) and other feminists have argued, nature as ultimate and absolute other has played a significant role in histories of colonialism, racism, sexism and class domination (2008: p157 – 158). Instead, 'we must find another relationship to nature besides reification, possession, appropriation and nostalgia' (Haraway, 2008: p158). She further argues that nature 'is not the Other who offers origin, replenishment and service. Neither mother, nurse, lover, nor slave, nature is not matrix, resource, mirror or tool for reproduction of the odd, ethnocentric, phallogocentric, putatively universal being called Man' (2008: p159).

Moore suggests that the Capitalocene marks the end of ‘cheap nature’, in terms of how human labour, and the work of soils, rivers and the atmosphere is cheapened to fit the demands of capital; the reservoirs of materials, work and labour are exhausted. He argues that the work of bringing together the ‘historical entanglements of human and extra-human activity – work inside and outside the circuit of capital – may well prove useful in developing effective analytics and emancipatory politics’ (Moore, 2018: p243).

There has been a proliferation of concepts and names for the Anthropocene, the Pyrocene (Pyne, 2015), Plantationocene (Tsing, 2015) Growthocene (Norgaard 2013), Econocene (Chertkovskaya and Paulsson 2016). It is Donna Haraway’s proposition for the Chthulucene that has been most influential for my own research. The word Chthulucene draws on the idea of tentacles and tendrils, which work deep into the earth itself. Evolving from her earlier work on companion species (2003) and cyborgs (2013), she suggests thinking about the current epoch as one which ‘entangles myriad temporalities and spatialities and myriad intra-active entities-in-assemblages—including the more-than-human, other-than-human, inhuman, and human-as-humus’ (Haraway, 2015: p160).

Haraway urges for a way of thinking and being in the world that is about making kin in the Chthulucene (2016). The kin she refers to, are not those linked by geneology and genetics in the traditional sense of the world, but kin of all different kinds, urging us to forming alliances and ethico-politically aware assemblages in multispecies communities. How we do this is far from straightforward, the questions this raises are important:

‘Who lives and who dies, and how, in this kinship rather than that one? What shape is this kinship, where and whom do its lines connect and disconnect, and so what? What must be cut and what must be tied if multispecies flourishing on earth, including human and other-than-human beings in kinship are to have a chance?’ (Haraway, 2016: p2).

Haraway argues that these things occur in the smaller scales, they are about ‘modest possibilities of partial recuperation’, acknowledging that there will be,

and are already many losses, means that a focus on how we perform these small-scale entanglings, projects and stories is all-important. Thus, for my research, it is attending to the smaller stories, and the ones already present that makes up a key component of my theoretical approach.

The making of kinships and multispecies communities is based on the ways that we see, understand and perform these relations. A focus on the material constituents of things and bodies serves to demonstrate the ways in which 'this is not a world, in the first instance, of subjects and objects, but of various materialities constantly engaged in a network of relations. It is a world populated less by individuals than by groupings or compositions that shift over time' (Bennett, 2004: p354). By thinking of objects, bodies, people and other assemblages as being made up of the same 'stuff', a 'philosophy of non-identity and vital materialism nevertheless share an urge to cultivate a more careful attentiveness to the out-side' (Bennett, 2010: p17). Vital materialism argues for an ethics based on an acknowledgement of the ways in which our bodies and our actions are made of the same materials of the environment, all interconnected. Both materialism and ecological thinking advocate for 'an enhanced sense of the extent to which all things are spun together in a dense web, and both warn of the self-destructive character of human actions that are reckless with regard to the other nodes of the web' (Bennett, 2004: p354).

In a similar line of research, Stacy Alaimo explores the intimate material interconnections between environments and bodies through her concept of 'transcorporeality' (Alaimo, 2010). By focussing on the way that bodies are a part of environments, in particular toxicity and exposure, she argues that:

'the material self cannot be disentangled from networks that are simultaneously economic, political, cultural, scientific, and substantial, what was once the ostensibly bounded human subject enters a swirling landscape of uncertainty where practices and actions that were once not even remotely ethical or political matters suddenly become the very stuff of the crises at hand' (Alaimo, 2012: p561).

This focus on the embodied interconnections between humans and environments, the practical, physical and ethical ways in which we are inextricably connected to the worlds we inhabit suggests therefore, an important focus on the ways in which bodies, stuff and environments interact. Taking up the idea of transcorporeality, Nancy Tuana uses the idea of porosity to consider the intersection of poverty and toxicity after hurricane Katrina, she explains how drinking water out of a plastic bottle transforms her flesh 'once the molecular interaction occurs, there is no divide between nature/culture, natural/artificial' (Tuana, 2008: p183 – 184). The plastics interact with Tuana's body as they interact with something as social as poverty, as she argues, those whose flesh is the most exposed to toxins and pollutants from factories and incinerators are most likely to be those who also live in poverty (Tuana, 2008).

Exposure is social and material and cuts across categories such as class, race and where in the world people live (Alaimo, 2016). Thus, there is a need to understand not only how we make things, but also how those things and the actions, reactions and consequences of those things affect bodies, human and more than human in the present and the future. This highlights the visceral, political entanglings of the production, transformation and disposal of materials in always interconnected environments; and thus the need for nuanced understandings of how and where these things function, and for whom.

These theories and ideas have stressed the importance of the complex web of interactions between bodies (human and nonhuman) and environments, with bodies playing a central role. However, other scholars such as Elizabeth Povinelli and Elizabeth Grosz suggest that this focus on life and liveliness serves to exclude and silence other forms and other interconnections that are less about the 'bio' and more about the 'geo'. As Povinelli suggests, 'increasingly, not only can critical theorists not demonstrate the superiority of the human to other forms of life... they also struggle to maintain a difference that makes a difference between all forms of life and the category of nonlife'. (Povinelli, 2016 :p14). She argues for a more explicit consideration of the category 'nonlife' which is important and valuable in its own right, not just for the impact it has on biological beings.

Echoing these suggestions, in her book *Chaos, Territory, Art* (2008) Grosz calls attention to the ‘geo’ of geopolitics, articulating the ‘immaterial and virtual quality of forces and their material expression’, that is how the geo can be felt, seen and understood through material things as well as bodies. These forces are not necessarily relational, but abundant and excessive. She argues that the ways in which biological life works with these forces to channel and emphasise them is a form of art. Like Povinelli, she is arguing against the capitalisation of earthly forces, and for an understanding of them in their own right. They are not there for a specific human (or nonhuman) service or goal, ‘but as a profusion that exists for its own sake, for its own elaboration and differentiation’ (Yusoff et al. 973). This work calls attention to the ways in which matter and earthly forces are entities and powers in their own right, but also serves to decentre the human, and indeed the biological, by thinking of bodies as things through which these forces flow. This is in contrast to thinking of forces and nonliving matter as being there *in order* to support the lively life of the biosphere. Grosz’s attention to art as being something that is not an exclusively human act, but instead an intensification of all that is central to biological life in sexual selection and exuberance is a particularly appealing one to think about the ways we make material things and interact with the powers of the geological.

These philosophical approaches to the Anthropocene (or Capitalocene/ Chthulucene), relationality and the very earth itself have influenced the way that I approach my work, as something that is situated and embedded in worlds in which there are no apriori relations and actions of all actions and beings. Yet, in trying to work with these ideas directly, I am not sure where to begin. Like Gibson-Graham and Roelvik, (2010), I question how ‘we get from an abstract ontological revisioning to a glimmer or a whiff of what to do on the ground? No answer arrives when we ponder this question—just a spacious silence and a slowing down.’ (Gibson-Graham and Roelvik, 2010: p322).

Why is it so important to take up this challenge?

As Gibson-Graham (2011) convincingly argue, binary thinking, such as the separation between nature and culture, subject and object, thinking and acting is

deeply implicated in the Anthropocene crisis (Plumwood, 2007, Weir, 2009). If we remain in this kind of thinking, nature remains our dominion, our servant, our resource and receptacle. As Plumwood arrestingly puts it 'if our species does not survive the ecological crisis, it will probably be due to our failure . . . to work out new ways to live with the earth, to rework ourselves . . . We will go onwards in a different mode of humanity, or not at all' (Plumwood 2007: p1 cited in Gibson –Graham 2010: p2). The call then, to change our mode of relating to the changing world of the Anthropocene is one of survival, and not just that of our own species, but of most life on earth, as we know it.

Gibson-Graham argue that one way to think of how to go on in a different mode of humanity, is to 'start where you are' and to take 'an experimental approach to thinking connection' (Gibson-Graham 2010: p2). In thinking connection, they suggest a number of different ethical projects, one is a project of actively connecting with nonhumans, in ways which are reciprocal, ethical and more than just about 'seeing connection' (Gibson-Graham 2010). The second is based on Bennett's (2009) vital materialism, in which we act connections not just with living nonhuman others, but with the very material stuff of the world to give us connections of 'the substantive, rather than symbolic sort' (Gibson-Graham 2010: p3). The Anthropocene has been described as a great, global experiment and in doing so, the Anthropocene calls us to recognise that we are 'all participants in the 'becoming world,' where everything is interconnected and learning happens in a stumbling, trial and error sort of way. In the spirit of this participation, many offer the experiment as the only way forward' (Gibson-Graham 2010: p4).

Drawing on Latour's (2004) concept of 'learning to be affected', Gibson-Graham (2010) argue that an experimental approach is one which observes things happening on the ground at the same time as being receptive and open to new ways of being in a 'learner world'. They argue that we need to slow down, and to pay attention to relations, their forms, structures and durabilities. But they also argue that all of these experiences and experiments are situated, specific and place based. Attention to the specificities of place and the ways they are changing in the Anthropocene also responds to calls from cultural geography

for more localised understandings of climate change itself (for example, Brace and Geoghegan, 2010).

One of the challenges of the Anthropocene, as I understand it, is to re-establish different modes of making and understanding relations between humans, nonhumans and matter. I turn now to the body of work done by geographers in paying attention to the details of these relations. This is work not necessarily explicitly about Anthropocene concerns, but it is important because it demonstrates and practices different ways of understanding and performing relations and inter- and intra- species entanglements differently. As I hope I have argued in the previous section, ways of establishing and forming new kinds of relations are imperative in the Anthropocene if we are to go 'onwards to a new mode of humanity', rather than 'not at all' (Plumwood, 2002, cited in Gibson-Graham, 2010: p2)

*How has social and historical cultural geography
approached relationships with nonhumans?*

Geographical research has recently focused on the ways that humans, nonhumans and matter are mutually intertwined in the world, seeking to develop registers of talking about – and doing – relationality (Whatmore, 2006, Braun 2008, Lorimer 2012). This research has challenged the modern, western dualisms of nature and culture by thinking about the way in which humans are entangled with, living and nonliving nonhumans; to name but a few, fungi (Tsing, 2015), wolverines (Hinchliffe et al., 2005) and grasses (Instone, 2014). My own research focuses most obviously on nonhuman animals, and to a lesser extent plants. Arguably, these things, which are 'big like us' (Hird 2009), and live in 'airy spaces' (Keul, 2013) make relating to them 'easier', than say a deep sea nematode (Lorimer, 2014), and the complexities of what and why we relate, in what ways to the things we do, is a primary focus of this research.

As Kathryn Yusoff (2013, 2015a), Nigel Clark (2011) and Elizabeth Povinelli (2016) argue there is also a pressing need to pay attention to the things that are less easy to relate to, such as rocks, deserts, and the earth itself. In particular there is a need to come to terms with our own asymmetrical relations

and corporeal dependence on an increasingly volatile planet (Clark, 2011), however, these elements feature less strongly in my work, so this review focuses more on the relations to living and dead nonhumans, rather than the nonliving.

Writing in 2006, before the advent of the Anthropocene, Sarah Whatmore argued for a 'materialist return' within the discipline to better understand the complex and interdependent relations between people, environments, nonhumans and materials. She made four suggestions for geographical research; firstly, a shift from discourse to practice to emphasise that all research and enquiry is world-making, that there is no anterior space onto which we perform research, but that our research makes the worlds in which we are enmeshed. Secondly, she argues for an onus on a shift from 'meaning' to 'affect', that is that events have embodied, sensory effects that are visceral, but not confined to an individual body, which are important, not just for their 'logical' or 'rational' deconstruction. Thirdly, she suggests that we need more than human modes of enquiry, that decentre the human, and finally she argues for modes of knowledge making that pays attention the politics of how knowledge is produced.

These calls resonate with nonrepresentational theory, which argues for a focus on embodied and pre-cognitive experiences as a way to both understand and perform practices and places (Thrift, 2007). Material bodies don't just find themselves in places, they actively participate in them and the making of sites (Woodward et al. 2010); as such there is no anterior 'world' that can be studied (Anderson & Wylie, 2009).

The next section of the literature review considers how geographers have responded to Whatmore's call in more recent research, with reference to the particular challenges of the Anthropocene. Firstly, I look to nonhuman (animal) geographies, focussing on themes of charisma, vulnerability and awkwardness. Secondly, I look at some of the methodologies geographers have employed for studying human – nonhuman relations through multispecies ethnographies with living animals as well as the craft of working with dead animal bodies in taxidermy. Thirdly, I review the literature on plant geographies and look at how geographers are engaging with nonhuman plant lives, as well as animal lives. The final section of this part of the literature review focuses on geographical

engagement with creative methods, artworks and artistic practices related to the Anthropocene.

Nonhuman Geographies

Across non-representational and more-than-human geographies, there is an understanding that in order to rethink the centrality of the human, we need to rethink what forms of intelligence, truth and expertise count (Lorimer, 2010c). Reflecting these concerns about the perceived need to account more adequately for how nonhumans and humans co-constitute their affective life-worlds, there has been an increasing calls for research attending to animals' geographies (Philo and Wilbert, 2004, Buller, 2014, 2015, Hodgetts and Lorimer, 2015). Traditional social science methods have been critiqued, as the disembodied and cognitive approaches they tend to engender have not been able to account for the lively potentials of the more-than-human (Whatmore, 2006b, Buller, 2014, Buller, 2015). Geographers have instead called for embodied, affective and sensory understandings of nonhuman lives (and deaths) through experiential and practice-based connections to animal bodies and animal lives (e.g. Hinchliffe et al., 2005, Lorimer, 2010).

These relations have been understood in many different ways; different people around the world relate differently to different animals. Relations are mediated by complex and nuanced social constructs, material realities and political dynamics (Hovorka, 2017). Colonial, cultural and racial dynamics play a part in how these are understood (Hovorka, 2017). This is especially the case in situations of conflict for example; elephants (Barua 2013, 2014), cougars (Collard, 2012), tigers, (Margulies and Karanth, 2018), possums (Power 2009) and squirrels (Holm, 2014).

Other ways of understanding animals geographies have considered the embodiment of alterity, and thinking of animals as the 'ultimate Other' (Bull, 2011, Hovorka 2015), as well as considering narratives of 'becoming animal' in which otherness is enacted and normalised (Bear and Eden, 2011). These encounters with animals have also been thought about through concepts such as enchantment, describing a sense of wonder at experiencing multispecies

encounters (Lorimer, 2015, Mason and Hope, 2014) as well as attentiveness (Van Dooren et al. 2016).

The multispecies encounters most prevalent in my research are small scale and arguably fairly mundane to the UK communities they are made up of; the animal encounters include slugs, mice, arctic terns, moths and earthworms. The majority of these encounters are with uncharismatic creatures in ordinary, everyday settings. For the purposes of this study, the analytic themes of human-nonhuman encounters that resonate most with my work are those around charisma (Lorimer 2007) awkwardness and vulnerability (Lorimer 2014, Ginn 2013). I now turn to consider these in more depth.

Charisma

In paying attention to the texture of the relations between humans and nonhumans, one of the influential ideas central to my work has been the application of Jamie Lorimer's conception of nonhuman charisma (2007). Charisma, Lorimer argues, is a function of affect in relation to nonhumans, defining affect as both 'the material, ecological competencies of particular bodies and the immaterial, emotional responses, attunements and moments of becoming triggered in their interactions with other bodies' (Lorimer 2007: p914). In turn, charisma determines the perception of nonhumans by humans and the subsequent evaluation, it is a concept perhaps best known in the deployment of 'charismatic megafauna', those animals that are used as a means to engage people in a particular conservation issue, for example polar bears as the 'icons' of climate change (Yusoff, 2013, O'Neill and Nicholson-Cole 2009).

Lorimer (2007) identifies three types of nonhuman charisma, ecological, aesthetic and corporeal. The first of these, ecological, refers to the specific type of 'detectability' of an animal body by our own (animal) bodies. This takes note of the fact that we are air breathing, diurnal mammals of a certain size that rely most heavily on vision as a primary sense although we are in possession of more senses; those that in Myra Hird's words are 'big like us' (Hird, 2009), or as Kuel (2013) describes those who live in 'airy spaces'. It is easier to come into contact with these creatures than ones that live under the sea or the ground, although

recent work has attempted to address this by attending to encounters with fish (Bear and Eden, 2011), swarming bats (Mason and Hope, 2014), and an octopus named Angelica (Bear, 2011).

Aesthetic charisma describes the ways in which these visual, ecological characteristics have impact on human affections. These can be both 'positive' and 'negative', for example the way that humans are more likely to allocate personhood to certain nonhumans that have characteristics that make them look more like humans, be that through faces (Jones, 2000, via Levinas) or hands (Baker, 2003, via Heidegger), and therefore feel more affection and familiarity with them. On the contrary, negative aesthetic charisma can induce visceral feelings of disgust and even panic in particular – but not exclusively - to insects. Complicating this, a negative reaction can sometimes provoke a kind of feral charisma, a respect based on fascination for the otherness. The tense relations between revulsion and attraction in terms of human-nonhuman relations is something I will consider presently as human – nonhuman charismatic relations are rarely straightforward. A closer look at the details of tensions and complexities reveal how the textures of relations are lived and experienced. The final, and rarest type of charisma that Lorimer outlines is corporeal charisma, in which the human temporarily experiences 'becoming animal' (after Deleuze and Guattari, 1987).

In this regard then, charisma is a 'relational variable that emerges from the material and ecological properties of interacting, sensory bodies. These are shaped by specific cultural-political and affective logics' (Lorimer, 2014: p196); they not necessarily a catalyst for human affection; and even when it is, it is not necessarily a blessing.

Awkwardness and Vulnerability

As Hovorka (2017) points out, the interactions and emotional responses to animal lives by humans are based on cultural understandings that shape our relational and political interactions with nonhumans. Bodily vulnerability is a core theme in this research, perhaps exemplified in Val Plumwood's arresting description of being attacked by a crocodile (Plumwood, 1995).

Multispecies relations are not necessarily harmonious or without conflict, as Franklin Ginn (2013) explores in his study of slugs. He attends to the tensions and complexities of human – nonhuman relations between slugs and humans (notably gardening humans) as a way to consider the ambivalences and ambiguities that characterise relations that are not necessarily harmonious or without conflict. This is work that resonates with Matei Candea’s (2010: p244) call for ‘scholars to make some space within the concept of ‘relationship,’ to acknowledge the broad spectrum that lies between complete lack of connection, on the one hand, and actual ‘intersubjectivity’ on the other hand’.

Awkward creatures, as Lorimer (2014) argues are often those in our midst, local and close relations; neither domesticated or wild. He describes this tension and unease of negative charisma as awkwardness – and something that has the potential to be generative and productively troublesome (Lorimer, 2014). Awkwardness, he argues, requires a mutual sense of disconcertion. It is in this openness, and vulnerability to the other, when perhaps we are open most of all to be affected by the other. In this way, the awkwardness and tensions are generative; they can be – as much as caring, affectionate relations which have their own labours and power dynamics (Puig de la Bellacasa, 2017) – a site for the kinds of relations called for by Donna Haraway and others in understanding flourishing in multispecies communities (Haraway, 2016).

It is in these spaces of close and sustained attention to the formation and duration of human – nonhuman relations that the complexities and generative potential of different types of relation come to the fore. These are the spaces wherein the tension between engagement and detachment can curtail one another, yet, ‘they can also extend one another and make one another possible’ (Candea 2010: p255). Yet the kind of work done by Ginn (2013) and Lorimer (2014) points to the affective, tense and complex relations that make up human-nonhuman social worlds.

Multispecies Ethnographic Methods

There is a growing body of research, which engages with multispecies ethnographic methods in geography and beyond. These understandings of

interspecies relations require methods which attend to the complexities of these relations and make an effort to decentre the human, instead placing humans as one part in larger networks of multispecies communities (Pacini-Ketchabaw et al. 2016). This form of research departs from ‘classically ethnobiological subjects, useful plants and charismatic animals... bringing understudied organisms – such as insects, fungi and microbes into anthropological conversations’ (Kirksey and Helmreich, 2010: p545), and puts an emphasis on ‘research and writing that is attuned to life’s emergence within a shifting assemblage of agentive beings’ (Ogden et al. 2013: p6). My research engages with these lesser studied organisms, those which are often considered to be less charismatic, such as slugs and worms. My field research focuses on local, everyday spaces and nonhuman contact in these places for three UK communities; and I am in particular interested in the idea of vulnerability and awkwardness within these more mundane interactions.

Much of this research (including my own), has tended to have an emphasis towards animals, rather than plants. In the next sections, I consider in more depth how geographic research has used embodied methods to study animal lives, deaths and bodies, firstly through Hayden Lorimer’s (2006) work on reindeers, and then Elizabeth Straughan (2015) and Merle Patchett’s (2016, 2017) work on taxidermy as two very different ways of engaging embodied methods to understand animal vitality through lived experience and the experience of crafting and making with animal bodies. After this, I turn to consider the somewhat neglected study of plants as they make up multispecies communities.

Multispecies ethnographies

I turn next to the complex and situated ethnographic studies of Hayden Lorimer to illustrate the kinds of relations that are brought to the fore in work in which the geographic researcher experiments with a methodology in which human – nonhuman relations are cultivated, understood and expressed through embodied understandings of place, animals and people. In his work on reindeer herds and herders (2006) and later work on seals (2010a), Hayden Lorimer

draws on historical archives, ethology, observation, walking, running, and in the latter paper 'an exchange of looks' with a protective seal mother he describes embedded and situated local geographies known through bodies, both human and nonhuman. On his work on reindeer herds and herders (2006), Lorimer explores different human and nonhuman ways of knowing places and terrains; as individuals and a group. He walks the terrain, has conversations with herders and people who remember the different animals as a way to 'learn to think like a reindeer', in a way that the topography, time and movement can be shared between humans and reindeers (2006: p501). It is also in the retelling of these stories and histories that bring it to life, Lorimer argues for a richer, more textured way of speaking about the geographies as known by the human-nonhuman herd to 'take seriously these surface matters is to slip free from the restrictions of more sober ethnographic/ ethological analysis and to consider possibilities for a retelling of personhood as entwined and exchanged, as situated and sensuous' (2006: p 502).

Drawing on the work of John Berger (1979), Lorimer thinks about the repetitive actions and ordinary activities as practices, which are inextricably coupled to craft. He argues that working with hands, on foot or with animals taps into vernacular knowledges that arise from an abiding connection to place. It is in these embodied and multispecies repetitive acts that 'labour and artistry forge a material aesthetics, and transform landscape into an active technique' (2006: p. 506). Here, Lorimer is giving us a way of understanding places and the multispecies communities that make up landscapes and places through sensory knowledge and a sustained and close focus on the skill based interactions between people, materials and environments.

These ways of knowing and understanding the lives, histories, memories and geographies of animal bodies and multispecies community experiences maintain a focus on the liveliness and the lives of the herds. In the Anthropocene, where we are faced with mass extinctions and – as Haraway puts it – a need to learn how to live and die well in multispecies communities, it is also pertinent to think about how we engage with the death and afterlife of animal bodies. In this next section, I turn to the ways in which social and historical cultural geographers have engaged with the work and craft of taxidermy as a way to

think about sensuous and embodied relationships between human bodies and nonhuman bodies.

Participatory research

Ideas and practices of participation play an important role in my thesis. This thesis works at the intersection of a series of different bodies of work on participation: participatory art work and its critiques; participatory theories and methods within geography, as well as the use of participatory methods within geographical research. This next section, as well as the methodology chapter, describes the role of participation within my thesis. Here I want to outline the ideas of participation that have shaped my work.

No single discipline is responsible for the development of participatory research (Herlihy and Knapp, 2003), but Rachel Pain, a key practitioner of this work within geography, suggests that much of the current interest for participation within geography stems from 'participatory rural appraisal', as outlined by Robert Chambers (also known as participatory action research or PAR) (Pain, 2004). The aim of PAR is that people who would have been the research subjects in traditional research become active producers of knowledge in the research process (Chambers, 1994). PAR is driven by a group of participants, usually a team of people drawn together by a specific issue, which aims to offer a democratic model for producing and using knowledge. Yet, more than this it aims to *do* something useful with this knowledge; intended to result in an action, change or improvement in the participant's lived experience (Kindon et al., 2007). Indigenous knowledges and lived experience are valued by PAR, it is understood that that expert knowledge is political, and as such, PAR seeks to ensure that it is these everyday knowledges which are used to shape the lives of ordinary people.

Since in its early forms within geography this type of participatory research was criticised for being guilty of entrenching the very hierarchical power dynamics it aims to destabilise (Cooke and Kothari, 2001). Many accounts of participatory practice now acknowledge its complex relationships to power

whilst also emphasising its potential for shifting those power relations (Hickey and Mohan, 2004).

Core to my thesis has been the evolution of more-than-human ideas of participation. Over the last fifteen years, scholars have drawn attention to the almost exclusive focus on humans as participants in participatory research; which can obscure the agencies of the nonhuman participants (Braun and Whatmore, 2010a, Hinchliffe et al., 2005, Bastian et al., 2017). Scholars advocating for more attention to nonhuman participants often draw on the work of science and technology studies (STS) scholars such as Bruno Latour and Isabelle Stengers. They argue for the pressing need for a more nuanced and diffused attention to the interactivity of nonhumans and environments – and their participation within both social worlds and research itself (Latour 1993, Latour 2005, Stengers 2010a).

Work in science and technology studies argues that experimental settings and situations not only play an important role in the generation of new knowledge about the natural or the social world but also offer exceptional opportunities for intervening in and changing those realities (Lezaun et al. 2016). This work relates back to the laboratory studies of the 1970s which emphasized the performative elements of scientific apparatus – and the ways researchers not only observed and described data, but were also crucial to forming and maintaining the very presence and agencies of the things being researched (Knorr – Cetina, 1995, Latour and Woolgar, 1979).

This research emphasized the participation and influence of nonhuman participants in scientific experiments and environmental discourse more generally. The focus on the interconnected, interacting agents (drawn from Actor Network Theory) put an emphasis on the participation of many different nonhuman elements within political and social worlds that had traditionally been viewed as almost exclusively human (Latour 1993, Morton 2010). In turn, this has led to a focus on different methods of reorienting more than human social dimensions into research on environmental issues (Asdal and Marres, 2014). These theories of interconnection and nonhuman agency, ground my approach to participation within my own research. For although my work

focuses predominantly on the opinions and experiences of human participants, it is fundamentally concerned with a sense of how participatory arts practices might attune us to those complex, nonlinear interactions with nonhumans.

Core to the evolution of my attention to participation and the nonhuman has been other fields of research in which the nonhuman plays a role. The huge and rapidly evolving fields of animal studies and multispecies research are two ways in which nonhuman experience has been included in research. Broadly, this research aims to decentre the human as the primary agent and to consider relations between species (Philo and Wilbert 2000). It attends to the complexity of amicable and troubled relations, and of the 'spectrum of relations that lies between a complete lack of connection and actual 'intersubjectivity' on the other hand' (Candea, 2010: p244). The interactions of humans and animals is often marked by conflict, with complex biopolitical power dimensions at various scales of violence, danger and morbidity for both animals and humans, although the risks are undoubtedly higher for the animals. Research into human-animal relations have looked at the ways in which these relations impact the lifeworlds of humans and nonhumans alike, from cougars (Collard 2012) to elephants and lions (Barua, 2014) to possum, squirrels and racoons (Holm, 2012, 2015, Power, 2009, Pachini-Ketchabaw and Nxmolo, 2015) and even slugs (Ginn, 2013). Other research has focussed on the experiences of animals, such as Chris Bear's work on octopus and fish (Bear 2011, Bear and Eden 2011).

Multispecies research also brings plants into research situating them as participants, rather than a background against which human life unfolds. This research uses ethnographic methodologies to emphasise the key role that plants play in our lifeworlds, within gardens (Hitchings 2003, Doody et al 2014, Robbins 2007), and in wider anthropocene landscapes (Gibson, 2018, Head et al 2015). A theme that cuts across all of this rich and variegated research into and with the nonhuman is to try to decentre the human as the primary agent in relations and consider situations from the perspective of the nonhumans as active participants in their own right, not merely as a curious other.

I am influenced by the emerging body of work under the umbrella term of 'more than human participatory research'. This research is particularly focused on environmental issues, driven by the need to take environmental devastation more seriously and to research methods that might better support more sustainable ways of living together (Bastian et al., 2017). More than human research includes animal geographies, ecofeminism, environmental humanities, human-animal studies, new materialism, queer ecologies and STS. My thesis is heavily influenced by feminist theory - as Hovorka (2015: p1) describes, feminism is well placed to approach multispecies research through key theoretical ideas and methodologies, namely intersectionality, performativity and standpoint.

In their recent paper, Bastian et al. (2017) argue for a form of research that they describe as 'more than human participatory research' (MthPR). Participatory research is focused on 'the inclusion of marginalised voices and experiences, the subversion of dominant power structures and has a commitment to co-producing research with those who are affected by it' (Bastian et al. 2017: p12). Nonhumans are often invisible – or made invisible – by human-centered research, so arguably a focus on including them in the production of research in a meaningful way is a core focus of this body of work.

While these more than human research practices consider nonhumans as key players in life-worlds and research in a range of methodological ways, those I found most useful and illuminating, where those that foreground the potential of creative practices, including participatory art. Underpinning much of this work, As Asdal and Marres (2014) argue, is a sense that by placing artistic research on a more equal footing with other, more 'traditional' social science methods of relating to environmental change (such as economics and social psychology), this in itself also challenges traditional hierarchies of what constitutes both research, publics and participation. Scholars are also engaging with performative and artistic experiments in the form of different kinds of interactive, multispecies artworks. Rather than simply describing what life is like in a particular context, these practices engage with what might be possible, or speculative approaches to understanding lifeworlds (van Dooren, 2016).

Performance art with other creatures often relates back to the work of Joseph Beuys in the 1970s, who lived with a coyote for three days in a Manhattan gallery (Beuys, 1974). Within the Multispecies Salon (an exhibition curated by anthropologist Eben Kirksey and accompanying book, 2014), artist Caitlin Berrigan performed what she called a 'nurturing gesture' by drawing her own blood, which is infected with hepatitis C and offered it as fertilizer to a dandelion plant. She takes dandelion root as medicine to help her liver cope with the infection, so this was an act of shared suffering and mutual care. Rather than pretend to stand apart from subjects of study, this kind of artwork has influenced scholars in multispecies studies 'to more fully embrace the work of observation as part of an ongoing performance in the world' (van Doreen, 2016: p10).

Geographers have also used creative and innovative methods, which resonate with artistic practice to research human nonhuman relations and politics. Hinchliffe et al. (2005) studied the presence of water voles in urban wildspaces using innovative methods such as 'water vole writing' (in which water voles left footprints on paper) as a way to understand where and how water voles were present and absent in particular spaces. The authors argued for different ways that humans can 'learn to be affected' by water voles by attending differently to the environment rather than simply through traditional scientific methods of representation. The methodological innovation in this paper was a way to mobilise Isabelle Stengers' concept of cosmopolitics and an experiment in practically challenging the traditional, dichotomous boundaries between 'nature' and 'society' (Hinchliffe et al., 2005).

Another example of creative, participatory geographical research is Born and Barry's work on the artwork 'Pigeon Blog' (2010). Their research considers the work of artist Beatriz da Costa and her project PigeonBlog, in which she enrolled pigeons as participants in her study of air pollution. This research serves as an experiment in the notion of 'publics' and those who are affected by and affecting research. They developed generous, participatory and innovative methods which emphasised the capabilities of the nonhuman participants in her research.

Participation has a long and complex trajectory as a topic of study and a research approach, within and beyond geography. I have taken most inspiration from the more recent strain of work within this research that foregrounds more than human participation in research practices. As I have outlined, whilst long overlooked within wider participatory work, recent rethinkings of nature/culture have required us to attend to the nonhuman in new ways and to develop methods to do so. This approach often relies on ethnographic methods and auto-ethnography. Whilst the methodology chapter will detail these further below, I have here outlined the growing role that creative methods and artistic practices have come to play in this field. I want to now go onto explore the ways in which geographers have engaged with making practices and nonhuman others. In order to do this, I turn to the practice of taxidermy and the material interactions of human and nonhuman bodies, both living and dead.

Craft, making and nonhuman animal bodies

Elizabeth Straughan works with taxidermy practices as a way to understand human-nonhuman embodied relations in contemporary practice. Setting out to interview contemporary taxidermists, she quickly realised that without the skilled knowledge of making and crafting taxidermy, her understanding was limited, so she undertook a series of workshops to learn to taxidermy. What emerges, then, is a consideration of the haptic qualities of the practice – the generation of tacit knowledge about skin, flesh and bone.

Looking to the work of Luce Iriagary (1993) and Jane Bennet (2009), and taking seriously a feminist vitalist approach, which pays attention to the vibrancy of both living and dead flesh, she argues that taxidermy is a ‘creative process through which corporeal entanglements emerge’ (Straughan, 2015 p.364). Her work teases out the nature of these entanglements; the specific effects and role of dead, vibrant flesh on the practitioner and the creative process as well as the effect of the practitioner’s corporeal body on the animal body. She argues that knowledge develops with regard to the strength and tensions of tissue, skin and bone and how these respond to particular human movements - and that these tensions and pressures flow back into the animal body.

Working with Iriagaray's (1993) ideas of reciprocity and porosity where living bodies can touch and be touched, can feel and be felt, the idea of bodies touching signifies an openness to another in which connections and relations are made. Although the dead can no longer feel, bones crack and skin slides in unexpected ways, developing something of a lively and relational engagement that is reciprocal through the act of practice, of repeated corporeal movements and careful crafting of the body of another. In this way, 'matter and life are capable of touch and being touched, both catalysts for affect, then we can consider both as interconnected through a form of sociality' (Straughan 2015: p 372). It is in this sociality, understandings based on corporeal and proximal relations that more nuanced forms of human-nonhuman entanglements are made and understood. A focus on the micro-interactions enables a way of accounting for the singularity and specificity of the animal's body, and looking to the sense of touch provides a way to account for the reciprocity of tactile encounters.

In her work on historical taxidermy workshops, Merle Patchett (2017) uses historical archives and hand drawn sketches to trace out the working and crafting practices of bodies – human and nonhuman in Scottish taxidermy workshops. She posits that there is still a tendency to see these things from the point of view of individual human agents, and as a way to counter that, she shifts attention away from the individual agent and to instead focus on the 'practices and skills, which produce people, selves and worlds' (Thrift, 2000: p216 cited in Patchett, 2017) thereby emphasising that an attention to craft practices has the potential, in line with calls from multispecies and posthuman scholars, to decentre the human in research. In order to do this, her work emphasises less the life or indeed after-life of the people or animal artefacts, and instead focuses on 'exploring and exposing the lifeworlds of practice that compose and produce practitioner, craft and product.' (Patchett, 2016: p393). Her writing also brings her own embodied experience of learning taxidermy as an apprentice into the fold, to argue that these experiences resonate with archival material and add different textures and nuance to understandings of past lives and experience (Patchett 2016).

In this way, an attention to the taxidermy practices of the past both

narrates the experiences and entanglements between human and animal lives and deaths, but also draws attention to the practiced histories of craft work and craftworkers. It is in this detailed study of the embodied and lived experience and importantly the vernacular understandings of how different bodies interact, gives us a way of understanding the precarity of human and nonhuman social relations.

So far, the research I have looked at has focused on animal bodies in relation with human bodies and explored the different ways to understand nonhuman experience and ways of relating to – and researching – nonhuman animals. Although there is a move towards ‘seeing things from the nonhuman point of view’ and an effort to decenter the human, the human is still very much present, and these practices are exploring the human – nonhuman relations that are made in these different practices. While I acknowledge there is a need for less human-centred approaches to animals’ geographies (Hodgetts and Lorimer, 2015), my own research focuses on the need for different ways that humans and nonhumans relate to one another in the Anthropocene. The agency and possibility for different modes of going forward in new and ethical ways, as Gibson-Graham argue lies in a shift in the ways that humans regard and make relations with nonhuman counterparts, and it is in these human – nonhuman relationships that my research resides (Gibson-Graham, 2010).

Having said that, the work that I have looked at so far has concerned nonhuman animals, not only that, but mammal bodies that are ‘big like us’, those beings, that as Jamie Lorimer argues have ecological charisma being not vastly dissimilar to our own corporeal human bodies. Both within the discipline and outside, there has been a small but notable turn to the vegetal – and to human – plant relations for thinking about reciprocal relations in the Anthropocene (Lorimer 2007).

Multispecies (plant) geographies

Plants provide the very air we breathe and can situate and enhance human wellbeing (Head et al., 2015); a turn to thinking with plants has the potential to provoke generative discussions about the ways we are embedded within and

interdependent on the livingness of the earth around us. In their recent book, Luce Irigaray and Michael Marder (2016) suggest that a turn to the vegetal is important as plants have the potential to rescue the planet (and in doing so our own species and those of other nonhumans). This thinking offers a philosophical way past the dichotomous discourses that tend to characterise the Anthropocene; that of either technocratic fixes, or apocalyptic visions. Thinking with plants highlights the ways that human bodies and human lives are tangled in relations with the planet, rather than independent or dominant over it.

This next section then, follows Irigaray and Marder's call to turn to the vegetal, and looks at the ways that cultural geographers have researched and practiced human-plant relations. Many geographers and philosophers have written glowingly about how gardening – as a practice of human plant relations – has the potential to cultivate a caring ethos for nonhumans (e.g. Plumwood, 2002, Merchant, 2003) Like the above section, I look to the ways in which cultural geographers have engaged not only with the theoretical idea of engaging with plants, but have paid attention to the forms and nature of the connections between humans and plants and the ways that these connections are made, sustained and complicated.

Plants and humans are influential co-producers of the biosphere, and their mutual futures depend on collaborations and conflicts of many kinds, yet despite the fact that human life – indeed all animal life as we know it – would not be possible without vegetal life, plants often fill background roles to human action and research that stands in the foreground (Head et al., 2012: p399, Ryan, 2012, Ryan, 2013). Lesley Head and colleagues argue that there is an urgent need for diverse scholarship on our relationship with plants, but we are hampered by an entrenched intellectual heritage (Head et al., 2015: p 399). The difference between animals and plants, and the lower status of the latter, has been one of the defining characteristics of Western thought since Aristotle defined animals as those who move and plants as those who do not (Hall, 2011a).

Recently, there has been a marked shift towards theorising and researching plant nonhuman lives and their human relations in domestic gardens which goes some way to address the “ghost-like presence” of plants in empirical and theoretical accounts of social life (Doody et al., 2014: p124).

Multispecies ethnography now attempts to recognise the plants themselves, along with other nonhumans, as key players (Kirksey and Heimreich, 2010). In recognising the value of such an approach with plants, Cloke and Jones argue that there is 'considerable scope for widening discussions of non-human agency to embrace beings or entities which are more markedly different than animals from the human' (Cloke and Jones, 2001: p8).

Yet methodologies for studying planty lives remain challenging; with Head et al. (2012: p26), suggesting a need 'to gain insight into "planty knowledge". One way to understand planty knowledge is through "a combination of what humans learn about plantiness, and what plants themselves understand or sense of the world" (Pitt 2017: p97); suggesting that "what plants know is what they do" (Pitt 2017: p92). Hitchings (2003) walked and talked with gardeners as they moved through their own private gardens, Pitt (2014b) and Ginn (2013) used visual methods, walking interviews and participant observation to make sense of people-plant and human – slug encounters in a variety of gardens. Diana Gibson (2018) used a range of 'plant centred ethnographies', she spent time with plants, observed, smelled, listened to them and even slept next to them. She also spent time collecting plants throughout different seasons and spent time as an apprentice to a variety of human plant practitioners (specifically medicinal plants) and their plant practices.

I now turn to look in more detail at the work of geographers who engage with nonhumans through activities such as gardening and allotment keeping. It is often in unremarkable spaces in which people perform their everyday, lived experiences; and an attention to these practices gives insights into the working of everyday, performed space and relations (Crouch, 2003). Paying attention to the relations and material practices in creating a garden, the space and practice of the garden can be seen – both materially and symbolically – as constructed and negotiated through the interaction of different actors (Hitchings, 2003).

By 'starting with the plants', Hitchings (2003) considers the agency and creativity of different plants in a garden and the ways in which they work with human collaborators. He describes the plants as 'persuading the humans to let them stay there' and the ways in which they do this by appearing 'fun' and visually appealing, again echoing Lorimer's (2007) work on charisma. But he

notes that these relations are not always straightforward and or necessarily positive, some plants are seen by their human counterparts as 'endearing' in the way that they grow tall and leggy to reach the sunny spots, although this same tendency and physical manifestation can also be seen as unappealing to other gardeners, thus the negotiation and composition of relations is specific, localised and individual.

Methodologically, Hitchings found that in interviews away from the garden, the gardeners would downplay their emotional involvement to specific plants, yet when they were in the garden, and proximally close to the plants, the presences of the spaces and relationships with the plants enabled more nuanced and engaged descriptions of their thoughts and practices. This echoes not only other work on engaged methodologies, such as walking interviews (e.g. Pink 2007, Dowling et al. 2016), but also the interdependent role of memory, place and practice as echoed by Crouch (2003), Crang (2001) and Cloke and Jones (2001).

In this way, gardening can be seen as a creative collaboration between active participants of humans and nonhuman plants; although this is hardly on equal footing. It is an embodied way of knowing a space, and a way of co-creating living human-nonhuman relations. In this work, Hitchings (2003) pays attention to the complexities and the nuances of the specific interactions and the outcomes for the different actors. This concept of making and maintaining a space between humans and plants over time is articulated as a practice of 'dwelling' by Cloke and Jones (2001).

Building on Heidegger's concept of dwelling, as well as the way it has been reworked by Tim Ingold (1993, 1995), Cloke and Jones (2001) apply these ideas to the ongoing co-creation of orchards in Somerset by human and plant relations. While there is a need to guard against overly 'cosy' and romantic views of dwelling which they argue are too fixed and unidimensional, the idea remains a useful concept in understanding the ways in which humans and nonhumans are bound together in places integrating a sense of time, memory and ties to the future. They argue that the idea of dwelling 'helps to account for the intimate, rich, intense, making of the world, where networks fold and form and interact in particular formations which include what we know as 'places''. We would add

that this richness and intensity is not seen necessarily as 'moral' or desirable or authentic in traditional terms, in any way, and can take bitter, tragic, and contested forms just as it can take more harmonious or hopeful forms (Cloke and Jones 2001: p 652).

Dwelling, then is an 'embodied embeddedness' (Cloke and Jones 2001: p633), in which landscape is something created out of humans and nonhuman activities and interrelations, rather than through their representations. This focus on the performativity of dwelling takes into account the specific things and beings at any one moment, but also the historical specificities that make up places. In their example of a Somerset orchard, Cloke and Jones demonstrate how different technological changes (such as tractors and mechanised removal of apples) affect the practice of 'orcharding', as well as the changes in tree stock over the years to keep up with current tastes and market demands, yet still, the apple trees and the humans who tend and work with them keep an essence of 'orchard' over time. Even though the materials, the techniques, skills, practices and even presence of different things and beings change over time, there is a tie both to the past and to the future; yet they warn that this richness and intensity is neither moral nor authentic in traditional terms, and it can also take bitter, tragic and contested forms, just as much as harmonious or hopeful ones.

Local places therefore are understood as dynamic and contested, made up of the performances and interrelations of human and plant liveliness which leads to enduring character of place over time. Through embodied performance and ideas – including memory - these multispecies environments develop and sustain particular characters which can endure over time, tying those embedded within them to specific histories and shared futures. By studying the nuance and specificities of these connections and relations, especially those between humans and plants, this kind of research offers understandings of lay geographic knowledge of environments and the ways they both change and endure.

Crouch develops the term 'spacing' to 'identify subjective and practical ways in which the individual handles his or her material surroundings' (2003: p 1945). The idea of spacing is positioned in terms of action, of making sense and as a way to open up different possibilities. He goes on to describe a fulcrum between 'holding on' and 'going further', the ways in which repetitive and well

known practices, such as the regular gardening chores in the allotment or on a caravan site, are seen as safe, and as such provide a base which can enable and make possible different and more creative ways of being in relation with one's spaces and the material things that inhabit them.

Between this sense of 'being' and 'becoming', individuals suggest that there are transformative possibilities in the simple and uneventful things they do; ideas and embodied doings work together. There are continual tensions between following protocol and moving away from them; this creativity and performance-as-becoming does not necessarily lead to dramatic changes; however, the intimacy and performativities can still unsettle and reconfigure relations (Crouch 2003: p1958). In these generative spaces mundane, routine and repetitive tasks can become the 'safe space' which grounds individuals and allows them to bring together embodied knowledges and conceptual ideas which make room for new ways of being in and performing spaces, integrating humans, nonhumans and other material constituents. Therefore, Crouch argues for an attention to the performance of the mundane as a thing that 'can extend and leak into and across other values, relations, and significations through which individuals may act, feel, think, and adjust' (Crouch 2003 p1958 – 1959).

However, what and how these 'values, relations and significations' interrelate to the ways that individuals may feel, think and adjust are less clear. A focus on the performance of interactions between humans and nonhuman plants is one thing, but we should be cautious of assuming that 'such intimate understanding leads to appropriate stewardship' (Cloke and Jones 2001: p 653). The textures and nuances of ways of making embodied knowledges is an important step in understanding the different ways in which people understand their role in nonhuman worlds, and a careful attention to the tensions, complexities and performance of more than human social worlds is in order to better understand the ways in which these function in regard to specific places, practices, materials and times.

In summary, in this section I have looked at the different ways in which cultural geographers have researched and practiced human-nonhuman relations with living beings; both animal and plant. In the first half of this section, I considered the role of charisma, and the complex ways it resonates through

human-nonhuman relations, in which both positive and negative charisma can have both positive and negative effects upon these relationships. I then turned to more situated and practice-based ways of understanding these dynamics through the rich and textured work of embodied understandings of animal bodies, lives, deaths and afterlives in herding practices and the making of taxidermy animal artifacts. Yet, there is also a pressing need to understand not only human – animal relations in the Anthropocene, but also those of human – plant relations, as Irigaray and Marder (2016) argue a turn to the vegetal has salvation potential for entangled human and nonhuman ongoing liveliness. While gardening practices can taken to be seen as cultivating a caring ethos amongst those who practice them, a close attention to the complexities of these engagements is needed as they are situated and specific. Place, memory, practice and bodies interrelate to produce affects and emotion that can be tense as well as nurturing; and more attention is needed to the practices and outcomes of research with human-nonhuman relations in order to tease out and better understand the forms of these relations and how they endure (or not) over time.

This thesis is an experiment in the making of embodied knowledges about the Anthropocene through bodily engagements, skill and practice. As outlined in the previous section, a close attention to the practices and haptic knowledges of different ways of relating to nonhumans is a core concern in the development of more than human cultural geographies; and one of the ways that geographers have sought to extend these knowledges and creative practices is through a close engagement with artistic practice. Through my own creative practice, both in terms of making skills; as an artist facilitating participatory arts projects; and as a participant and observer in these projects, I seek to extend the ways that geographic creative practice and arts practice interrelate and inform one another. The following section now considers the ways in which cultural geography has so far looked to and worked with art practices to understand relational entanglements with nonhumans and the Anthropocene.

Art & creative responses

In the previous section, I considered the work of Elizabeth Straughan (2015, 2018) and Merle Patchett (2016, 2017) in their practice of working with taxidermy in the production and understanding of embodied relations with animal bodies. Through these making practices, both Straughan and Patchett engage with skilled practice and bodily connections to animals as ways to both understand the animal body itself in relation to human corporeality and bring to light a more lively sense of the history of taxidermy and the passing on of skills over time.

Sarah Whatmore (2006: p606 – 607) persuasively argued that there is a pressing need to:

‘supplement the familiar repertoire of humanist methods that rely on generating talk and text with experimental practices that amplify other sensory, bodily and affective registers and extend the company and modality of what constitutes a research subject’.

Cultural geographers have taken up this call in relation to human-nonhuman relations, in particular to animality in a number of different ways; yet, there is still much to do in terms of methods and methodologies in order to develop and understand the different forms and textures of these relations that active research creates and seeks to communicate. While theoretical thinking in the field of human – nonhuman relations is well developed, methods and methodology lag behind, resulting in a frequently diagnosed need for more development in this area (Lorimer, 2010c, Hodgetts and Lorimer, 2015) In utilising craft and participatory art, this thesis aims to contribute to this gap in literature and geographical research.

While working with scientific ‘experts’ may lead to interdisciplinary or collaborative practices, it also means that there is a reliance on these gatekeepers, and their modes of engagement and styles of communication (Hodgetts and Lorimer 2015). There are therefore calls to engage directly with animal cultures to cut out the gatekeepers in order to extend existing ethological methods (Hodgetts and Lorimer 2015). Most of the research to date between humans and nonhumans has, as outlined earlier, has been between expert

humans of one kind or another. Yet, as Brace and Geoghegan (2010) argue, there is a need for more nuanced non-expert and localised understandings of climate change and the Anthropocene. This research, then adds to a body of research about how non-scientists relate to nonhumans, and how different forms of knowledge and relations are made.

Therefore, I would argue, within human – nonhuman interactions, there are different kinds of representation and mediation present in these interactions; whether or not we explicitly describe them, or whether we are even aware of them. Perhaps, one way then of dealing with the issue of ‘gatekeepers’ is then, perhaps not to get rid of them entirely, but to extend the different kinds of gatekeepers and knowledges, and forms of mediation that we use. Thus, if a lot of work in this vein has previously been done by scientists and other experts in the fields, there is an opportunity to engage artists in the practices because artists can be understood as experts in a different kind of attention, different kinds of knowledge making practices, and who employ different kinds of methodologies to attending to the lives of nonhumans.

Art in the Anthropocene

Over the past 15 years or so, the artworld has enthusiastically taken up the challenge to engage with climate change and the Anthropocene with any number of high profile, large scale, publically funded exhibitions internationally such as ‘Weather Report: Art and Climate Change’ in Boulder, Colorado, 2007, ‘The Trouble with the weather: A southern response’ in Sydney, Australia, 2007, ‘ReThink’ in Copenhagen, Denmark 2010, ‘Greenhouse Britain’ by Newton and Helen Mayer Harrison, 2008, ‘Radical Nature: Art and architecture for a changing planet’ at the Barbican, London UK, 2009, Earth at the Royal Academy, London, UK, 2009 – 2010 and Cape Farewell’s ‘The Ship’ exhibition at the NHM, 2006. This work has been well-summarised and evaluated elsewhere (for reviews, see Duxbury, 2010, Nurmis, 2016, Yusoff and Gabrys, 2011, Davis and Turpin, 2015), and therefore it is not the aim of this research to repeat this work.

What I am, however, interested in is the way in which cultural geographers have engaged with particular types of Anthropocene artwork, in

particular participatory artworks as that explicitly involve the ways that human – nonhuman relations are made through arts practices. My focus on participatory artworks relates to the more-than-human turn in geography and the need for embodied, multi-sensory practice based ways of understanding situated ways of relations and worlding practices.

Geographies of participatory artworks relating to the Anthropocene

There is a small but significant body of work in which cultural geographers are working with art and artists in order to give added dimensions to more-than-human socialities in the context of the Anthropocene. In particular, these participatory respond to calls to bring together different types of experts, materials and nonhumans in ways which encourage different kinds of learning and different forms of knowledge production and knowledge hierarchies as compared to a purely scientific approach (Moser, 2016).

If vision was once understood as the ‘sense of separation’ offering a distanced view of the world, touch and hearing then have the potential to configure sensory proximity and intimacy (Kangieser, 2015, Hawkins, 2010). Research has looked at the sensory and affective dimensions of climate change through audio-visual artworks, focussed on the potentiality for sound to tell sensory stories of the world, and in doing so, can engage people with the insensible and disconcerting elements of environmental change (Hawkins and Kangieser, 2017).

There are art projects that seek to engage humans and nonhumans in cross species communication (Hodgetts and Lorimer, 2015) but I am more interested in project focussed communication, in which the multi-species learning is less about new forms of communication per se, than about ways of learning how to work with one another and make connections for shared purposes and shared benefits; which ultimately, may be not a bad goal for shared environmental and experimental Anthropocene worlding practices more broadly. By fostering active participation from both humans and nonhumans, these kinds of geographic research practices are creative and participatory.

Another way of connecting sensory human and nonhuman bodies around the issue of climate change has been through skills of making, and in particular knitting. In Hawkins et al.'s (2015) study of the participatory making project, Bird Yarns, craft theories of 'making is connecting' are understood to foster social bonds (after Gauntlett, 2012), and in doing so hold generative potential for a 'different imaginary of earthly and atmospheric collectivities than one focused on scientific fact. This imaginary propagated not only from the materialities and doings of knitting but also from the changing morphologies of the knitted bird bodies (Hawkins et al., 2015: p336). In this they argue that if making is indeed connecting, then the question of what is being made, and what is being connected is an important one.

While Bird Yarns suggested socialities formed of humans and nonhumans, other artworks have more directly engaged with the idea of nonhumans as collaborators in participatory arts projects. In the same paper, Hawkins et al. (2015) look at the work of artist Frances Whitehead on an environmental remediation project in which plants, artist and scientists were brought together to co-construct an planted area to remediate an old gas station and make it more habitable and more appealing to humans and nonhumans alike. Where Bird Yarns involved different human communities (of knitters of varying skills and knowledges), SLOW Clean up, on the surface more closely resembled a traditional remediation project in which "the general public" were not involved. However, on closer inspection, it becomes apparent, that the participatory, connection building work is intimately connected to the artist, scientist and the plants – it is the trust, knowledge and intimacies built up between fewer participants that enables a different kind of knowledge to be formed, and in doing so disrupts traditional scientific hierarchies.

Again working with plants and remediation, artist Lillian Ball created an area of wetlands in the Bronx, New York to clean and care for the water, air, people and other living nonhumans. Here, Ingram (2013) conceives of the work of this artwork as a collaborative human - nonhuman act of maintenance and care for the environment. Ball worked with planners, local business, a local youth group and the plants an environment, in a multi-year development of the project which Ingram terms the artwork as a contingent and processual thing in which

the artist is more of an orchestrator of the project (or in Stenger's terms a diplomat) and the decision-making and subjectivities are distributed throughout the project participants. In realigning art in this way, we question the role of art and artists, and decentre the artists in a way not dissimilar from calls to decentre the human in the Anthropocene; moving towards a way of working in which – after Haraway (2016) the outcomes for all involved become uncertain and unpredictable.

The idea of decentering the human in Anthropocene living and thinking practices is called for by many scholars from cultural geography and beyond (for example see Gibson-Graham 2011, Haraway 2015, Lorimer 2012 Whatmore 2006). Kathryn Yusoff in particular builds on this work and discusses ways of realigning traditional hierarchies, ontologies and modes of relating, in particular to earthly forces and those things that are beyond the relational (Harrison, 2007, Yusoff, 2012, Yusoff, 2013a). In her work on cave art, Yusoff disrupts the idea of a constrained human body as one that encompasses many heterogenous life and nonlife forms, for example the microbes and geological materials – such as the calcium in our bones – that make up both our bodies as well as the ancient representations of both animal and human bodies themselves. She argues that in doing so, we begin to see the 'inhuman as not a step beyond, but within the very composition of the human, then ecologically there exists the possibility to think different relations with the earth that – materially and conceptually – do not begin and end with the subject.' (Yusoff 2015: p389). Echoing these sentiments, Harriet Hawkins (2015), writing on the work of artist Ana Mendiata has explored the ways in which bodily connections to the earth are a way to think about the way in which we, as specifically embodied beings are connected, materially to the earth.

In summary, there is a burgeoning body of cultural geographical work that engages with artworks as participatory, knowledge making and worlding practices that involve diverse publics of human, nonhuman and material subjects; and there is a rich vein of research that engages with the generative potential for these kinds of creative practices. It is into this work that my own research sits; I wish to extend the understandings and potentialities for the creative and practical work that participatory Anthropocene artworks can do,

and while I have no intention of diminishing any of this work, there are a number of shortcomings in the current body of research that my own work seeks to address.

The first shortcoming is one of detail. As Hawkins et al. (2015) argue, the questions of what is being made and what is being connected are important ones, but important also are the natures of the connections, of *how* maker and material are connected? What form do these new social relations take? What are the embodied specificities of them? How do different bodies interact with different materials and to what ends? Arguably, due to the need to produce research papers within specific time frames and budgets, there is less time for long term, sustained research (Carr and Gibson 2017). The joy (or - at this point of writing, horror) of a PhD is that I have the time, space and words to stay with the entanglings, to tease out their different properties and to pay close attention to the textures of the different ways they function in different situations.

This leads me onto the second shortcoming of some of that research, is that – aside from the examples of learning taxidermy and film-making – in very few of the participatory arts practices in question here is the researcher actively involved. Drawing on non-representational theory and phenomenology as developed by Merleu-Ponty, I understand knowledge to be developed through active, embodied and affective involvement in practices. In other words, these kinds of research practices are not about being an interested observer, because the experience of being a part of the participatory work is crucially important. In order to address this in my research, I participate in varying degrees in each of the three case studies; firstly as an observer of Bird Yarns (the reasons for which I will come to presently), secondly, in Knit and Natter as an artist and facilitator of the entire project, and finally in Linen as a participant and also a facilitator of a sub-project set up by another artist. The varying degrees of involvement give me the opportunity to critically reflect upon the role of participation and the different functions this plays across the case studies.

Thirdly, although many of the researchers were involved long term in the projects discussed above, the duration of the involvement tended to be towards the setting up and realisation of the projects, rather than their enduring legacies. Resonating with the first shortcoming I outlined, there is a lack of attention paid

to the longitudinal aspects of this work, and the textures of how these entanglements and relations, built during the initial stages of the project endure and change over time. Much of the research is based on the project at the time it is publicised and promoted to a wider audience – a time when there is most ‘buzz’ about a project. Hence, this is why in my first case study, I return to the Bird Yarns project (which I was involved with for my master’s research, and before starting the PhD), four years later to understand the different ways the participants – human, woolly and otherwise – had been affected by the project in the intervening years. This longitudinal study responds to calls from geography and beyond to understand the longer-term impacts of different types of projects which seek to involve wider publics in the understanding and production of diverse climate knowledges (Moser, 2016, O’Neill and Smith, 2014).

Of course, it is not just cultural geographers who have engaged with participatory art as creative worlding experiments in the face of uncertain futures; the artworld has too. It is beyond the scope of this literature review to even begin to consider the different ways art critics engage with this work, so instead I will turn to the ways that cultural geography has critiqued the main issues arising from this research.

Relational art

Relational arts practices are those that take social relations to be the ‘medium’ of the work, in the way that painters use paint, or a sculptor may use coat hangers (Bourriaud, 2002). In this sense then, situations are ‘sculpted’ by the artist in which the audience is an active participant in making relationships between other audience members (Bourriaud, 2002). However, these social relations are exclusively understood as human social relationships (and often an exclusive and elite group of humans at that), and speak little to nothing of the more-than-human dynamics (McNally, 2017, Hawkins et al., 2015).

Art critics debate what forms and the relationships and participatory practices ought to take, most famously Clare Bishop (2004) who argues simply generating relations is not enough. For Bourriaud, making new social relations was a political move in itself; once sparked, the politics were left open to the

audience and participants to navigate themselves. For art critic, Hal Foster, however, such an open end to the supposed interventional character of relational art detracts from its politics and ‘follows the assumption that participation and collaboration automatically equals ‘good’ (Foster 2003: p21). It is the nature of these relations that is the topic of much contention amongst art critics, whether these relations are cooperative and warm, or ones of conflict. Clare Bishop (2004: p66) for instance, argues that within participatory art, ‘relations of conflict should be sustained, not erased’.

Not dissimilar to some of the lack of complexity and attention to the types and nuances of the relations and entanglements in cultural geographical analysis of participatory art practices; there is a shortcoming in art theory in paying attention to the complexities of the relations too, which this research also adds to. In particular, there are the hidden relations and support structures of performance art; the ‘background’ and ‘maintenance’ work that goes into the production of any kind of artwork; and participatory work is well placed to bring these kinds of – particularly feminised - labour to the fore as it is the labour and the actions that form the basis for the work (Jackson, 2011). Alongside the types of often invisible work in the production of art practices, there needs to be a close attention paid to the particular contextual and institutional locations of the work as these have a large effect on the forms and manner in which the work is produced, disseminated and received (Harvie, 2013, McLean, 2017). This research, then brings art theory into conversation with cultural geography around the focus of participatory art in the making of more than human social relations; the relationship of humans, nonhumans and materials and the development of new kinds of knowledge and knowledge making communities in the face of the Anthropocene and uncertain futures.

Summary

To summarise, in this section of the chapter, I have reviewed the relevant literature that engages with the idea of ‘an entangled Anthropocene’. I began by arguing that one (of the many) ways to think about the problems in the Anthropocene is one of relationality and a problem of hyper-separation in which

we, in the western world, see 'humanity' as both separate and superior to 'nature'. I then summarised the historical and cultural geographic literature which has engaged with understanding and approaching human-nonhuman relations; both in terms of animal and planty nonhumans. I looked at the ways that geographers have researched embodied connections to plants and animal materialities and bodies through ethnographies as well as practices of making, such as taxidermy. This section of the chapter finished by considering the role that artistic practices, as a form of making practice, have played in understandings of the Anthropocene from cultural geographic perspectives. This thesis builds on the geographies of making as a way to connect to other materials and lives, both human and nonhuman. The next section of this chapter, then explores what I have come to call 'thready geographies'; that is the geographies of thread based practices such as knitting and the making of textiles.

Section 2. 2

Thready Geographies

Introduction to thready Geographies

This chapter lays the groundwork for the development of what I have come to call thready geographies. Thready geographies are the geographies of threads and yarns, such as wool, string and cotton and their presence in making and mending processes such as knitting, weaving, spinning, sewing and darning. They are also the geographies that these processes create, the ways and sites in which people and materials are brought together through these practices. The various practices of making things with threads relate to geographies of knitting and crafting, which have been argued as a way to bring people together, as David Gauntlett suggests ‘making is connecting’ (Gauntlett 2012: p2). Gauntlett goes on to argue that ‘acts of creativity usually involve, at some point, a social dimension and connect us with other people’ (Gauntlett 2012: p2), it is then in the practices and the places that people gather that connections are formed.

This section explores the burgeoning geographical literature that engages with the diverse field of making and crafting geographies, in particular but not exclusively, knitting and thread based skill practices. From this body of research, I am interested in key themes around how this research engages with questions of making in the Anthropocene (and indeed making the Anthropocene), as well as questions of skill, materiality and feminist politics of making practices.

In this next section of the literature review, I will address geographic literature on making practices. I begin by looking at work that engages with the embodied practices of making, and how these practices bring the maker’s body and materials together in ways that reciprocally affect both material and maker. I then look at the literature specifically on thread-based making practices and in particular, knitting. Following this, I focus on how materials themselves are transformed through making and the environmental resonances of this, before addressing fabric as a core concern in this area. The final sections look to how

making practices are understood to be productive of socio-material worlds, and lastly how these are particularly important in relation to the Anthropocene.

Throughout this section, I develop an argument that if making practices have the power to connect people to one another and to materials around them, then they also have the potential to connect people to their environment. This builds on an emerging contention within geography that making practices may be one way in which to – through connecting people with environments – cultivate more ethical connections to those environments (Hawkins et al., 2015, Haraway, 2016, Hawkins and Price, 2018).

Embodied Making Practices

Geographers have long employed participatory methods to ‘get at’ certain knowledges that can only be accessed by taking part. This is especially true for making and creative practices whereby the body becomes an important tool in research (Woodyer, 2008). It makes sense that many of these embodied experiences and skills researched are ones that the individual researchers enjoy, many of whom bring their own interests into their research and representing worlds that they are part of. Feminist geographers have long encouraged researchers to recognise the interconnection of personal and professional identities, and the ‘blurred ground between insider and outsider’ (DeLyster 2001: p244).

Geographers have become apprentices to skilled practitioners as a way to gain expertise and material knowledge. Erin O’Connor (2007) learnt glassblowing, and describes in detail the processes and frustrations of becoming proficient in manipulating the hot glass and navigating the furnace room. Which he describes as the ‘arduous process of developing corporeal sight’. (O’Connor, 2007: p:239). Sculptor-geographer David Paton (2013) worked as an apprentice stonemason, using his first hand experience of working with bodies, materials, tools and place to describe how these intertwine to draw workers into a deep and sensory relation with place. Andrew Warren describes the making of surfboards, and Chris Gibson guitars (Warren and Gibson, 2014). This work attends to the rich connections between people and the earthly resources from

which they are made. There is also an attention to the gendered dimensions of this kind of manual labour (Warren, 2016), in which there appears to be a confluence between materials, practice and gender, in which male bodies work with hard materials such as wood and stone, resonating with Cox's (2016) inquiry into DIY practices in New Zealand where she suggests that 'material-people conversations are historically and geographically situated and skills are the medium through which materials and identities relate' (Cox 2016: p572). She argues that DIY skills are gendered and the competence (or lack of) become part of a sense of identity (Cox, 2016). I contend that there is a need for research into different materialities and forms of making which involve different embodied skills, which are slower and softer, such as those working with threads.

Other geographers have engaged with learning other forms of craft practices, for example Patchett (2017) and Straughan's (2015) work with taxidermy, Laura Price (2015) and Joanna Mann's (2018) work on knitting, as well as creative practices that are less likely to be thought of as traditional craft practices, such as hairdressing (Holmes, 2015), butchery (Ocejo 2014), and vine farming (Krzywoszynska, 2016). Each of these examples, engages with the experience of learning how to do, and the process and frustrations of becoming skilled in making.

The thready geographies of knitting

Knitting is a labour intensive activity; the craft requires skill, embodied practice and material knowledge of yarn, fibres and wool to produce knitted fabric (Price 2015). The yarn is worked with hands over two or more needles; essentially it is the creation of a fabric from a single thread, formed into horizontal rows of individual loops that intermesh with each successive row of loops (Black, 2012: p4). It has been described as 'attempting to produce form from nothing. The act of enclosing spaces, or more precisely setting up temporary enclosures is after all what the practice of knitting consists of' (Faiers, 2011: p102). Jonathan Faiers (2014: p105) goes on to suggest that there is 'an intrinsic formlessness and impermanence that resides at the heart of the craft of knitting', as a skilled knitter myself, this idea resonates with my own embodied understandings of the

enjoyment and perils of knitting. There is something both intriguing and satisfying about the formation of precarious and flexible material spaces that keeps me on my toes; drop a stitch and a 'ladder' runs down your fabric; withdraw a needle and the whole thing unravels and unwinds. It takes time, patience and skill to build the flows and rhythms for looping and winding, looping and winding the yarn into fabric.

Knitting is often done in groups and is therefore not solely a solitary activity (Price, 2015). While skills are grown, they are also taught and passed on, indeed, as Sennett argues, part of the practice of skill is also in the passing on of those skills to others, be they peers or apprentices (Sennett, 2012). The skills inherent in knitting then, are not just about the individual's skill set, they are also about a specific social skill set that is built around the sharing of space, experience and knowledge (Sennett, 2012).

Laura Price contends that knitting groups are popular for their combination of: firstly, the making of a material object; secondly, the enjoyment of the process; and thirdly the way that participants make space and time for conversation, encouragement and advice in collective settings (Price, 2015). Knitting groups are found in many diverse sites, from urban centres to rural locations, and as such craft innovations can occur in ordinary places meaning that the "vernacular creativity" (Edensor et al., 2009) of knitting is not location specific, but specific to the geographies of those who practice it. Price's (2015) work into social knitting practices builds on geographical attention to how groups and communities are made and maintained through the sharing of things, expertise and skills (e.g. Gregson and Crewe and 2003; Jupp, 2007; Askins and Pain, 2011; Geoghagen, 2013; Hall, 2013; Hall and Jayne, 2015). Knitting, she argues is not just made of place, but in the politics of making together, it is also productive of place (Price, 2015). Joanna Mann (2018) echoes this sentiment in her understanding of Shetland knitting in which the knitting of a lace shawl connects her to a specific location (Shetland), for example in the ways that aspects of the local environment - patterns of sand on the shore, or leaves, flowers and paws – are integrated into the knitting builds ways of understanding

and representing localities and specific embodied histories through the act of making.

For Mann (2018) skill is understood not only as a co-creation of things between human makers, materials and their environment; but beyond that, skilled practice itself is mutable and relational (Mann 2018). Sometimes things work and sometimes things don't. In this closely attended and textural understanding of skill as a transformative and almost precarious practice - for both practitioners and materials - elements of experimentation are understood that are not present in other more traditional understandings of the acquisition of skill. In this way, the skill of making is relational, immanent and interdependent; a function of a body's ongoing relationship to materials and to changing environments; and why it is of particular importance in the Anthropocene as an embodied connection and way of making things and meanings out of a world in flux.

The geographies of knitting are also about the human and more than human social relations made within the practice, and the ways that these relations are made and maintained is important if we are to untangle the different ways that different kinds of relations are possible. Cronin (2014) suggests that although the sharing of personal information is often a key element of friendship, tasks and jobs such as those found in knitting groups can provide spaces to make and maintain friendships that are socially and emotionally distinctive. Therefore, within groups formed around a specific encounter or practice, 'objects as conduits may facilitate transformative social relations to seep across spaces of encounter', such as the social relations made through knitting together (Askins and Pain, 2011: p21). It is within the micro politics of these knitted encounters that social relations are made and unmade, and research attending to the forms these entanglements take takes seriously the different types of politics created in these situations.

Following Gibson Graham (2010), there is possibility for different ways of being in the world through shared practice and shared ethical understandings of our place in the world; and all of this requires a shift from the mainstream and destructive tendencies of late capitalism. The politics of making transformations are understood less as grand shifts and changes, rather more as incremental,

daily, perhaps even imperceptible movements in bodies, attitudes and affective dispositions (Price and Hawkins, 2018a). In taking seriously the small scales of everyday transformations, especially through creative making practices, Kye Askins proposes a type of quiet politics of engaging with others, the politics which are enacted within the interdependencies and emotionalities of social relations in which 'an unassuming praxis of engaging with others, in which new social relations are built in/ through everyday places, relationally connected across a range of geographies (Askins, 2014: p354)

She foregrounds the political dimensions of the 'more-than implicit actions' of participants, arguing the 'relations are explicit, there is a political will to engagement that requires commitment (Askins, 2015: p476). For Askins, then, it is in the formation of the social relations that politics is played out; the act, care and dedication required to build and maintain these relational networks that become inherently political. Much like the knitted objects, matter and material 'that is hand handcrafted between skills, bodies and makers – these social relations and their political implications can be simultaneously transient and enduring' (Price and Hawkins 2018: p232).

In drawing our attention to the differently enduring implications and resonances of making practices, Price and Hawkins (2018) remind us of the need to stay with the complexities of the relations made through making practices. As Sennett (2012) suggests, practical and material based skills do not always translate as better social skills for living. Therefore we need research into making practices that documents the nuances, and the less enchanting experiences of making, the frustrations, failures, and uncomfortable geographies (Price and Hawkins, 2018b). Perhaps this is the research that is required in order to take up Donna Haraway's call to 'stay with the trouble' (Haraway 2016)?

In this section, I have offered a look at the entanglements made by thready geographies, through the social relations made through knitting and making together. In this, I have drawn attention to the need for nuanced and sustained work that gets to grips with the way that relations are made, who and what are making them, and for the need to avoid celebratory research that skims the surface of the micropolitics of *doing* together. In the next section, I turn to the

materialities of yarn and textiles to look at the material entanglements that are made through the very fabric of the Anthropocene.

Materiality of making

Making is not just about human social connections, it also inherently, has a material element to it. Threads and the textiles they constitute have traditionally been made of plant or animal fibres such as wool, hair, flax, cotton or hemp (Baines, 1985). However, it is now estimated that the vast majority of clothing made – up to two thirds – now features human made materials such as polyester which draw on finite resources including crude oil (FAO/ ICAC, 2013). Polyester sits alongside other plastics that are ‘emblematic of economies of abundance and ecological destruction’ (Gabrys et al. 2013: p3). One of the consequences of uncontrolled growth and persistent proliferation of plastic – in all of its forms – is, in Küchler’s words ‘one the greatest ecological, health and environmental challenges of our time’ (Küchler, 2015: p272). Although in much of the modern world, we appear to live in a culture of ‘disposability’, things have a material endurance, they change and transform long after we have thrown them out (Strasser, 2000). The residual liveliness of these materials and products results in toxins and poisons as they break down and flow through environments and bodies (Alaimo, 2010)

In her study of plastic bags, Gay Hawkins (2001) argues that the mastery of waste is, like the mastery of nature, an illusion, because we are intimately connected with the endurance of the things that we dispose of – that they never really go away. Or, as Hird and Zahara (2018: p136) put it, ‘waste, both conceptually and materially, marks the success of the neocolonial project – its proliferation and technomanagement are predicated on an Enlightenment-rooted settlement cosmology that emphasizes dominance over nature’. If we are to untangle ourselves from enduring toxic webs of plastics and other materials, understanding how we are entangled, and to what would seem an important part of the project.

Geographical work has engaged with this idea of the transience of materials and their ongoing repair. Tim Edensor (2011) investigated the

transformation of urban matter (stone, moss, decay) and the vitality of nonhuman agencies that destabilise structures physically and symbolically. Gregson et al. (2014) have looked at the breaking up of ships and the subsequent reuse and reappropriation of materials to argue for the ongoingness and continual transformation of materials beyond entropy or the 'end of life' of particular things. The practices of demolition and disposal have also been considered in relation to asbestos, in which it's material properties are considered 'not fixed, but processual, relational and distributed' (Gregson et al. 2010: p. 1065). Within this work there has been a focus on hard, large materials and the spaces they produce; there is a lack of geographical work that attends to the ongoing liveliness of softer materialities in this vein, such as textiles (Stanes and Gibson, 2017). And yet, a focus on different types of materials and their changing states can open discussions around gendered and feminist spaces and practices of making and repairing (Price, 2015). Research into the micropolitics of making and repairing, including the small, everyday spaces in which practices of repair are carried out, alerts us to the ways that we are connected to the ongoing nature of materials (DeSilvey and Ryan, 2018)

Material/fabric

Although textile fabric forms an important embodied connection to the material world, it has been under-theorised in the literature (Stanes and Gibson, 2018). Everyone in every culture uses and understands cloth; everyone has kinetic experience with fabric and its comforting properties; indeed the very qualities of textiles, such as their ability to absorb, enfold and contain, expand and tie together make them important symbols (Gordon 2011: p146). Our skin is nearly always in contact with some kind of textile, from a baby's blanket to clothing, bedding or death shroud; fabric travels with us through our entire life (Pajaczkowska, 2005). It is in this relational and embodied relationship with threads and fabric that we come to understand it, for example understandings of "the itchiness' of wool comes not just from a material property, but is also an embodied experience of a particular wearer, arising from properties of wool and

our perceptions of these properties through material and embodied experiences.” (Hebrok and Klepp, 2014: p68)

Fabrics, threads and textiles are not always about connections, intimacy and proximity however; much of the time they are in order to do the opposite, to keep weather *out*. As Neimanis and Walker (2014) explore in their work on weathering bodies, fabrics such as Gore-Tex act as barriers to help prevent bodies from a transcorporeal sense of active, viscous interaction with weather and climate. This research highlights the differences in the ways in which differently clothed bodies are put to use in thinking disconnection as much as connection. It is about entangling; and disentangling; about embodied relations and worlding practices; and ways of surviving, thriving and understanding in different atmospheric conditions.

Another way that fabrics can be thought of as practices of worlding and entanglements is by looking at the environmental life of fabrics and the political agency of the material. In their study of polyester fabrics, Stanes and Gibson (2017) understand clothing and fabric as always ‘in process’, from manufacture, to being worn and kept in cupboards and micro particle breakdown during washing, to the nigh on inevitable degradation in landfill. By seeing fabric in this way, we are provoked to consider the longitudinal material entanglements of manmade threads through social and environmental worlds, and their ongoing relations with – and without humans. When thought of in this way, the making, construction and degradation of become a temporary moment in an endless process of assembling materials, a partial stabilization and a fragile holding together that is always inexorably becoming something else, somewhere else” (2017). Therefore, in paying attention to fabric, materials and making practices, we are drawn to the entangled lives of materials that transcend their configuration as things or objects at a singular point in time (Crang et al., 2012: p73).

Making socio-material worlds

Making, arguably then becomes not just about original moments of production, but rather about extending and evolving discussions of the material lives of

objects which take into account their ongoingness, as they are patched up, repurposed and otherwise reused, in place of being discarded (Price and Hawkins, 2018: p234). Materials and their entanglements exist in unpredictable ways, decaying, breaking down, wearing and remaining agentic long after their initial purpose has been made redundant.

Understood this way, making practices are 'improvisation in the face of changing context', acknowledging that things do not come into being in a physical or temporal vacuum (Carr and Gibson 2015: p303). Or as Tim Ingold would have it 'makers work in a world that does not stand still (Ingold 2010: p93). In these understandings then, 'creativity' is imaginative innovation and 'artistic spark' coupled with haptic knowledge and the ability to alter processes, counteract errors and seize opportunities when they arise (Carr and Gibson 2015). In this line of thinking then, making is the product not (as Faiers 2014 describes knitting) of 'making something out of nothing', but the ability to work within changing material contexts in which materials are never simply a finished product (for instance the beautifully packaged ball of wool, or even the yet unworn jumper), but understood to always be in process. Thus, making becomes an informed study in compromise, with the skill of the maker a mediating factor, and decay a force for a 'collaborative interpretative ethic' beyond entropy (DeSilvey, 2006: p318).

Making, as Tim Ingold argues, is 'not a question of imposing preconceived forms on inert matter, but of intervening in the fields of force and currents of material wherein forms are generated' (Ingold 2010: p92); making, therefore is understood as a co-production of human (and arguably nonhuman) maker and material (O'Conner, 2006, Ingold, 2013, Paton, 2013). It is in this shuttling back and forth between the mind of the maker and the changing proclivities of the materials, in which objects can look like subjects and subjects can be acted upon like objects. Instead of subjects and objects, there are 'quasi-objects' and 'quasi-subjects', connected in relational networks (Cook et al., 2007, Gregson et al., 2010, Hudson, 2012, Ingold, 2010). This ontological thinking disrupts the stability of objects, and is particularly resonant in the context of the Anthropocene, where patterns, forces and material things are increasingly destabilised. Therefore, this reciprocal, relational way of thinking about making

becomes a skill by which 'to find the grain of the world's becoming and to follow its course while bending it to their evolving purpose' (Ingold 2010: p92); a way to stay flexible.

Making in the Anthropocene

Carr and Gibson describe 'the naming of the Anthropocene comes a moment of profound material crisis' (2015: p300). They argue that this then requires engaging with how humans manipulate materials, compose objects and construct economics around material things – as well as an imperative to think through how this might be done differently. The Anthropocene 'raises questions around what kinds of economies will become necessary and even desirable, in a future characterized by volatile weather events, ecosystem disruptions and resource scarcities' (Carr et al. 2018: p94).

Carr and Gibson (2015) argue that making skills offer an opportunity to consider one of the critical challenges of the Anthropocene: doing more with less. There has been a focus primarily on the impacts of large scale industrial production and waste practices the result of which means that the skills of sustaining the life of things, through repair and re-appropriation have been overlooked. Yet, they argue that 'across diverse maker cultures are people already equipped with the sensibilities and disposition to conceive of things-at-hand as only ever temporary gatherings of matter and idea, which can disperse and be reassembled elsewhere in new combinations' (Carr and Gibson 2015: p306).

These are everyday, amateur and vernacular activities carried out in domestic and small scale social spaces, but which hold the possibility for worlds otherwise. As Knott remarks (2015: p85) 'resourcefulness, the ability to experiment, management and delegation, the separation of tasks... are all rehearsed in amateur space'. This focus on mundane spaces is important he argues, because 'an amateur creates highly personal and idiosyncratic spaces that demonstrate particular and unusual relationships to production that nonetheless link back to the economic and societal reality from which the practice departs' (Knott, 2015: p45). Research on creative spaces and cities has

often had a bias towards large urban cities, despite rich creative practices taking place in rural areas (Harvey et al., 2012). Yet crafts are an important way in which regional understandings are made and performed (Thomas et al., 2013). Engaging with these scales of labour and making practices ‘illuminates an untapped reservoir of skill beyond ‘craft’ and outside of existing frames of climate change adaptation’, because of the ways they situate these local practices within the larger context of global environmental change (Carr and Gibson 2015: p 307).

There is some fantastic work on the embodied relations between makers and nonhuman bodies in taxidermy (Straughan, 2015, Patchett, 2017) and butchery (Ocejo 2014), as well as research which attends to the micro-geographies of other making practices, such as knitting (Mann 2018) surfboard making (Warren, 2016) and glassblowing (O’Connor, 2007). Making practices such as these have the potential to engage audiences with materials, and through this to a ‘material imaginary that foreground[s] situated matter, forces and atmospheres’ (Hawkins et al., 2015, p:336). Yet, there remains little research that situates embodied making practices in terms of the Anthropocene, even through this would appear to be an important area of study (Carr and Gibson, 2015).

Therefore, there is a need to pay attention to these micro-encounters of making, as well as making as they form a complex and critical part of the whole system of late capitalist consumption and how we understand our own position and agency within that (Carr and Gibson, 2015). However, it is also important to be aware of the less than positive aspects of making practices, Price and Hawkins (2018a) caution, the experience of making is not inherently positive, beneficial and desirable for all involved, therefore it is also crucial that ‘we attend carefully to exactly what kinds of transformations occur through making, through what practices, to whom and with what temporalities and spatialities (Price and Hawkins 2018a: p234). As Black (2017: p707) cautions, “for craft to be used as a tool of substantive social change, it must be engaged with in such a way that it does not become a mask for, and/or active agent in, processes of injustice, exclusion and privilege”.

Summary

In this second half of the literature review, I have focused on the idea of thready geographies. This has involved reviewing the literature on embodied making practices, in particular knitting. I then looked at the materiality of making, in particular the geographical literature on the way that materials breakdown, transform and persist as a way to situate the importance of understanding material practices, including fabrics as an Anthropocene concern. Finally I looked at the ways that making practices are understood to be productive of socio-material worlds, in particular in the Anthropocene and argued that this would appear to be an important area for further study.

Chapter 3: Methods

Introduction

Elizabeth Johnson, Harlan Morehouse and others (2016) argue that the Anthropocene is an age which needs experimental politics; on the one hand the binary between nature and culture is being broken down, and on the other we are forced to recognise the unintended consequences of our entanglements with nonhuman forces, chief among them fossil fuels. They 'propose that the value of the Anthropocene thesis for ecological politics lies in the space it opens for experimental socio-ecological practices. Nature no longer needs to be critiqued; the only questions now are what is to be done, and how' (Johnson and Morehouse, 2016: p444). In light of this, this thesis has adopted a methodological approach to three artistic case studies that mixed the study of other people's art works with the analysis of the creation of my own and its effects.

In this chapter, I discuss my methodological approach to 'thready geographies' in the Anthropocene; an approach that involved studying three thread based, participatory artworks which were designed to explicitly engage participants with the idea of environmental change and the Anthropocene more broadly. Importantly, one of the artworks I chose already existed, Bird Yarns, and had been instigated four years earlier, so my focus was on the longitudinal effects of this work. A second case study involved me designing and developing my own project. Whilst the third case study evolved during my fieldwork, so I was able to work with the artist, watch her at work, become a participant in the project as well as developing my own element of it.

The three case studies were participatory works, and as such the 'work' of the art here is less about the finished object and more about the processes of making and participating in the work. My empirical data is therefore more focussed on the processes involved in the participation in the artwork, than the final objects. This is why, for example, there are no images of the finished umbrella that was created in the Knit and Natter project. This focus on process

over final product also means that my research methods were concentrated around understandings of the participants' experience of engaging with the project and so they focus on my core methods of semi-structured interviews, focus groups, participant observation, ethnography and auto-ethnography.

This chapter will turn first to outline the case studies and their selection from a wider field of work in more detail, I will then turn to discuss the methods I used to gather data on the case studies, the analytic techniques I used on this data and then reflect on my choice of writing up processes.

Choice of case studies

In searching for these case studies, I had been keen to 'respond to a perceived demand (largely from scientists and policy-makers frustrated with the lack of public engagement and the concomitant failure of the deficit model) to understand what climate change means to so-called 'ordinary' people' (Brace and Geoghegan, 2010: p286). As part of this I wanted to hear from voices that are often underrepresented in climate (and other) literature, notably older working class women. Keen to enact a relational approach to making and thinking about environmental knowledges, again, I was drawn to Brace and Geoghegan's three suggestions through which to enable this to take place; firstly, one which does not insist on research participants distinguishing between anthropogenic and natural causes; secondly it acknowledges that an understanding of climate change is conjoined with other kinds of knowledge about the local environment; and thirdly that it allows different ways of knowing to play a legitimate part in framing a culture of climate change (Brace and Geoghegan 2010). A focus on the vernacular and the everyday also responds to calls both from the geographies of making and craft (e.g. Edensor, 2018, Price and Hawkins, 2018, Adamson, 2010) as well as work focussing on changing environments and the ways these are understood on a day to day level (DeSilvey, 2012, Brace and Geoghegan 2010).

With these ideas in mind, I decided to focus my attention on finding projects that would support these hybrid, political yet mundane and vernacular geographies of environmental change. I settled on a number of criteria for my projects; firstly, they must entail making. I am interested in the material qualities

and the agency of nonhumans and materiality, therefore, working with materials was a key concern (as opposed to say, theatre or musical practices). Secondly, they must have a focus on the mundane and vernacular, both in the skills they employ and in respect to the people who are able to become involved – that is, I am interested in non-expert knowledges and understandings of environments and environmental change. Thirdly, in studying the nature of entanglements and how they endure, there had to be a longitudinal element to the projects to understand change over time (and to be able to generate enough data worthy of a thesis).

Finding the case studies

I undertook a period of case study identification before commencing my research. I set up the Knit and Natter knitting group in January 2014 without an explicit reference to climate change or the PhD. Between January and July 2014 I researched different projects via gallery and organisational websites, social media (Twitter and Facebook) and local press for example, Cape Farewell's website, Tipping Point's website, Hackney Today newspaper, Time Out's website (Twitter 2006, Facebook 2004, Cape Farewell 2001, Tipping Point 2005, Time Out 2014). I found that due to the small scale of the projects, many only had a small online presence, if they were online at all. For example, if I were to do an internet search for "arts climate change projects, London" I would only get Cape Farewell and Tipping Point's events, most of which did not meet my criteria. I discovered that while there were projects that fitted my criteria in existence, they were most visible through community centre websites and posters, local interest group websites and through the online presence and social media of the artists themselves; the vast majority of which had already taken place. Due to these difficulties of finding projects, I then used my network of existing contacts of artists, environmental educators and community centres to find out about projects that were running. I contacted a total of four additional projects via email, phone and in person which did not meet my criteria.

During this time, I came to settle on the idea of thread based making practices, such as knitting and spinning as these practices were particularly well

suited to my criteria. Firstly, because they have a strong material focus – the use of threads. Secondly, the skills involved in thread based making practices (as I shall discuss in the empirical research) take time to develop, which out of necessity determined that many of these projects were longitudinal. Thirdly, thread based making practices are a particularly feminised form of making, particularly amongst older women, and again this resonated with my criteria to involve people who are often less visible in climate change discussions.

I began preparation for my fieldwork in January 2014 and it involved the following stages:

January '14 –	Setting up the knitting group
June '14	Researching suitable projects via websites, social media, printed media and word of mouth
July '14 –	Running the <i>Knit and Natter</i> project,
May '15	Researching suitable projects via websites and social media, printed media and word of mouth Contacting potential case studies
May '15 –	Maternity leave
March '16	
November '15 –	Attending <i>Linen</i> workshops
January '16	
March '16 –	Running <i>Linen</i> growing project on my street
August '17	Researching suitable projects via websites and social media, printed media and word of mouth Contacting and interviewing artists for potential case studies
September '16	Contacting key people for the <i>Bird Yarns</i> project

- November '16

November 2016 Two weeks fieldwork on the Isle of Mull for the *Bird Yarns* project

December '16 – Follow up interviews for *Bird Yarns*
January '17

As I have described, I set up one of the groups, and drew on my already existing personal networks and histories to find the other case studies. My identity as both an artist and a skilled knitter played a large part in finding the case studies as well as their production and process. This resonates with a recent turn in geographical scholarship on making whereby geographers are not only studying other's making practices, but are also drawing on their own skills, personal histories and interests outside of academia, blurring the boundaries between that which has traditionally been seen as 'private hobbies' and 'academic careers' (Carr and Gibson 2017). I now turn to describe my artistic practice that brought me to studying this thesis and situate my artistic involvement in the case studies.

My Art Practice

I studied sculpture at Brighton University for my undergraduate degree graduating in 2005, my artistic interests focussed heavily on the relationship between art and science. My BA degree show looked at migration patterns of turtles and the ties between humans, nonhumans and places through journeys and stories. My dissertation looked at quantum mechanics and entanglement through the work of two female artists, Sophie Calle and Tacita Dean. After leaving university, my practice focussed on the connections between people and environments, as a way to highlight environmental change and promote more ethical, caring ways of being in the world. And during my postgraduate diploma I started thinking about art as activism and as action, making and works to encourage viewers and participants to think and act in such a way as to care for the local environment; which included planting bee friendly flowers in the city

and cycling in the centre of the lane to hold up traffic crossing Tower Bridge to prevent the vibrations from further damaging the historic structure. These practices, particularly the latter ones had been predominantly about the facilitation of ‘activities’ in which I involved people in the making, production and *doing* of the work.

My more recent artistic practice (from around 2009) focussed on participatory practices, which invited people to be a part of the work; the work therefore was more about their participation and involvement with the piece than it was about the making of an object. By the time I started the PhD in 2013, I had become experienced in facilitating participatory art projects.

Over the same period, I had taken up knitting more regularly. I had been taught to knit by my mother as a child, but it wasn’t until I moved to London in 2007 that I started knitting regularly. I knitted almost every night from the summer of 2007 to the spring of 2015, so by the time I began the PhD I was a relatively experienced knitter. I had set up two knitting groups previously, one in London in 2010 and one in Brighton in 2012, and had frequently attended ‘stitch and bitch’ groups in London.

The Case Studies

All three of my case studies concerned thread based making skills and environmental change. In this section, I detail how I became involved in each of them and what I did.

Bird Yarns

September 2016	Contacted key people involved in the project; those people who worked in the gallery, who ran the Woolly Wednesdays knitting group and the artist.
November 2016	<i>Fieldwork on Mull</i> One focus group with the Woolly Wednesdays knitters Attended two Woolly Wednesdays knitting sessions Six semi structured interviews with gallery staff

	Five semi structured interviews with people who had participated in the initial project
	Sixteen hours of participant observation at the gallery over eight days
December 2016	Two semi structured interviews with artist Deirdre Nelson
January 2017	One semi structured interview with Deirdre

I had previously written my master’s thesis on *Bird Yarns*, for an MSc at Sussex University in 2012. I had used questionnaires and Q-method, followed by statistical analysis to compare the two methods as to which was most suitable for evaluating the impact of the artwork on visitors to the exhibition, published with my then supervisor, David Ockwell as ‘participatory arts and affective engagement with climate change: The missing link in achieving climate compatible behaviour change?’ (Burke et al. 2018). From this research, I had kept in touch with Deirdre, and some other residents of Mull. I drew on these already existing networks of contacts and my prior knowledge of the artwork as a base with which to develop the research for the PhD.

Between 2012 and 2016, the *Bird Yarns* artwork had been exhibited across the UK at seven different galleries. In November 2016, it was exhibited back on Mull where it had initially been made. I travelled to Mull for two weeks to conduct interviews, focus groups and participant observation with those who were previously and currently involved in the project. I met Deirdre to interview her about the piece on three separate occasions in London.

Knit and Natter

July 2014	Focus group with knitters
August 2014	Afternoon trip to London Wildlife Trust that I facilitated.
September 2014	One two hour decision making discussion about what to make following the trip, which I facilitated
September 2014 – May 2015	Facilitation of making process, ethnography. Approximately thirty, two hour long sessions each week over nine months

	(with a two month break due to cancer diagnosis).
May 2015	Focus group with the knitters

After finishing my masters and starting my PhD, I worked as an energy advisor in the Redmond Community Centre in Hackney, North London. Part of my role was to knock on doors on the estate in which the community centre was situated and offer energy saving advice. Through this work, I met a lot of people in the area, many of whom were over sixty as part of the remit of my job was to target older people who were likely to be in 'fuel poverty'.

Many of the women who lived alone, had expressed a desire to have more social activities in the community centre suitable for them, and so it was a combination of this perceived desire for social activities and my own keenness for knitting that I decided to set up the knitting group. The group took place every Monday evening in the community centre from 5:30pm to 7:30pm. I had set up the group with the idea of doing a project with them for my PhD research, although at the time I began running the group, I did not have a clear idea of what the project would be.

Over the time between January 2014 and July 2014, an art student named Holly Morris also attended the group. She was interested in my research and in June 2014 invited the group to knit life sized bricks in order to make a map of the area visualising fuel poverty rates as part of her master's final show at Central St. Martins School of art.

As the knitting group became more established, they expressed a desire to work on a collaborative project, as well as, separately, to go on a trip. From these discussions with them, I suggested that we go to the local nature reserve and knit something as a response to the trip (which I discuss in the chapter). The local London Wildlife Trust's nature reserve 'Woodberry Wetlands', is located approximately 500m from the community centre. I had got to know the reserve itself and the staff well over the time I worked in the community centre, and I was able to use these contacts to make arrangements for the knitting group to visit the nature reserve before it was officially opened to the public.

Following the trip to the nature reserve, I facilitated discussions about how to make a piece of work that would represent the impacts of climate change

the knitters felt strongest about, and acted as artist and project facilitator at approximately thirty weekly sessions over the period from September 2014 to May 2015. This case study drew most heavily on artistic methods, and participant observation to gain understandings of the experiences of the knitters in the practices and processes of making a participatory artwork.

Linen

March 2015	Contacted artist Kate Poland, two semi structured interviews with Kate and Natalie Mady
April 2015	Two semi-structured interviews with participants
May 2015	One focus group with participants
November 2015	Attended three spinning workshops in Bromley by Bow, Highgate and Hackney, participant observation
December 2015	Attended two spinning workshops in Hackney and one in Islington, participant observation
April 2016	Advertising and preparation for growing project on my street
May 2016	Facilitated growing session, auto ethnography, participant observation
May to July 2016	Tended plants, auto ethnography
August 2016	Spinning workshop on my street, participant observation

Artist Kate Poland and her assistant Natalie Mady who ran the *Linen* project also ran other plant themed workshops located at the Redmond Community Centre. I had met Kate at a number of different community events, and it was through my contact with her that I learnt about the *Linen* project.

The spinning workshops took place in the autumn and winter, after the flax plants had grown over the summer and been harvested. Because I found out about the project in the spring of 2015, there were no workshops that I could immediately get involved in. Therefore, I focussed my attention on interviewing the artist, her assistant, and key participants as well as running a focus group to ‘get a feel’ for the project. Over the autumn and winter of that year, I participated in five spinning workshops across London. The following spring and summer, I

set up a small community garden and grew flax with my neighbours, followed by a spinning workshop facilitated by Kate.

In this case study, I was a participant in the project. As I only played a minor facilitating role (in setting up the community garden), I was able to immerse myself in the experience of making and the process of being a participant in the artwork more fully than the other two case studies. This case study draws most heavily on auto-ethnography and my own experiences of making with others.

Ethics

Before beginning my research I conducted a risk and ethics assessment in line with the requirements of Royal Holloway's geography department. I informed all participants of my research, and asked them to fill out a consent form. Where children under sixteen were present, their parents or guardians filled in the forms on their behalf. This form included their consent for their photographs to be used. In line with standard academic procedures, I have used pseudonyms for all participants. I have used the artist's real names, with consent, in this thesis. They are named by both first and surnames at first mention, and after that are named by first name alone. I have chosen to use their first names because the nature of their work determines that their informal presence and personalities are crucial to the processes of the work and therefore this more informal naming is most fitting for discussing their role in the artworks.

The Methods

Participatory methods

My research builds on participatory research methods from both geography and art; the methodological innovation in the thesis comes from the relation between these two disciplines. While there is a strong tradition of participatory research within geography, I make no claims to be a participatory geographer. Rather, the participatory elements in my research draw more

strongly from participatory arts practices, where, as discussed earlier, art works cultivate certain kinds of participation. I chose to draw upon artistic research methods most notably because this is where my expertise as an arts practitioner comes from.

Participatory art is no longer understood to be a discrete form of art practice, but rather it is understood that different types, modes and works of art have participatory elements, in a more diffuse sense (Hawkins, 2015, Bishop, 2012). It is often considered to combine, for example elements of community art, site specific art, as well as what has been called relational aesthetics (McNally, 2017). Using art in this way is also an exercise in putting into practice ways of unsettling traditional hierarchies of different social science methods in relation to environmental change. For example, experiments in putting political science, design and art on a more equal footing is a way to redress the highly asymmetrical situation in which economics is the principal method for 'the socialisation' of environmental change (Asdal and Marres 2014).

Much of the focus on participatory art practices within geography has focussed on human participation, rather than material or nonhuman agency and participation in artworks. Recently, geographers have attended to different kinds of nonhuman participation in participatory artworks, for example: Danny McNally's (2017) work on the material affect of a sculpture in east London; Mrill Ingram's (2013) work on the agency of plants and water in an art project in the Bronx; and Hawkins' et al. (2015) work on the materiality of artworks in regard to sociological transformation. However, this is still a small body of research, and so the next section considers the ways in which nonhuman participation is being integrated into geographical research through creative methods by looking to the emerging body of more than human participatory research.

Michelle Bastian (2017) describes how nonhuman participation in research can be roughly divided into two divergent (albeit interconnected) camps. Firstly, that which regards nonhumans as key agents in multispecies worlds and seeks to meaningfully account for them in analysis; their contribution being predominantly understood as their presence in more than human life-worlds. Secondly, participatory research which seeks to include the

active participation of nonhumans through the design of methodologies via which they can interact with the research itself, ideally on their own terms.

Throughout this thesis, I participate, foster and facilitate human, and at times non-human participation in the three artistic case studies. The nature of nonhuman participation in my own research falls mostly within the first camp (that of analytically accounting for nonhuman contributions as a way of unsettling traditional binaries of human/ nonhuman, subject/ object). These different kinds of participatory practices enable me to explore different kinds of participation in different settings with different humans and nonhumans; in *Bird Yarns* as an observer, in *Knit and Natter* as an artist facilitator, and in *Linen* as a participant. I found the work of Michelle Bastian particularly inspiring for the design of my own research, which I will describe in the next section.

Michelle Bastian describes methods for exploratory workshops within the AHRC's 'Connected Communities' programme, which has a particular focus on participatory research with more than human communities (Bastian, 2017). In order to decide upon the kinds of research and workshops they would undertake, they took inspiration from Gibson et al.'s (2015) suggestion to 'support diverse ways of knowing' (Bastian, 2017: p4). Within this project, they avoided a focus on academic presentations and opted for hands on, practical workshops in order to learn from the nonhuman participants (and human intermediaries). These activities included inspecting beehives, wild swimming and woodcarving; the nonhuman participants in these cases being bees, a river and a forest. This focus on the experiential and a commitment to trying to understand worlds from nonhuman points of view was important in the design of my own case studies.

Bastian et al. (2017) draw on a paper by Jarg Bergold and Stefan Thomas (2012) to summarise the core features of a geographic participatory approach in relation to more than human worlds. This provided a basis around which I could frame and analyse the different forms of participation in each of the case studies. Their four suggestions to move participatory research towards more than human research are: firstly, expanding life worlds, that is research which more explicitly recognise the nonhuman actors that participate in human life worlds;

secondly, supporting cognitive estrangements, by inviting researchers and participants to step back from familiar routines and interactions in order to question and rethink situations. Thirdly, challenging assumptions of competency, within participatory research there is a long history of rejecting claims that certain groups lack the competency to participate in research. The issue of competency challenges researchers to reconsider their own competency and develop capacities to enable different groups to participate. Because of the nature of my work, I am mostly concerned with the human competencies, but of course acknowledge how others could also be concerned here with the nonhuman competencies. Finally, designing methods for inclusion requires the further step of developing methods and frameworks, which are suitable for working with a research partner in light of their specific capabilities and needs.

These four suggestions, and their relationship to wider literatures on participation discussed earlier, have shaped my approach to participation in terms of both how I view my methods, the questions I ask of participation and the forms and kinds of participation I am interrogating within these art works. I now turn to consider how these four methodological considerations into the types of participation are relevant to each of my case studies.

Within *Bird Yarns*, firstly, in thinking about ‘expanding life worlds’, in order to consider the different of life-worlds of the nonhuman participants in the project, I paid careful attention to the interaction of other nonhuman creatures within the project itself. Although the knitted birds were made of sheep’s wool, I omitted researching on the material participation of the sheep as this had already been well documented by Hawkins et al. (2015). Instead, in order to expand the kinds of life worlds I considered in the work, I tried to concentrate on the presence and actions of other nonhumans in the project.

Secondly, in considering ‘supporting cognitive estrangements’, I timed the research to coincide with an exhibition of the birds the knitters had made four years previously. Although the knitting group was a familiar part of their weekly routine, they hadn’t seen the birds they had knitted since the initial exhibition. The duration since making the birds, and seeing them in a gallery context, rather than in the knitting group was a prompt to encourage the human participants to

think about the situation and the birds in a different way; giving them distance and a new perspective on the birds.

Thirdly, in order to 'challenge issues of competency', I tried to include different kinds of participants in the research, I spoke to different people involved in the project in different ways, and in the chapter, I reflect on the role that skill plays in the working of the project, including my own skill and the role this played in my acceptance to the group. The competency of the knitting group was primarily human-focused, however, I tried to counter this by focussing a section of the chapter on the unravelling and destructive work of the clothes moths.

Finally, considering how the methods were designed for inclusion was slightly more challenging as the participatory methods for the project had already been determined; my role was mostly as an observer of the project. This meant that I did not have the opportunity to design particular methods for the inclusion of other participants. However, it did give me the opportunity to reflect on how the design of the project affected the forms of participation.

Within *Knit and Natter*, my participation was that of artist and facilitator. I organised the knitting sessions, designed the project and therefore my own participation in the project was one of the organiser.

Firstly, I attempted to 'expand life worlds', by considering the role of materials and their lively histories in the project. The project also encouraged the human participants to take an active role in their own local environment as a way to better understand the locality they live in. Secondly, to encourage the human participants to step back from their familiar routines and 'support cognitive estrangements', the project took them out of their usual places, and took them on a trip to see a part of their local environment that they do not normally have access to. By doing this, both myself as a researcher and the participants were encouraged to 'slow down' and pay a different kind of more sustained, slower, attention to the places with which we thought were familiar.

Thirdly, a large part of the methodological design of this project was to encourage an artistic, creative response to the idea of climate change and thus 'challenge issues of competency'. Many of the participants themselves believed

they were either inartistic or uncreative. The set up of the project was then to encourage them to reconsider the ways that they could in fact be creative and artistic through the medium of knitting; this acted as a 'spring board' for beginning creative conversations around practices in which they were already confident in their ability. This therefore expanded their view of their own competencies. While this worked well for the human participants, I found it difficult to meaningfully include – or narrate the competencies of – nonhuman participants (such as the slugs, mice, toads and materials), who became something of 'inspiration' for the human participants, rather than meaningful contributions based on their own abilities.

Finally, in the design of the participatory research methods for the knit and natter group, I primarily focussed on the inclusion of marginalised human groups, notably elderly, working class women and designed my methods around enabling their inclusion. These women do not have much a voice in contemporary debates around climate change, and this research was an exercise in including them. The research for this project took into account the different roles that materials and nonhuman creatures played in the social world of the knitting group, however, I found myself drawn back to describing the interaction of these nonhumans as they affected the human dynamics and found it difficult to meaningfully decentre the human throughout the project.

In my final case study, *Linen*, I researched a project ran by another artist, Kate Poland. In this context I was a participant in the project, but I also ran my own section of the project by setting up a small community garden in which to grow flax seeds.

Firstly, in order to explicitly consider how life worlds had been expanded within the project, my role as a participant, rather than facilitator or observer, enabled me to use auto ethnography to consider my own place in the project alongside and interacting with other humans and nonhumans. Secondly, in order to 'support cognitive estrangements' and invite researcher and participants to step back from our familiar routines, I initiated a growing project on my street with my neighbours. This invited my neighbours to experience their street in a new way by growing and tending to plants in it. The project overall, as designed

by Kate invited people to experience flax plants and subsequently linen as a material in a new way by learning how to grow and make linen. In this way, the participants learnt to rethink daily interactions with fabric, clothing and plants in new ways.

Thirdly, 'issues of competency' were particularly pertinent in this case study given the range of physical skills required at various stages. Although I am a competent knitter, I am an inexperienced gardener and spinner. My lack of competency in both of these skills was a very different to the previous two case studies. It served to alert me to the difficulties of learning new skills and functioned as a way to equalise the power dynamics that were more apparent in the other case studies. What I found interesting about this case study was that because it was using skills that had not been in common practice for generations, it alerted all involved to the competencies humans are missing with regard to ways of interacting with nonhuman plants and nonhuman processes.

Finally, the 'methods for inclusion' in this project were primarily designed by Kate. The workshops she designed aimed to be inclusive for many different capabilities of human participants. The nonhuman participants were able to interact with the project in the growing phases (the worm) and the spinning phases (the linen), as I wrote the project I tried to take into consideration the participation and the competencies of these different participants. Although again, I found it a challenge to not get pulled back into a western, human centric point of view, the project was designed primarily around human interactions with nonhumans, and the labour and care involved with this from the humans.

Semi-structured interviews

Each of the case studies involved semi-structured interviews, as detailed in the tables above. I mostly interviewed the artists, organisers and occasionally other participants. For the most part, I interviewed the artists and organisers of the projects as a way to understand the larger context into which the project fitted and to situate the more detailed ethnographic encounters.

The interviews and focus groups were recorded as sound recordings on my phone as I found that the presence of a mobile phone on the table to be less obtrusive than my Dictaphone. All of the interviews were semi-structured. I prepared in advance key topics that I wanted to cover. I aimed for open ended questions that allowed the interviewees to expand on the topic in their own way (Longhurst 2003). At the same time, I allowed the conversation to evolve and follow unexpected avenues where this seemed most interesting and fitting. After the event, I listened to the recordings and transcribed key parts of the dialogue, for other parts I took detailed notes that informed the analysis. My choice of interviews draws on the ethos of multispecies research, which use methods such as interviews and ethnographies to get at the different kinds of relations that are made through human-nonhuman interactions. I was inspired by the importance of the site for conducting interviews about multispecies encounters.

It is logical to discuss relationships to a place in that place so the environment can more directly show the knowledge it holds (Anderson, J. 2004, Anderson et al. 2010). Different settings offered different affordances to different kinds of interactions within interviews. Elizabeth Power (2005, 2009) interviewed homeowners and asked to be shown around their homes while they talked about the presence of racoons and possums in their houses and how they navigated these relationships. Franklin Ginn (2013) and Paul Hitchings (2003) interviewed gardeners in their gardens in order to understand the complexity and dynamics of human-slug and human-plant relationships. The environments in which these interviews took place were important as it inspired and provoked different kinds of conversations about the things that were present.

All of the Bird Yarns interviews, except three with previous participants, and the three with Deirdre, took place in the gallery itself, the birds providing a backdrop and a stimulus for interviewees' memories. I found that the location had an impact on the topic of conversation; for example, with local resident Morven, with whom I conducted a walking interview in a local nature reserve on Mull, about the *Bird Yarns* project, we spoke more about the terns themselves, and the environmental threats to them (mink predation, declining sand eel populations), although in the end this didn't feature strongly in the final thesis.

The interviews I conducted with Kate and Natalie were conducted in the community garden they ran together. Talking in the garden allowed things such as plants to provide prompts (Hitchings and Jones, 2004) and encourages discussion of a place's features (Evans and Jones, 2011: p856). With Deirdre, we walked in the local nature reserve, the experience of walking together 'harnessed the empathetic sociability of stepping in rhythm and sharing a route' (Pink, 2009: p76) and the lack of direct eye contact 'eased the encounter' (Anderson, 2004: p258). Combined, these qualities enabled a sociable and friendly open space with which to talk about the project and our feelings around it.

Each of the interviews was recorded on either my phone or a Dictaphone. I would also keep notes made during the interview and immediately after the interview, that include reflections. I then followed up with writing notes on the interview, details of the environment, the atmosphere as well as key themes and thoughts immediately after the interview. Following the interviews, I listened back to the recordings in their entirety, made notes on the key points, and transcribed the most relevant sections for later coding. I detail the process of analysis and coding for all the material below.

Focus groups

I conducted focus groups with key participants of the projects; focus groups are led by a moderator, who introduces the topic and facilitates the discussion. Since each of the projects that I was studying involved participants working in groups with other people, the creation of social relations, both human and nonhuman was a core aspect of all of the case studies. Therefore focus groups were fitting because they were able to generate data with a collective quality that goes beyond opinions expressed by a single individual (Brown 2016). Like the semi-structured interviews, I had a series of topics that I wished to cover over the course of the discussion which were designed to be open ended enough to allow group conversations to evolve.

I conducted the focus groups with groups of people who were already used to working together and already knew each other. For the majority of the focus groups, I used the knitting group as a 'ready made' group. The exception of

this being the *Linen* focus group, which was conducted with people who had attended the workshops previously. In order to turn an informal 'knitting group' into a 'focus group', I told all the participants in advance that I wished to organise a focus group and asked them to come to the site of the knitting group at a pre-determined time (usually before or after the normal session) in order to be a part of the focus group. I conducted two thirty minute focus groups with the *Knit and Natter* group, one thirty minute focus group with the *Bird Yarns* knitting group, and one hour and a half focus group with participants of the *Linen* project.

Like the interviews, each of the focus groups was recorded on my phone or a Dictaphone. I would also, like the interviews, write scratch notes at the time as well as immediate notes after then event that described the environment, atmosphere and key themes that emerged. I then listened back to the recordings, made notes on the key topic during the whole focus group, and would transcribe the most relevant sections. This then enabled me to refer back to the material and develop analytical codes and structures from which I developed my arguments presented in the thesis. I will discuss my analytic processes for all the material in more detail below.

Through my participant observation I found that participants were very unlikely to start discussing environmental change, climate change or the Anthropocene, and so in order to get a feel for the group's knowledge of and attitudes towards environmental topics, the focus groups were particularly fruitful in being able to steer the conversations around to these topics. As Wilkinson (1999) points out, one of the benefits of a focus group is that the discussions allow the participants to ask questions of one another and the group dynamics can take the discussions in unexpected ways. I found this to be the case, and I discovered that the questions the participants posed to one another were different to the ones I would have posed to them. Their questions often revealed as much as their answers, for example when I asked the *Knit and Natter* group about climate change, they began to ask one another about how their recycling was collected, demonstrating a slippage in their understandings of the relationship between climate change itself and wider environmental issues.

Ethnographic methods including auto ethnography

Ethnographic Approach

Ethnography, as Karen O'Reilly describes, 'understands social life as the outcome of the interaction of structure and agency through the practice of everyday life' (O'Reilly, 2012: p1). It draws on a family of methods including participant observation and conversation and in doing so, 'respects the complexity of social worlds; and therefore tells rich, sensitive and credible stories' (O'Reilly, 2012: p23). Bronislaw Malinowski is often considered to be the founder of modern social anthropological methods of fieldwork and participant observation that have become known as ethnography (Macdonald, 2001, in O'Reilly, 2012: p25). However, Tim Ingold argues that ethnography is not anthropology, which he sees as a different scholarly endeavour (Ingold 2008a in Pink and Morgan). Indeed, 'ethnography tends to become shaped by the discipline it is being engaged through, and this in itself makes it rather slippery to define' (Pink and Morgan, 2013: p352).

Ethnographic methods have been incorporated into geography since the 1970s as a way to articulate the complexities of people's experiences of everyday social and cultural processes – and something of a reaction to the positivist approaches of the day, which overlooked these components (Cragg and Cook, 1995). In order to define ethnography, Hammersley and Atkinson (2007) focus on what ethnographers do, noting that 'ethnography usually involves the ethnographer participating, overtly or covertly, in people's daily lives for an extended period of time, watching what happens, listening to what is said, and/or asking questions through informal and formal interviews, collecting documents and artefacts - in fact, gathering whatever data are available to throw light on the issues that are the emerging focus of inquiry' (Hammersley and Atkinson, 2007: p3).

The ties with anthropological ethnography, geographical scholarship and wider cultures of 'field science' have often fostered assumptions that empirical research happened in a particular, bounded place, distanced in some way from the academy; indeed, 'fieldwork' carries with it particular imaginations of 'the field' (Cragg, 2003). Postcolonial and other critiques have challenged such

imaginings, portraying the field in more relational and mobile terms. Many communities, such as the ones that I study, are spatially dispersed and many are occasional or intermittent; thus the constant 'immersion' suggested in any anthropology texts will not be possible (Radway, 1998 in Crang and Cook, 1995: p23). It is therefore highly likely that a researcher 'can be doing participant observation on some days of the week and 'ordinary' work on another' (Crang and Cook, 1995: p23). Mike Crang and Ian Cook (2007) advocate for something of a practice based approach to doing ethnography within geography. Rather than attempting to follow a 'read, then do, then write' model, they suggest ethnographers adopt a grounded, process oriented manner that recognises the 'deeply entangled set of relationships between field and academy' (Crang and Cook, 2007: p207 cited in O'Reilly 2012: p44). This is strongly reflective of my own ethnographic experiences, where it became clear that the boundaries between the research as my knitting, my written research and personal life were somewhat blurred. For example, during the time when I was running the knitting club, the knitters would often be in text contact with me, asking about the next sessions and plans as well as asking about how my studies were going and even my health and hospital appointments. It was a constant dipping in and out of 'field' rather than a strict boundary.

Ethnographic research in geography has been used to understand a multitude of different areas from medical advancement (Savage 2000) to self-harm (Adler and Adler 2007) and domestic violence (Brickell 2015). It is not my intention to offer a summary of all ethnographic work in geography here; instead I will focus on the types of ethnographic research that intersect with my own research practice. This section is divided into three subsections; firstly multispecies ethnographies, secondly, the geographies of making and thirdly the geographies of participatory art.

Multispecies ethnographies

Ogden et al. (2013: p6) describe multispecies ethnography as 'a project that seeks to understand the world as materially real, partially knowable, multicultural and multinatured, magical, and emergent through the contingent

relations of multiple beings and entities'. Like human centred ethnographies, multispecies ethnographies rely on immersion in social worlds, and the narration of this experience, of which Dominique Lestel (quoted in van Dooren, 2016: p8) reminds us 'that multispecies studies scholars have also highlighted the promise of writing narratives that are rich with anecdote, metaphor, and figuration'.

Unlike traditional ethnographies, multispecies ethnographies seek to integrate the life-worlds of creatures that have previously been relegated to the background of human lives, either as part of the landscape, as food for humans or as symbols (Kirsey and Helmrich, 2010). This is aligned with Eduardo Kohn's 'anthropology of life', which 'is not just confined to the human but is concerned with the effects of our entanglements with other kinds of living selves' (Kohn 2007:4). Ogden et al (2013) note that although research practices differ for different ethnographies depending on the context and species involved, there is a commitment to choosing research sites which foster multispecies encounters, which Haraway has called 'contact zones' (Haraway, 2008).

Within these 'contact zones', researchers immerse themselves in differently, interconnected life-worlds and scholars have aimed to 'provide 'thick' accounts of the distinctive experiential worlds, modes of being and biocultural attachments of other species' (Van Doreen, 2016: p6). Anna Tsing (2013) argues that our humanness is not a limiting factor in our involvement with more than human worlds, but rather it is the starting point for which we are able to interact with worlds of which we are a part. As she puts it, 'we are participants as well as observers; we recreate interspecies sensibilities in what we do ... [We learn about other species] and ourselves in action, through common activities' (Tsing 2013: p24). Therefore, these multispecies ethnographies have a high degree of participation, as the researcher is an active participant in the making of the more than human social worlds of which they are a part.

In their methodological paper, Pacini-Katchabaw et al. (2016), describe the ways they attempted to put into practice, the slow, attentive kind of applied research that Isabelle Stengers has referred to as 'collective thinking in the presence of [nonhuman] others' (Stengers, 2005a: p1002). In their research, they

write about the interactions of children and nonhumans who come into contact with one another in a day care centre, these interactions have included earthworms and possums. They note how difficult it is not to revert back to thinking in human centric terms, but in attempting to do such a thing, they 'learn how to be present in a world that is not just about us and to recognize that there is much about this world that we never understand.' Pacini-Ketchabaw et al. (2016: p152).

I found these multispecies ethnographies to be inspiring for my own methods as they took seriously the integration of different nonhumans into research contexts. These methods, in particular the work of Pacini-Ketchabaw offered practical tips for thinking about human – nonhuman relations, for example, when thinking about the children in their research, they make a large effort to not see each event as simply a learning event for the children, but to consider the event as it plays out for the nonhumans within the interaction too. In this way, nonhumans, materials and environments become more than simply a 'backdrop' to human events. I found these studies useful for the ways they do this in a practical, rather than a theoretical sense. For example, Gibson (2018) describes how she used senses of touch, smell while walking and sitting with plants as a way to 'get to know' plants in a material, bodily sense.

Geographies of making

Recent interest in the geographies of making, crafting, DIY, repair and skill that uses ethnographic methods is burgeoning (Price and Hawkins, 2017, DeSilvey and Ryan 2018, Warren and Gibson 2014). Within this, there are critical engagements with making practices and vernacular skills within the creative economy (Harvey et al. 2012); and others which focus more predominantly on in depth studies of skilled practice, labour, work(wo)manship, enthusiasm and experience of working with material (Adamson 2007, Crawford 2009, Ingold, 2013, Sennett, 2008, Thurnell Read, 2014, Warren and Gibson, 2014).

Although many researchers draw on ethnographic methods as a means to study the kinds of labour involved in making things, Noel Castree (2007) and more recently, Chris McMorran (2012) have pointed to the tension within

geographers studying issues of work and labour at a distance, with Castree commenting that researchers may often 'study labour issues without getting involved in them' (Castree, 2007: p857). McMorran (2012) too argues that although there is a flourishing interest in embodied experience, this appears to have often overlooked the physical bodies that are doing the work. Accordingly, McMorran (2012: p490) has called for 'more working participant observation' to fill the void.

This 'working participant observation' as described by McMorran marks a shift from traditional concepts of ethnography, which Carr et al. (2017), describe as 'increasingly codified in the contemporary university in terms of interview methodologies and scripts of questions approved by ethics committees, to more fluid conceptions of research encounters that involve participant observation over extended periods of time' (Carr et al. 2017: p3). As Carr et al. (2017: p3) go on to argue, these 'fluid conceptions of research encounters' often involve research into individual's experience of making with materials and other people.

In many making practices, the physical task at hand, be that spinning, knitting, maintaining tension, fixing knots and untangling knots are often much more difficult than they appear when watching an expert performing them; actually performing physical tasks can often be revealing in ways that cannot be imagined before attempting them (Carr et al. 2017). As they and others, such as Patchett (2016, 2017) observe, auto-ethnographic descriptions of what it feels like to attempt, struggle and sometimes fail to make things can offer insights into the material processes that would be impossible without this kind of physical 'fieldwork'.

This kind of work resonates closely with nonrepresentational ethnographic methodologies. Where traditional and realist ethnographies aim to represent their research subjects as a faithful rendition of the world 'as is' (H. Lorimer 2008); nonrepresentational ethnographers 'consider their work to be impressionistic and inevitably creative, and although they are inspired by their lived experiences in the field, they do not claim to be able, or even interested, in reporting on those in an impersonal, neutral, or reliable manner' (Vannini 2015: p318). Vannini (2015) describes five aspects of this type of ethnographic research; vitality, performativity, corporeality, sensuality and mobility.

In the case of making, the interaction between materials, practice, bodies, senses and movements, and in my case including within this the nonhuman, makes these nonrepresentational ethnographic research methods particularly pertinent. Research that not only bears witness to, but also brings together materials and bodily practice can offer insights into ways of understanding the performativity of making practices. In these kinds of research practices, the researcher is necessarily affecting and affected by materials, their own bodies and the co-presence of others (Vannini, 2015). However, the risk with some nonrepresentational accounts is that the methods can remain opaque, and to date somewhat disengaged from the communities of practice surrounding contemporary forms of work (Carr et al. 2017).

Elizabeth Straughan (2015) describes in detail the sense of working with her body as she learns taxidermy, and in particular how the sense of touch is of primary importance to understanding the processes she studies. She describes how the process of learning is 'predicated on the sense of touch— the ability of the hands to feel and work with texture, tensions, and frictions— and the capacity of muscles and tendons in the human hand and arm to pull, push, and twist' (Straughan, 2015, p: 364). Even when crafting practice is performed in an awkward or unskilled way, there are insights to be gained, perhaps even more so when clumsiness and ineptitude are foregrounded (O'Connor, 2007).

Individual makers rarely work alone with their materials; therefore auto-ethnographies of making necessarily include not only the physical practice, but also their wider contexts. This may include the ways in which the maker interacts with the environment as well as the other people who are working with them, or indeed teaching them skills. For example, Erin O'Connor (2007) documents his frustration with the limits of his skills learning to make a glass goblet, but also notes that in order to account for 'the body of the practitioner, we must also bring an account of the body, or bodies, with which he or she works – whether glass or other blowers' (O'Connor, 2007, p138).

Like the multispecies ethnographies, I found this work helpful in describing the detail of research practices. These thick accounts of bodily experience and material practice, gave me an insight into ways to both research

and write my own research. This was particularly the case in Linen, where I used my experience as a maker and project participant to understand the human – plant relations in a bodily sense.

Geographies of participatory art and artistic methods

I have looked at ways in which geographers have utilised, in particular nonrepresentational ethnographic methods as a way to understand the embodied practices of making. However, this thesis also works with participatory art both as a practice and as a method. I firstly turn to the ways in which geographers have used participatory art as a method. I then look to address some of the ways in which ethnographic practices have been central to wider geographic studies of art.

Participatory arts methods

The use of participatory art as a method within geography draws on approaches established by participatory action research as a way to make voices and perspectives of participants tangible in a visual form which enables scope for new understandings that are otherwise hard to come by if the researcher relies solely on textual or linguistic communication (Tolia-Kelly, 2007). Tolia-Kelly argues that this ‘adds scope for unexpected, or new grammars (...) and new vocabularies that are sometimes inexpressible in other contexts’ (Tolia-Kelly, 2007: p 132). In this context, art is understood to take on some form of ‘unique communicative and social power’ (Cieri, 2004: p2, cited in Pain, 2004), offering ‘spaces of self-representation and articulation’ for less visible groups (Herman and Mattingly, 1999: p210).

Participatory art – as method for geographical research takes a range of forms. Most often we see geographers working alone, or in collaboration with artists, to use creative practices (usually (but not always) visual practices of drawing, film and photography) as the means to evolve data with participants (Askins and Pain, 2011, Tolia-Kelly, 2007). Increasingly popular with geographers, have been methods of theatre making and story telling (Nagar,

2013, Raynor 2017). The focus, as these researchers and critical commentators on this work have made clear, is not only on the production of the creative outputs, but what happens in the process of these creative 'doings' (Hawkins, 2019). Here attention is paid to the ways in which arts methods enable access to different kinds of data such as emotional topics that are hard to talk about, for example, experiences of trauma or topics that are culturally taboo, such as domestic violence (Brickell 2015). These methods are also often understood as valuable to engage research subjects who might not normally be part of research methods, such as children, or to those research issues that might not easily be put into words, such as sensory experiences or life worlds (De Leeuw and Hawkins, 2017, El Khouri and Pearson, 2015).

Participatory art as geographic method draws on the nonrepresentational ethnographic methods described above, with geographers collaborating with artists (e.g. Foster and Lorimer, 2007), using their own skills and hobbies 'outside of the academy' to bring these into conversation with academic discussions (Warren and Gibson 2014, Carr et al. 2017), working as curators and collaborating with artists (Lovejoy and Hawkins 2009). Although many of these do not label their work as nonrepresentational ethnographies, the key themes of vitality, performativity, corporeality, sensuality and mobility reoccur in this work, with geographers offering ethnographic accounts of the tensions and difficulties in learning to hone skills and work with materials and other people. These kinds of collaborations are not easy, 'in part because it brings to the fore the need for a deal of self-reflexivity about ones' skill set and disciplinary positionality; what one brings to the table' (Hawkins, 2011: p473).

Critical reflections on the use of participatory arts practices within research, just like participatory methods in general, points out the complexities of these methods (Cahill 2007, Pain, 2004). This approach has been criticised by some for unwittingly, reproducing the inherent power dimensions this method means to deconstruct, not least perhaps because participatory art often involves complex ideas about what art is, the quality of outputs and their potential for display (Askins and Pain 2011, Brickell 2015). It is therefore crucial - as a researcher- to be critically reflexive on your own positionality, interactions and practices (Askins and Pain 2011). For example in the *Knit and Natter* project I

attempted to develop the project in ways that were participatory, enabling the participants to take part in decisions about the approach and outputs. In their paper detailing the ‘messiness’ of interactions, Askins and Pain (2011) expand attention beyond human-human interactions to pay careful attention to the role of materials within participatory art methods. As they discuss, there are tensions and benefits in using these approaches, many of which are based in issues of contact, power and knowledge. Although ‘the ‘gold standard’ of participation as an equitable sharing in knowledge production rarely works out in predictable ways’ (Askins and Pain, 2011: p807).

Geographers studying participatory artworks

In the last twenty years, there has been an upsurge in the idea of participatory, or relational artworks in which the social relations (between humans) becomes the ‘medium’ of the artwork itself; the genesis of which is most often attributed to Nicholas Bourriaud’s curated exhibition and book of the same name, ‘Relational Aesthetics’ (Bourriaud, 2002). This sparked debate across the art world entailing normative questions around whether these relations should be antagonistic or collaborative (e.g. Bishop 2003, Jackson 2011). While the literature review dealt with some of these practices in more depth, here I am concerned to reflect on the inspiration I found in geographer’s use of ethnographic methods to ask questions of these forms of art. A geographic approach to participatory art asks what kind of forms these connections take, what kinds of connections are made, and how are they made (Hawkins 2011, McNally 2017).

In the two decades since the publication of Relational Aesthetics, the idea that artworks are relational or participatory – in that they are co-created by audiences and audiences as participants – has become widely accepted. The writing of performance scholar Shannon Jackson (2011) in particular calls for renewed attention to the ways in which the performative elements of artworks bring attention to social co-operation and social support in neoliberal, capitalist contexts.

Rather than assume the progressive role of art encounters, geographers such as Danny McNally (2017) use ethnographic methods to analyse the ways in which artworks both form and disrupt social worlds. McNally (2017) critiqued the presumed progressive role of one particular art encounter '*I am of Tower Hamlets*', by observing the sculpture and talking to 'host families' as the granite sculpture travelled to different people's homes where it was hosted for a period of a few weeks - as a way to understand the social relations it both undermined and perpetuated. Although it was hoped that the 'sharing' of the sculpture would engender deeper and new connections to different communities in Tower Hamlets, what McNally in fact found was that it served to replicate and entrench elitist cultural communities around the art world rather than open them up.

This use of ethnography to develop critical questionings of the nature of art encounters at the heart of participatory art and their presumed effectiveness has sat at the heart of many recent geographical studies of these works. This has formed an important point of inspiration for my own work.

In this section, I have summarised some of the ways that ethnographic research has been used within geographic scholarship, with particular reference to multispecies ethnographies, geographies of making and geographies of participatory art all of which intersect within my research. The next section outlines the reasons behind my choice of ethnographies.

Set of criteria as to why I chose ethnographies.

My own research blends different kinds of participatory art and geography practices. This thesis draws on ethnographical work studying participatory arts using nonrepresentational ethnography techniques; as a way to understand the embodied and performative elements of the work. Drawing on these kinds of understandings and the work of STS scholars such as Haraway, I do not seek to 'pull the god trick' by being a detached researcher (Haraway 1998), but more draw on the writings of Vannini (2015) in acknowledging the effects and affects that my presence and actions have within each of these groups.

My positionality varies in each of the three projects, and these differing and fluid positions form a key part of the methodological innovation of the

thesis. This ranges from participant observations of other artists projects; to auto-ethnography of my experience of active participation within making practices as part of existing projects, drawing most strongly on research of embodied practices such as that of nonrepresentational ethnographers; to auto ethnography of being an artist-facilitator, in which I draw on traditions of participatory action research, but also bring in creative practices and methods. In this next section, I discuss the reasons behind choosing the two main ethnographic methods that I utilise, notably participant observation and auto ethnography.

Ethnographic Methods 1: Participant Observation

I chose to do participant observation for the *Bird Yarns* project and the *Linen* project as a way to 'pay attention to both wider structures and the thoughts and feelings of agents, within the context of action, [as] an ideal approach to research practice' (O'Reilly, 2012: p22). This was crucial in being able to understand not only how the participants felt about their practice and the immediate materials they worked with, but also how they understood these to fit into wider issues of environmental change. The point of participant observation is to be able to know the world as others do (Crang and Cook, 2007).

Drawing on feminist traditions and STS scholars, and the role of ethnography in both these fields of work, I discuss participant observation not as some kind of 'detached' or 'objective' approach where the 'observer' takes notes on events unfolding as if he or she were not there. Rather, I understand participant observation to be a way of developing intersubjective understandings between researchers and researched (Crapanzano 1986; Dwyer 1977; Spencer 1989; Tedlock 1991).

I have detailed how I accessed the various groups and communities and my involvement in them previously in this section, so here I want to note that my role within these communities was complex and often changing. As a participant in other artists' projects, I was faced with the issue of how to present my role in the project, and how to pitch and ask questions of other participants. For some, the ideal stance is that of 'an intelligent, sympathetic, and non judgmental

listener' to all of its members (Cassell, 1988: p95). However, in practice this can make the researcher stand out, because few, if any people take up such a role normally. For the *Linen* and *Bird Yarns* projects, my participant observation revolved around relatively unchallenging questions and the sharing of personal information to build trust and friendships. The project that caused the most tension in this regard was the *Knit and Natter* project in which I was both artist facilitator and participant observer. I was keen that the project would reflect the feelings, thoughts and desires of the participants, but as facilitator I was also aware that I had a role to support them in their creative practice; as it was to me they turned as 'leader'; something I reflect upon in the chapter itself.

In these moments, I drew on the advice of Cook and Crang, who suggest that the researcher 'should adopt a role or identity that meshes with the values and behaviour of the group being studied, without seriously compromising the researcher's own values and behaviours... [and] not... inventing and identity; we all have several,... but... the most appropriate one can be stressed' (Cook and Crang, 1995: p26).

Ethnographic Methods 2: Auto ethnography

Throughout this project, I utilise auto ethnographic methods. I draw on the work of the geographies of craft and making in relations to auto-ethnographic methods. Geographers such as Ingold (2013) O'Connor (2007) and Straughan (2012, 2015) use diaries detailing their own thoughts, feelings and bodily experiences of making. Within this tradition of recording one's own experience of making with materials, I also kept detailed field notes of the experience of working with materials as a way to understand relations between myself and the materials I worked with. This was particularly the case in *Linen*, for the materials, but in *Bird Yarns* and *Knit and Natter*, I also used reflective field diaries to keep a record of my own thoughts, feelings and experiences of being both a participant and a facilitator in these projects.

In these projects, I drew on the ethnographic traditions of participatory arts projects (such as Askins and Pain 2011) as well as more ethology influenced traditions such as Hayden Lorimer (2006), and anthropological studies such as

Anna Tsing (2013) in which the researcher situates his or herself within a complex and dynamic environment and records how he or she experiences the more than human situations of which she or he is a part. These studies situate the researcher firmly within the field of relations, which they are studying, and it is this very positionality that enables the researcher to be able to make sense of the situations they find themselves within. In order to provide a robust account of the projects and studies I was a part of field diaries were the most effective means of accounting for my experience. The diaries, as I will recount further below, enabled me to capture feelings, thoughts and considerations that would not have been possible through recorded transcripts or photographic documentation. The methods I then processed the data from these field notes is described in more detail in the following sections.

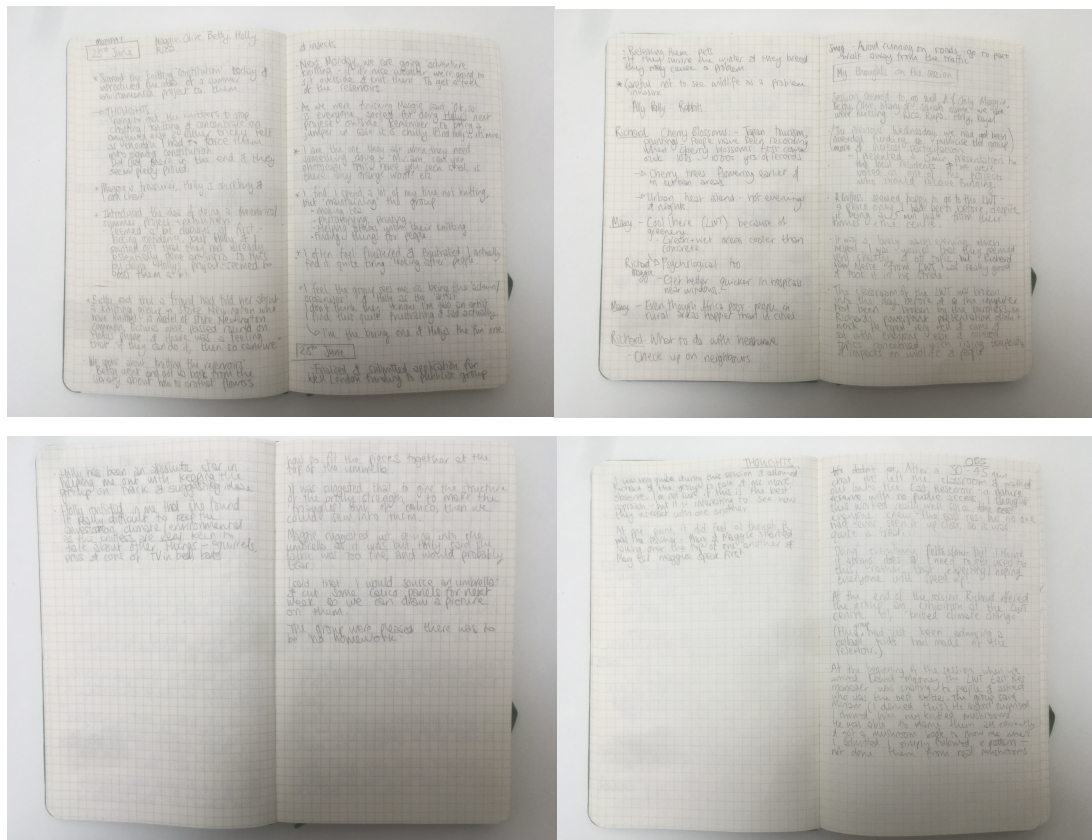
*A reflection on my own ethnographic process of field note taking,
interviews and focus groups.*

As Miles and Crush (1993) point out, if the researcher is taking notes in front of the other participants they are working with, the is likely to become a distinctive part of their identity because they are observing, writing things down and forming opinions about 'them'. I chose not to, in fact, take field notes in front of the participants as, while the artists had given permission, and the group was aware, I did not want to create reminders of my role in the group of someone who was watching and studying them.

Instead, I followed the practice of other geographers using ethnography by writing scratch notes and making sketches either immediately after the event or by popping out to the loo to write things down (Crang and Cook 1995). In practice, what this usually involved was writing immediate notes on the bus journey home, and then writing further detailed notes and making sketches of the events in my notebooks once I was back at home. Because I was able to write things down very soon after things happened, my field diaries also included quotes from the participants.

Ethnographers stress the importance of reflexivity in research practice, and a key component of this is the researcher's own positionality, and thoughts

and feelings at the time (Pink, 2008). In order to make sense of my own position and be critically reflexive on the things I noticed, felt and omitted, I set my field diaries up in such a way that I would write my immediate observations on the right hand page, then I would reread my notes and either write reflections on the left hand page or on a separate piece of paper.



Extracts from my field diaries for the *Knit and Natter* project. June 2014 – October 2014.

For some of the events, I made audio recordings on my phone that I would later listen back to. The ubiquity of mobile phones today helped a lot with this practice. Whether or not I recorded the sessions depended on a number of factors, primarily it depended on the groups and the practicality of the situation. Key factors were the environment in which the session took place, whether this was indoors or outdoors, the type of session which was happening, whether it was a drop in session or the same participants throughout, how many people were in the group, and the mood and social set up of the group. The combination

of factors attributed to my decision as to whether to take solely field notes; to use these in combination with voice recordings; or to only use voice recordings.

Some days the groups were more stationary, and it was practically possible to let them know that I was going to be recording their voices on my phone and I would leave it on the central table, for example in the knitting club. In other circumstances, for example if the session was outdoors and people were dropping in and out of the session as was the case in some of the spinning workshops, it became impractical to make voice recordings and I found field notes were a more effective way of documenting the session. In these cases, I relied on note taking rather than voice recordings. On other occasions, my role within the group had an influence on whether it would be disruptive to begin a recording; for example, if I began the group by making tea, doing some photocopying for someone and generally setting up the session, to then pause these activities to set up my phone to record would have been disruptive. I often made small sketches in my notebooks. I had been keen to keep creative field diaries, inspired by the notebooks of Michael Taussig (2011). Taussig writes of these drawings as field notes 'what is important in drawing is in the process of looking. A line drawn is important not for what it records so much as what it leads you to see' (Taussig 2009 p269). As art theorist John Berger, describes 'a drawing is an autobiographical record of one's discovery of an event, seen, remembered or imagined' (Berger, 2007: p3).

As a creative method, I was keen to explore how this might work for me. Whilst I found these sketching practices interesting, I found that in the end I relied most heavily on written text. This was the method that I found best captured both a description of the events and conversations, as well as my own reflexive thoughts and feelings about what I was experiencing.

The theory and practice of the analytical process I undertook.

In order to analyse and process my materials, I drew largely from Crang and Cook's (1995) booklet 'Doing Ethnographies'. Although written almost 25 years ago, I found that it served as a really useful guide to the practicalities of doing ethnographies, which was neither too prescriptive nor too vague. My analytical processing of the materials was divided into three interwoven processes, each of which informed the others.

Firstly, I would process my materials; that is I listened back to the recordings I had taken and transcribed the most relevant parts. I printed the photos from my phone and typed up my field notes. I photocopied key elements from my field diaries. I had also collected things from the sessions, such as linen string that I had made, my Bird Yarns bird, packs of seeds and flyers advertising the projects. I did not wait until the project was over in order to do this, but rather, tried to do these processes on a week by week, day by day, or session by session timetable, depending on the speed and longevity of each of the projects and the phasing of my time in the field.

Secondly, I would review all this material, in relation to the literature and decide upon key themes that were emerging, alongside returning to my research questions. Crang and Cook (1995) caution that 'the researcher needs to be sensitive to how much prior categories can determine what s/he subsequently looks for and to what extent such categories may be said to be 'found' in the material' (1995: p79). The distinction here is between what can be said to be 'emic' and 'etic' categories; emic are those categories that people use to describe their own worlds, and etic are those that are imposed by the researcher. However, as Michael Agar (1980: p181) points out, 'the problem here is that it is difficult to imagine any ethnographic statement which is not a blend of these'. I did not find a hard binary distinction between 'my categories' and 'their categories' helpful in my own research, as I understood my participation in the projects to be affective, emergent and world-forming. However, I did find that being sensitive to the ways in which people talked about themselves, their

worlds and their interactions with environments and materials was important to locate different categories and ideas with the participants.

As noted earlier, the communities that I was studying were dispersed over weeks and over spaces, so I would be a part of a session for a few hours, then return to my day to day activities of writing, reading and going to the library in the intervening days. This process enabled me to build a critical dialogue between the literature and my primary materials in order to hone key areas and decide on codes for further research. While I was pulling together and developing my key themes codes, I also drew Anselm Strauss' (1987) idea of 'theoretical notes' that comprise ideas and themes and correlate with the codes within the primary data. I kept my coded material and theoretical notes on separate sheets of paper, using coloured circles and lines to link different ideas and themes and determine how they sat together.

Thirdly, I would bring all these different aspects together. I would go through my printed transcripts and fieldwork notes and highlight different quotes with different colour pens. I found that doing this with physical materials; paper, photographs and pens, worked best for me. I would write and rewrite sections, and lay them out on the floor of my living room, making and remaking groups and piles of printed writing to determine themes and enable further development and analysis of ideas.

Conversations with my supervisor were also crucial to this process; through reading both the literature and my field notes and transcripts, I had located, materials and embodied understandings as one theme, practices and sociability as another, and labour as another. For example, I had previously been interested in the idea of labour, especially feminised and caring labours. As I read through my transcripts and notes from the *Linen* project, I pulled out data from my primary materials that referred to the 'work' of creating the artwork. However, this pile quickly become large and unweildy and I found that I needed to create subsections within it. Although Kate would use the word 'tired' this related to different kinds of tiredness and work; varying from physical tiredness to emotional strain and stress. As a way to understand both the effect of her work, and how the project demanded different labours; I went back through my field

notes and notes from my reading material and divided the idea of 'labour' into emotional, physical and organisational. Since I did this midway through the project, I was then able to do follow up interviews and direct my participatory work to attend to these different aspects of the idea of labour.

This process of developing codes gave my research analytical structure. I started by looking for key themes, and using a process of open coding drew out the things that were most important to the materials, practices and socialities of the projects – while continually referring back to my initial research questions. The codes and themes were developed simultaneously to reading relevant literatures; the process of coding informed my theoretical developments as much as the theory supported and developed the codes.

Artistic methods

For the *Knit and Natter* case study, I drew predominantly on my previous experience of running participatory arts projects and knitting groups to facilitate the making of an artwork with the group of knitters. In this section, I want to reflect on my role as artist-researcher in this case study. Geographic scholarship has (re)turned recently to the use of creative and visual methods as a response to the discipline's orientation to practice based and embodied doings (Hawkins, 2013b).

Once I had set up the group, I responded to their dual desire to both go 'on a trip' and make something together and organised a trip to the local nature reserve after which they would make a collaborative project about their experience. During this period, I was particularly mindful of the fact that I wanted the project to be very much led by the participants, with minimal creative direction from myself.

This desire for the project to be about the process of decision-making on behalf of the knitters responded to key concerns within geographical scholarship. In the *Knit and Natter* case study I was predominantly interested on the decision making processes of *what* and *how* to make things, as much as the making process itself. This type of work draws on the work of geographers such as Tolia Kelly et al. (2013) who use participatory methods such as theatre and

amateur creative practices as a way to explore knowledge and experiences about place.

The very process of image-making is, more recently becoming to be acknowledged as a geographical skill in itself. For example, artist-geographer Helen Scalway uses drawing as a means by which to track patterns and tracings of London's diverse and fluctuating diasporic traditions (Scalway, 2006), and Harriet Hawkins discusses her own 'not good at drawing' (her words) practice as a way to understand place that is less about the drawn output and more about the experience and process of drawing as productive and creative (Hawkins, 2015).

In order to do this, the week after the trip to the nature reserve, I ran a session to get the knitters to decide on what they had wanted to knit. I began by asking them what they remembered from the trip, although none wanted to start the conversation. I brought in some photos I had taken of the trip, and I had prepared some notes and starting points for the discussion in the event that they were less forthcoming. Keen to pick up on what they remembered, rather than what I remembered about the trip, I asked open questions such as "what was your favourite part of the reserve?" "Were there any animals there that surprised you?" "What did you think about Richard's talk?". Holly Morris was present that day as a member of the group; and as a current art student, she was arguably more used to thinking about projects and making than the other members of the group. She played a key role in encouraging the knitters into thinking about their experience of the reserve, rather than focussing on the provision of biscuits, for example. The details of this are described in more length in the chapter.

Following this session, the knitting group continued to meet for weekly sessions for the next nine months. I continued to run the group over this time; I detail my artistic and emotional labour in the chapter, so for now I want to reflect on the power differential inherent in running the group. I was the person who kept the register, who bought the tea, who had the code to the photocopier, and the 'member of staff', despite the fact that I had left my paid work part way through the project to concentrate on the PhD. Questions from within and outside the group were usually directed to me as the 'leader'. I was aware that the members of the group knew that this was 'my project', and as my friends

were keen to do a good job. However, there was a clear hierarchy within the community centre, with my then boss's requirements being seen as more important than mine, for example, often the knitters would wait until he had left the building before asking me to photocopy a knitting pattern for them. I tried to remain aware of the privileges afforded to me by my position as both member of staff and 'group leader' and made an effort to break down social hierarchies within the group. I tried to make sure that I was the one who made others tea, that I helped others use the photocopier so that it wasn't only my job, and developed friendships with the knitters.

Writing

John Law argues that things, events, objects, more-than-human social lives are multiple, fluid and vague (Law, 2006). Understanding research as John Law does meant that the way I chose to write the research became an important consideration. I needed to write in a way that would represent the research and communicate the things and events that I had come to understand as the most important stories to tell. I have chosen to tell the story of this research by bringing together vignettes, stories and analyses based (if somewhat loosely) on a range of nonhumans and processes, slugs, earthworms, moths and mice.

Although I do not argue for the writing of this thesis to be particularly novel or ground-breaking, I have tried to make it interesting. The structure of the written thesis is something of a collage of different stories that together talk about different aspects, nuances and multiple natures of the entanglements I came across. In composing my writing in this way, I have been inspired by geographic accounts such as Nigel Thrift and Steve Pile's 'Patterned Ground' and Caitlin DeSilvey's *Anticipatory History*, although my own research is more conventionally written than these. All research methods rely on interpretation and decisions in representation, ethnographic style accounts as this one tend to be more explicit about these decisions than other fields (Herbert, 2000). As Herbert (2000: p553) the 'tissue of social life is not always directly observable. Meanings and objects are and events are often revealed through practices, reactions, cursory comments and facial expressions', it is then up to the

researcher to develop and articulate the meanings that are most useful based on a combination of what she observes, witnesses and feels at the time, in conversation with an analytic framework formed by and formative of her understanding of the situation (Herbert, 2000). The key then in this practice, is to be reflexive, forthright and modest with claims made for meanings and interpretations.

Summary

In this methodology chapter, I have laid out the methods by which I developed and explored the thready geographies that are the focus of this thesis. This research uses a mix of interviews, focus groups, ethnographic and artistic methods that included developing a specific piece of participatory artwork.

Chapter 4: Bird Yarns

Prologue



Figure 4.1, Bird Yarns, Tobermory Pier, 24.06.2012.

Tobermory, June 2012

The first time I encountered the terns was in the summer of 2012, while I was doing my master's field work. I had got in touch with Deirdre Nelson via the project's Facebook page and she had sent me a tern knitting kit which I diligently knitted, packed in my rucksack and made the 24 hour journey from Brighton to Tobermory via sleeper train and ferry. I arrived the night before she was due to install the 71 (now 72) birds on Tobermory pier, and her studio in An Tobar gallery was in a frenzy. Birds were heaped on sofas and on boxes, there were bags of stuffing and piles of envelopes on the work surface. Deirdre had threaded the birds onto the string on which there were to sit, only to discover that they all hung upside down because of the weight of their bodies. She was busy trying to manipulate woolly

bodies onto two lines of nylon rope, and was tense. I walked the mile out of the village to the campsite where I was staying (and getting mauled by the infamous Scottish midgie). The next day was windy and raining, Deirdre, Dawn Reid and Mike Price from the gallery were decked out in waterproofs on the pier trying to line up the string of terns and tie it between two lampposts. The lamp post fell across the pier, and they had to call John McLean, a local fisherman and handyman to help secure it vertically again. Deirdre asked me to leave.

I spent the next two weeks sat on the clock tower at the end of the 'fisherman's pier' in Tobermory with an armful of questionnaires and a Dictaphone. I interviewed visitors to the terns their opinions on climate change, arctic terns and the artwork as the fieldwork for my master's dissertation. I met some friends who I had met on a previous trip to the island, and thankfully (due to the somewhat unpredictable Scottish summer weather) was invited to stay in the house of a PhD student and a wildlife photographer who were working with the island's Whale and Dolphin conservation trust. I went along to the woolly Wednesdays knitting group and spent most evenings socialising with Deirdre, the knitters and other participants and organisers of the project in the local bars. It is also where I met Libby Straughan who was researching Hawkins et al.'s 2015 paper, the art of socio-ecological transformation.

Tobermory, November 2016

It was a chilly November morning when my mother, my daughter and I arrived at the gallery, which in 2012 was called An Tobar, but following a takeover from a mainland organisation and a few years of political island turmoil, was now called Comar. There was a frost on the ground, and Tova had wanted to make snowballs from the dusting of snow on the low, stone walls that separated the garden of our fisherman's cottage from the road. The gallery was warm and inviting, the staff knew I was coming, and I recognised Linda, who worked in the café from my last visit, four years previously. We walked through the café, and entered the main room of the gallery. A range of blue, white and green painted canvases hung on the walls and three plinths with glass sculptures were positioned in a neat triangle on the floor. There was a large poster advertising the exhibition "ICE: an artist's

impression". My heart sank to my feet as I had the awful feeling that I had made a mistake. Where were the birds? I had brought Tova and my mother all this way, had I got the dates wrong? What was going on? My mother took Tova by the hand and walked round the exhibition, keeping a wide berth from the fragile glass sculptures on the plinths. I walked back out, into the café area. And then I saw them. I can't say my heart leaped exactly, but there was a tangible sense of relief; relief tinged with disappointment.

The birds were there, but they were tucked away in a short, narrow corridor, roughly one metre wide by three metres long, leading to the kitchen; the only people who had reason to use the space were the catering staff. While I walked over, my mum occupied Tova, and took her to the toilet. There were some photographs of terns on the wall, a few drawings by school children and the terns themselves. Much like when they had been displayed previously, the birds were laced along two lengths of nylon string. Against the wall, in the artificial spotlights they looked tired, decrepid and tatty.

They still had their characters, some were slimmer, others chubbier. Their eyes, beaks, faces, feet and legs were all characteristically homemade and different, giving the different birds different personalities. But the intervening years, and the travel had not been entirely kind to the knitted creatures. There was evidence of breakage and repair, legs stitched back on, feet held together with tape, and darning on necks. They emitted the distinctive smell of naphthalene moth balls.

I walked along the small corridor, examining each one, trying to work out if my tern had survived the combined perils of travel, auctions and moths. I tried to remember what mine even looked like. I thought I spotted it, but was it really mine? What made my bird distinctive from the rest of the row of handknitted, handstitched birds? I thought recognising my own handicrafts and the produce of my own two hands would be easy – it wasn't. Ultimately, I concluded that mine had been lost along the way. I was surprised at how sad I felt seeing the terns again. Last time I had seen them, four years ago, they were outdoors, buffeted by the wind and had crowds of tourists and locals looking at them, commenting on them, chattering about them. Now they were here on Mull again, tucked away in a forgotten corner of a gallery, a tatty collection of objects, repaired and patched back together, still characterful, but as if they had survived an unspeakable ordeal.

I heard Tova chattering to my mum; they were looking at toys on the low shelves of the gift shop, scattering cards, marbles and wind up seals across the floor, my mother attempting to contain the chaos that a curious Tova was busy creating. I left the birds and rejoined my family, leaving the terns in favour of a Mull Cheese toasted sandwich and cup of tea (Field notes, 19.11.2016).

Pyre

*There were perhaps 20 birds in total in the exhibition; out of an original 72. Many had been auctioned off, to raise money for charity. Some had been donated to schools, galleries and individuals and one had even gone aboard a research ship to the Canadian arctic. As many of half of the remaining birds, had succumbed to a moth infestation. Along their travels, their periods of display and rest, the moths had brought other travellers with them. Left undisturbed in laundry bags in studios and the back rooms of galleries, they had provided a near perfect habitat for the webbing clothes moth, *Tineloia bisselliella*.*

I met the gallery's curator, Mike in the café one afternoon while my mum took Tova to the harbour to watch the birds and throw stones in the sea. We sat in the gallery café and drank tea. He told me about his feelings of sadness and distress when he first realised what had happened to the birds. He described how he had emptied the bags of birds in his garden (his wife didn't want them in the house), and he had sifted through the bedraggled bodies on a chilly September morning, sorting them into two piles, those to be saved and those to be incinerated. It was midweek, and he couldn't burn the bodies straight away. They remained in a pile, under a tarpaulin in the bottom of his secluded garden until the weekend when he felt it more acceptable to have a bonfire. The salvageable ones were put into smaller bags, and placed in the chest freezer in his garage to kill any remaining moths. He collected twigs and kindling and made a pyre to burn the terns that were too damaged; in some kind of act of crafting euthanasia. It took a while for them to catch as the ground was getting cold and damp, but once on fire the smell was a strange and unpleasant mixture of burning hair and plastic. It is not unusual to have bonfires to clear garden debris at this time of the year, and none of the neighbours appeared to notice the rather unusual make up of his fire.

He decided not to tell the knitters what he had done. Less of a lie, he defended, more an omission of the truth. "I didn't want to upset them, I mean, what good would it do if I were to tell them? Better to let them think that all the terns that are not there have gone off to a good home from Deirdre's auctions, rather than up in a puff of smoke at the bottom of my garden" (Price, interview transcript, 21.11.2016).

Introduction



Figure 4.2 Bird Yarns, Tobermory Pier, 23.06.2012. Author's own photograph.

Geographers have long recognised how certain groups, crowds and 'communities' take shape through the sharing of materialities, expertise and skills (Gregson and Crewe, 2003, Jupp, 2007, Askins, 2015, Askins and Pain, 2011, Geoghegan, 2013, Hall, 2011b, Hall and Jayne, 2015); and knitting is no exception. However, these communities have usually focused around the human participants, with the materials and 'stuff' playing a background role onto which human lives and experience is played out. Yet increasingly as part of a commitment to expanding social life to more-than-human agencies, geographers are engaging with materials in explorations of how they shape bodies, spaces

and practice (Whatmore, 2006, Panelli, 2010). The interaction and relational engagements between humans, nonhumans and materials through thread based practices such as knitting is what I have come to call thready geographies.

This chapter interrogates the kinds of connections and entanglements made through knitting practices between humans and nonhumans - in this case between a group of knitters on the Isle of Mull in the Inner Hebrides and a community of Arctic terns that migrate annually to the island - in a participatory art project called *Bird Yarns* created by artist Deirdre Nelson. The artwork was designed with the explicit intention of drawing attention to the local impacts of climate change, using locally sourced materials as a way to 'bring climate change home' and to engage people emotionally with the plight of the terns in order to advocate for more ethical and careful ways of living with a changing climate. The initial incarnation of the Bird Yarns project has already been researched within geographical literature (Hawkins et al., 2015, Burke et al., 2018). The research for this thesis investigates the claims made for this artwork four years on. Although there is work that looks at the making and initial reception of participatory artworks, there is a need for more research that charts the longer term development of projects, and how the connections made within projects endure over time, which this chapter seeks to address (O'Neill and Smith, 2014, Hawkins and Kanngieser, 2017).

In order to do this, this chapter engages in two key questions, firstly I consider the nature of the entanglements, and secondly I interrogate the claims made for this artwork by others and myself. In order to do this, I think about who and what are being entangled, how the entanglements are forged, built and tied and importantly how they hold together. What I found in my fieldwork is that the initial entanglements documented in the literature did not resemble the connections that the knitters described to me, four and a half years on. So the second half of this chapter considers the unexpected entanglements, and interrogates possible reasons why they did not hold as hoped. It also picks up on some unexpected connections, ones that are uncomfortable and challenging, yet in this way are troublingly generative of different ways of thinking about the Anthropocene.

Bird Yarns was a project ran in 2012, as part of Cape Farewell's Sea Change project. The Sea Change programme was a four-year programme of "research and making across Scotland's Western and Northern Isles" (Cape Farewell, 2017). The programme included a gathering of 50 UK based artists and scientists and two sailing expeditions, one in 2011 to the inner and outer Hebrides, and a second in 2013 to Orkney and Shetland. The project, like many of Cape Farewell's other projects, brings artists and scientists together during expeditions to 'witness' climate change. Rather than heading off to the Arctic, or the Amazon, this project focussed on the impacts on the British Isles, a core component of which was an engagement with local people and communities within the islands. The project explicitly aimed to 'extend the languages, metaphors and methodologies of participating artists, enabling them to find new and affective forms for the stories and experiences of island communities' (Cape Farewell, 2017). The project was part of the London 2012 Festival and the Year of Creative Scotland, and funded by Creative Scotland, Arts Council England, Compton Foundation, Cove Park and The Bromley Trust.

Artist Deirdre Nelson was invited on the 2011 expedition around the inner and outer Hebrides, although she is strangely absent from the Cape Farewell website, for reasons that are unclear to me. The entire journey lasted for 4 weeks, with different people doing different legs of the journey, Deirdre was on the ship for a total of 7 days during which time the ship travelled around the Isle of Mull and the Inner Hebrides. Over the course of the week, different scientists were invited to talk about their research into the impacts that climate change was having on the local area, from coastal communities to seabird colonies and fish stocks. Following the expedition, from January 2012 to June 2012 Deirdre had a residency at An Tobar, a gallery, museum and music venue in Tobermory, the main town on the Isle of Mull.

Inspired by research into the changing migration patterns of sea birds, in particular the arctic tern, Deirdre focussed her own work as an artistic response to these changing migration journeys. Her work took the form of a community knitting project which knitted a 'flock' of arctic terns who, in her words, had been "knocked off course" by climate change. Arctic terns do not normally come to the east of the Island, so for Deirdre, this description served as both a way to

describe the way that terns are now making changes to their migrations as well as an artistic and imaginative justification for any scientific inaccuracies of the piece. The work was displayed on Tobermory Pier for two weeks in June 2012. The birds later went 'on tour' to various galleries around the UK. Some were auctioned off to raise money for environmental charities, and the exhibition returned to Tobermory in November 2016 where I visited the terns and the original knitters and participants of the project.

This chapter is divided into two sections; *Tern* and *Moth*. The first section considers the imaginary of both the living, fleshy terns and their knitted counterparts. This section is divided into four subsections; firstly nonhuman charisma which looks at the role of charisma in both the artistic decision making process and how it functions as the idea of an Arctic tern as a symbol for climate change and in both fleshy and woolly form. Secondly, in 'threads' I look at the geographies of the knitting group themselves and the ways in which the group is held together through friendship and quiet politics of being together. Thirdly in 'woolly terns' I think about the way that the making of the terns specifically tied the knitters both to one another, and discover that they did not, in fact, feel any ties to the 'aim' of the artwork in making them more ethically attuned to climate change. Finally, in 'labour of the artist' I explore the work of making the ties between humans, wools and terns and the role that Deirdre played in the formation of these ties.

Following my discovery that the woolly terns had got moths in the intervening years between 2012 and my return in 2016, I think about the uncomfortable relations of living in multispecies communities with creatures who are not of our choosing. This section is divided into two subsections; *Pest*, which considers the moths as a pest as part of what we have 'done' to nature in the Anthropocene, and finally *Loss* as a way to think about the material holes, darns and repairs as ghostly presences of the loss of a species. And finally I conclude the chapter by arguing that the nature of entanglements are more messy, more complex and more flawed than they first appear, requiring analysis into the materiality and more than human social networks that comprise them – which is what I take forward into the next two case studies.

Tern

Nonhuman Charisma

This first section of the chapter considers the role of charisma as a way to explore the connections made between the human participants and knitted terns. In terms of this thesis, my interest in the *Bird Yarns* project is less concerned with the reception of the original artwork and display in 2012, focused instead on the ways in which the entanglements made through the process of knitting and making the birds have both endured and unravelled over the intervening years. The subject matter of what is made is, however, important here, as the aesthetic imaginary plays a key role in binding people, places and terns together. In order to investigate the ways that the knitters continue – or not - to connect to both the birds and the ‘aim’ of the artwork to highlight environmental change, I draw upon Jamie Lorimer’s concept of nonhuman charisma to think through the way that Deirdre mobilised certain aspects of the terns as a way to get her audience to engage with climate change (Lorimer, 2007). To begin with, I situate the charisma of the terns in the context of the artwork, and the artistic choices that Deirdre made in designing the project for emotional appeal and as a way to encourage people to consider the lives of arctic terns.



Figure 4.3 Knitted tern. Photograph by Dierdre Nelson 2014, reproduced with permission

Deirdre had been aboard a Cape Farewell research ship when she first learnt about the plight of many different sea bird populations in the Western and Northern Isles of Scotland due to various forms of environmental degradation – climate change being one factor in many; overfishing, destructive fishing practices such as deep sea dredging, changes to sea surface temperatures and the proliferation of plastic pollution being among the others. As she was part of the Cape Farewell project, she understood that in the work commissioned as a response to the voyage; the key emphasis was to be on climate change.

I asked her why she chose Arctic Terns out of the array of species she could have chosen,

“Well, it was a number of reasons, really. I’ve always been fascinated by animal migrations, and Arctic Terns are migrators extraordinaire. The fact that they have the longest migration of any species was something that I thought would really capture people’s imaginations. And they come to Mull. I really wanted it to be something that people were familiar with, and something that was local and meant something to them, so I wanted a species that was well known on Mull. I later found out they tend not to come to the east side of Mull [were Tobermory is situated], but tend to

nest round by Craignure, Iona and the west side, but hey, I figured it was close enough, really”.

I asked her more about her fascination with migration, “You know, I do all these residencies, I’m hardly ever at home [in Glasgow, although she is originally from Dublin], moving from one project to the next and going where the art takes me. I always feel a bit like a nomad.” (Nelson, interview transcript, 27.11.2016).

The premise of the Cape Farewell trips is to take artists to places where the impacts of climate change are ‘visible’ and to invite them to make artworks about their experience (Cape Farewell 2017). These creative works have most famously ranged from Anthony Gormley making ice sculptures in Svalbard of his own body (Three Made Places, 2005) and Ian McEwan’s book ‘Solar’ (2010) (Cape Farewell 2017). For the purposes of this study, I want to focus on the creative decisions of Deirdre’s art making process and what it was that drew her to the terns in the first place as a way to understand the types of entanglements she aimed to make through the participatory artwork.

As part of the Cape Farewell project, this use of charisma, like in many other conservation efforts, is used to bring public attention to certain species and issues (Lorimer, 2007). As a flagship species, the terns stood for a proxy in this context for the wider issue of climate change, as Ruth Little, director of Cape Farewell explains “ the terns are like a miner’s canary for climate change, they are one of the early species to be affected, so they serve as a way to make people stop and think” (Little, interview transcript, 15.03.2015). And yet, as Lorimer warns, the ‘use’ of charisma for specific goals (notably conservation fundraising and awareness raising efforts) can be unpredictable (Lorimer, 2007).

In the above interview with Deirdre, she describes her interest in the terns. As she describes, she is drawn to the terns partly due to their migrations, and the affinity that she sees with her own, somewhat nomadic lifestyle. Jamie Lorimer (2007) outlines a relational approach to understanding the charisma of nonhumans (primarily animals), which he describes as ‘the distinguishing properties of a non-human entity or process that determine its perception by humans and its subsequent evaluation’ (Lorimer 2007: p915). In talking to Deirdre, she describes how the charismatic behaviour of the terns (their long,

almost constant migrations) resonated emotionally with her own lived experience and therefore the imaginary of the terns exerted a kind of charismatic affiliation between her and the birds, and inspired her to focus her attention on engaging people with the idea of climate change through the tern's charisma. Rather than focusing on more abstract aspects of climate change, Deirdre explains that she wanted the piece to be something that people could connect with emotionally, and therefore she uses the charisma of the terns as a way to engage her audience with the local impacts of climate change; the charisma of the real life fleshy terns is being manipulated by Deirdre's reinterpretation and representation of them as soft, woolly creatures (Lorimer 2007).

When I ask her about the Cape Farewell journey and her direct experience of arctic terns on the journey, she says:

“well, it's funny you know, they took us to one of their nesting sites. We got off the boat and walked over the moor. They nest on the ground, and bloody hell, they're vicious wee buggers! You go anywhere near their nests and they start divebombing you, like really going for it! One got me on the head and it didn't half hurt! I pegged it after that and I think I prefer them at a distance now” (Nelson, interview transcript 27.11.2016).

The artwork of the terns has no suggestion of their aggressive behaviour, rather they are cast as cuddly and social creatures. Therefore, Deirdre is emphasising some of their more 'favourable' characteristics while omitting the less pleasant encounters as she has the explicit intention of encouraging her audience to engage on an emotional level with the terns.

Root-Bernstein et al. (2013) describe different ways in which animals are anthropomorphised in order to obtain specific goals. Anthropomorphism can take different forms, making animals appear more human like in appearance, such as with forward facing eyes or standing upright (Nowak and Rauh, 2008), the attribution of human thoughts and feelings, especially in literature (Serpell, 2003, Ikeda et al., 2004), or animals taking on human culture such as clothes or playing games (Allen et al., 1994). The charismatic characteristics of the terns are accentuated in their physical appearance; they are designed to be appealing

to the knitters and the viewers of the piece by gaining a somewhat 'cuddly' persona. They are made out of soft fabrics, with button eyes and resemble a nostalgic ideal of handmade toys. Their charisma is also composed of their exceptional flight paths, and the appeal related to a sense of awe for their physical ability to fly such long distances.

The tern qualities that are emphasised in the piece are their sociability, in the way they are displayed as a flock. Another quality is their unique and individual personalities and character as each one is individually handmade made with a certain amount of flexibility in the making that allows the individual style of the maker to be seen; "each one is different, it's like they've all got their own personalities" says Dawn Reide, who in 2012 worked as An Tobar's gallery manager on the project with Deirdre (Reid, interview transcript, 24.11.2016). Their visual charisma is heightened through the use of large eyes, round tummies and stocky shape (Milton, 2002). Chan (2012) further argues that the most likely candidate species for anthropomorphism are those who are pro-social, intelligent and able to suffer, which would appear to be the case in this artwork in the way that it is these qualities that are most emphasised in the Bird Yarns piece. Deirdre makes specific choices about ways to make the birds more appealing to the emotions of both those who knit the birds, and those who come to see the birds in Tobermory. As Deirdre explained to me, "I want people to enjoy the birds, I want them to feel something for them, to care for them and look after them, in a way. Don't get me wrong, I don't want them to be silly, or to be reduced to toys or something, but I think it's important people feel emotionally connected to them" (Nelson, interview transcript, 27.11.2016). Her intention for the art piece, then, was that the knitters – as well as those that came to see the knitting would feel more emotionally attached to the terns due to their charismatic characteristics, both of the fleshy birds themselves and the woolly birds on the pier.

The aesthetic charisma of the woolly birds and their cuddly appearance is one way in which the birds in the artwork are made appealing, a second is in the making of the birds. The artwork was a participatory one; inhabitants of Mull were invited to make the birds (as well as people interested in the project via social media); and it is in the knitting and embodied connections made by

manipulating of yarn into woolly bird bodies that enable another type of charismatic imaginary and engagement with the woolly terns, with other (human) knitters and in turn, with the fleshy terns themselves. If we follow Lorimer, who argues that aesthetic charisma goes 'beyond the ecological to encompass psychological and emotional responses triggered by embodied encounters', then it is possible that these embodied encounters can be made through proximal animals, rather than fleshy ones (Lorimer 2007: p 914). The making of the woolly tern bodies served as an important practice and site of connection in both the design of the piece and its academic reception. If, following Lorimer (2007), we understand charisma to be relational and dependent on 'different technologically enabled, but still corporeally constrained human bodies' (2007: p 915), then the knitting needles, the skill of knitting and the yarn act as technologies to understand the fleshy terns.

It was through these embodied, emotional and affective connections, drawing on the literature around charisma as well as other, embodied ways of connecting to distant issues that both myself and other scholars argued that the making of the woolly birds was a way to connect to more complex issues of climate change (Burke 2018, Hawkins 2015). As Hawkins et al. (2015) argue, through the act of making the woolly bird bodies,

'sculpted through the repetitive practices of manipulating wooden needles and spun yarn in variously experienced hands, catalyzed interactions-in-the-making, connecting the fleshy bodies of the birds, their knitted form, and the corporealities of the knitters. This connection is manifest in the care and concern the knitters expressed for the fate of their woolly terns in the harsh island weather. We want to go further, though, to suggest that these connections knitted together through matter are also ones that register a material imaginary of climate change that exceeds mundane relationships between humans and birds' (Hawkins et al., 2015: p 336).

What Hawkins and colleagues, then are arguing for is an attention to both the imaginary of the terns, through emotional connections, but also through the

material connections of woolen yarn and found plastic. In this section, I have considered the role of charisma in the original design of the artwork. Although the original reception of the artwork is not the focus of this study, it is important to put into context the different ways the artist intended to create relations, emotions and entanglements between the fleshy terns and the knitters who were making the knitted terns. I argued that the nonhuman charisma of the terns was a key aspect of Deirdre's choice to use the imagery of a tern in her work, as well as the way that she manipulated the more appealing aspects of the bird to enhance its charisma in woolen form. This charisma, and the wooly materialities of the knitted birds are the aspects of the piece that, it has been argued, formed connections between the human knitters and the climatic changes taking place through the bodies of the terns (Hawkins et al., 2015).

It is, however, important to pay attention to the longer term connections formed by the piece, for what is difficult to know from these studies, done at the time of the work, is the ways in which the entanglements endured over time – in other words, their enduring thready geographies. In the next section, I draw on my fieldwork of revisiting the knitting group, four years on to discuss their take on the original project.

Threads

I met the group at the only care home on the island on a chilly Wednesday night. Their numbers have dwindled since their heyday 4 years ago when Deirdre's enthusiasm and the Bird Yarns project saw the numbers reach 20 or so participants on a weekly basis, held in the café of the gallery. Now there are 6 – 8 women, two of who live in the care home itself. Dawn runs the group, but is worried about its long term sustainability as the care home is threatened with closure due to funding cuts, and many of the knitters are becoming increasingly infirm, with no new people joining the group.

It was dark outside and there was a frost forming on the pavement, grass and evergreen shrubs. White hand rails lined the side of the building along a gentle ramp that led to an electrically operated door. I buzzed the bell, and Dawn

appeared to let me in. It was stiflingly warm and bright inside with beige patterned carpets and aging cream walls and smelled of cleaning products. She led me through the common room; filled with high backed armchairs in a circle facing a large, wall mounted TV. The chairs each had antimacassars on the back and arms and a cushion laid neatly across the back. Towards the back of the room was a table with a plain white table cloth and eight dining chairs around it, a large, spotty teapot formed the centrepiece. "It's for contribution towards the tea and biscuits", Dawn explained "we ask everyone to contribute £2 each time they come towards refreshments and the rest we donate to the home for letting us use their space". There were 5 elderly ladies, and Dawn, in her mid 40s sat around the table, I pulled up a chair, unpacked my knitting and joined them. (Field notes. Direct quotation from transcript of knitting session, both 23.11.2016)

In this section, I want to 'map' the thready geographies of the knitting group. To do this, I consider the ways in which social relations were co-created between Deirdre and the knitters in the context of the locality of the group, this includes the role that the materials played in the social liveliness of the project, and how the entanglements made during the initial knitting project have endured over time. If, as David Gauntlett (2011) argues 'making is connecting', then there is a need to pay attention to not just the immediacy and presence of the what happens when these immediate connections are made, materially and symbolically, through the practice of making, but how they are transformed over time.

In 2012, when the project began, Deirdre and Dawn together set up a knitting group to make the Bird Yarns birds. The group was called Woolly Wednesdays and took place (unsurprisingly) on Wednesday evening in the café of the An Tobar arts centre. This participatory artwork therefore, constituted a number of different, interlinked activities: the initial idea for the project and the design of the Tern pattern was done solely by Deirdre, she then (with the help of Dawn) set up of the group, which included the formation of friendships and social relations, the process of making for the knitters, and the subsequent installation of the birds and their display.

It was this specific pattern of the tern that had brought the group together in the first place, but after the project was completed, the terns displayed and after the woolly birds' subsequent journeys, the group carried on. Geographers have long recognised how certain groups, crowds and 'communities' take shape through the sharing of materialities, certain expertise and skills; and the Bird Yarns project had acted like – and continues to act as - a catalyst to bring people together around a shared enjoyment of knitting (Gregson and Crewe and 2003; Geoghagen, 2013). As Hackney (2013: p187) suggests, "the great strength of amateur hobbyist practice is that it brings communities of interest together reflectively and reflexively through a shared love of "making".

For David Gauntlett (2011: p161), 'working together with people on shared projects is not merely pleasant-but-optional 'icing on the cake' of individuals' lives, but is absolutely essential for personal well-being and for a healthy, secure, trustworthy society'. And for Richard Sennett (2012), projects and co-operation enhance the quality of social experiences – the physical gestures of working together give life to social relations. The initial set up of the group is not a part of the research for this thesis, what, instead I am interested in is the endurance of these experiences and social relations; and attending to the things that resonated over the years and kept the knitters coming back to the group; how their memories were held by the project and the way that the project made, remade and unmade meaning.

I took out the small pair of gloves I was knitting for my eighteen month old daughter. The tiny pair of green gloves also opened the way for conversations about my daughter, and other knitter's children, grandchildren and great grandchildren. The women talked about children on the island, they asked whether Kara had had her baby yet? She had been staying in a B&B in Oban on the mainland for the past 3 weeks awaiting the arrival of her third child. There is no hospital on the island, so expectant mothers are recommended to stay on the mainland during the last few weeks of their pregnancy, and the days after their baby is born before bringing the child back to Mull. The women thought about the time in which they had their own children, and life when they were children themselves. A time when mothers didn't leave the island, and had their babies at

home with the assistance only of a midwife. They spoke about siblings, friends and mothers who died during childbirth. It was worth the expense of a B&B for a few weeks, they concluded (Field notes, 23.11.2016).

The knitters appeared at ease and happy to talk to me about my daughter, and their shared experiences of motherhood – across generational and geographical differences. I felt that my ability to knit had helped to give me a different kind of access and trust within the group, as Greer (2008: p55) argues ‘crafts, like knitting, which are considered “different” yet culturally familiar help to facilitate conversations’. While we talked about shared experiences, it was the activity of knitting that held the group together, for while the disclosure of personal information is usually recognised as a key element for friendship but tasks and jobs associated with context can provide a space to produce and maintain friendship in ways that are socially and emotionally distinctive (Cronin, 2014). There are strong social ties within the group, the practice of knitting together has tied the knitters together in terms of their social group and built enduring friendships over the time since the project first began in 2012.

Deirdre had given the pattern firstly to these knitters, and then had sent it out to anyone who requested it via the project’s Facebook page. The pattern gives the knitter the size of needle to use and tension (as most knitting patterns do). Deirdre also provided the yarn to be used. The pattern was of an intermediate difficulty. There was a lot of shaping involved in making the neck and body of the bird. The knitter needed to be able to knit, purl and decrease stitches in the correct places. Chatting over tea in the old people’s home in 2016, Dawn remembered how much counting was involved in the pattern as “you needed to count which row you were on, as well as counting where abouts in each row you were... This was the only way to make sure that it decreased properly and looked neat. God knows how many times I had to unpick the thing, do you remember, Anne?” Anne nods, “ooh, it was a nightmare, wasn’t it Dawn?” (transcript of knitting session, 23.11.2016).

As the above conversation demonstrates, there was a shared experience that brought the knitters together, the difficulty of the pattern meant that skills were shared and advice given. The skills, then were given as favours and as such

contribute to moral economies of friendship, it was these initial experiences of counting, decreasing and increasing and helping one another that worked to build and sustain the relationships between the knitters.

Bratich and Brush (2011: p254) describe sewing circles as 'affinity circles and social networks, now not purely political (polis as space of public and city) or as economic one (*oikos* as household) but one that is ethical (*ethos* as interpersonal interaction, gift communities, community-making)'. When the knitters think back to the formation of the group, the things that they remember are the interpersonal networks and the ties. Although they speak about Deirdre with affection, I notice that they have barely mentioned the project itself, the terns or the issue of climate change, talking to them over the course of the evening, I had begun to get uneasy about their apparent unwillingness to discuss the terns. In order to think about the terns themselves, I want to think about the nature of the experiences the knitters had in the material making of the woolly terns – and how the terns specifically enabled a unique kind of thready geography distinct from that of knitting circles where the knitters habitually choose their own projects.

Woolly terns

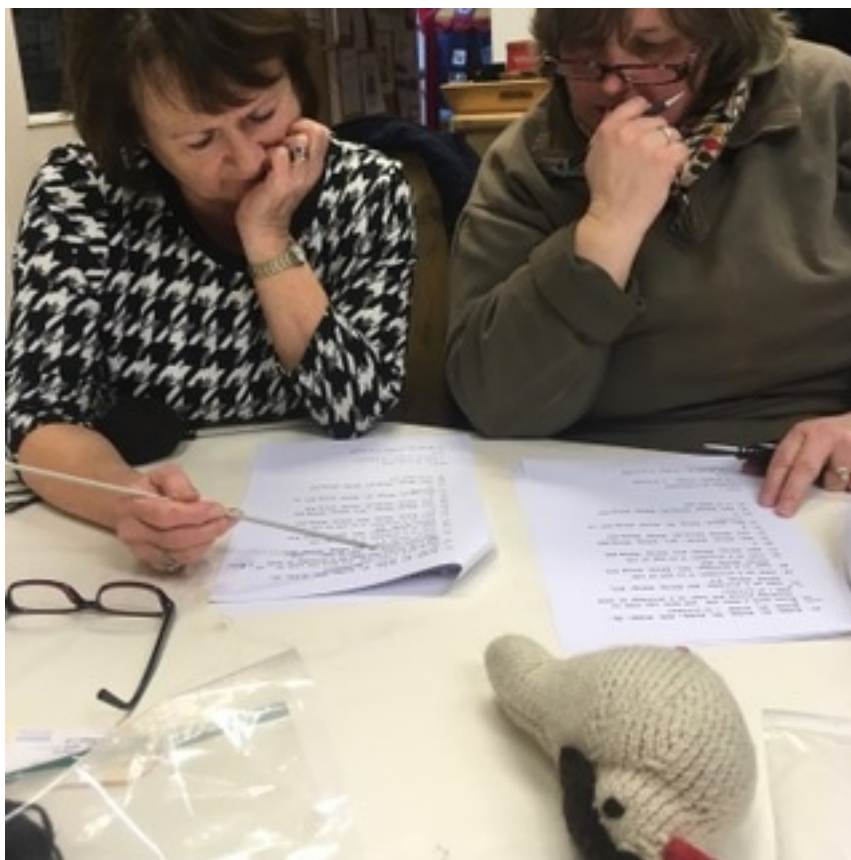


Figure 4.4 The knitters read the *Bird Yarns* knitting pattern 2012, photo by Deirdre Nelson, reproduced with permission.

As part of the work, Deirdre had created kits for the knitters. I will consider the role these kits took as part of Deirdre's artistic practice and labour in the next section, but I first want to focus on their reception and use by the knitters themselves and how the materials and the instructional format of the project effected the nature of the entanglements for the knitters.

When the knitting group was originally set up in 2012, Deirdre gave kits out to the knitters, which included the pattern and the wool itself. The wool was sourced from Ardalanish Farm, a sheep farm on the west coast of Mull. Ardalanish farm sheep and cattle breeds native to the British Isles and well suited for the harsh climate and rocky terrain of the Hebrides; Hebridean, Shetland and Manx sheep and Highland cattle. Deirdre specifically chose a pale creamy white Shetland wool for the main body of the terns and the dark - almost

black – wool of the Hebridean sheep for the head. These were all materials sourced from as close to the knitting group as possible; they were local materials to represent local concerns, they represented an artistic tie to the histories of crofting and vernacular skills of island life. The material animal origin of the yarns that made the terns are a way to connect the knitters, in a material sense to their environment (Hawkins et al., 2015). The resonances and lively materiality of the woolly terns have been written about extensively by Hawkins et al. (2015), and so this section on the materials is purposely brief as I do not want to reproduce this work. However, I would like to acknowledge a different type of material connection based on that animality of the yarn, in that the woolly tern bodies provide a perfect habitat for the involvement of more nonhuman animals, clothes moths (but more on that later).

For Dalton (1987) knitting kits have deskilled the craft by removing functional and creative elements and in doing so, prevented women from exploring their own “ideas, values, experiences and fantasies” (Dalton, 1987: p32). However, Joanne Turney argues that far from limiting creativity, kits have the potential to enable different forms of creativity and allow women to make objects of quality and value (Turney, 2004). Indeed, the experience of the Woolly Wednesday knitters suggests that the kits formed a structure around which their own creativity could grow from. Within the pattern, there was also a requirement that the beak and the legs were to be made from found materials (wherever possible).

These were not part of the pattern, and the knitters had to use their own ingenuity to add these items, as Linda recalls “I can’t knit to save my life, I did try. I really wanted to knit a tern, but I just couldn’t get it. So Deirdre made me one so that I could decorate it” (Linda, interview transcript, 25.11.2016). The knitters remember how Anne, Linda and Dawn had gone for a walk to the beach to find materials for the birds. The kits then, were less a bar to creativity, but rather offered a way to let other people into the group who were unable to knit the birds themselves. This resourcefulness and resilience, both in terms of being able to reuse and reimagine materials – as well as draw on other people’s making and creativity skills – resonate with contemporary debates about craft therapy, slow craft, repurposing and repair (Hackney 2013: p182 – 183).

Anne remembers how Linda was really enthusiastic about the beaks and feet (far more than she was) “oh, I didn’t really know about that bit. I just wasn’t sure. I think Linda sewed mine on in the end did she? We’d collected a bag of bits and bobs that day we went to the beach; we all knitted and Linda did the feet...” (Transcript of knitting session, 23.11.2016). The sharing of skills and materials were important to the group, and the things they spoke about with most energy. The different practices of sharing resources, tools and knowledge demonstrate how this knitting group, in a similar way to other crafts such as sewing can ‘come to represent or reinforce moral values and relations of reciprocity, mutuality and conviviality’ (McRobbie, 1998: p25). As the knitters think back and remember the beginnings of the group, it is these experiences of sharing skills and the exchange of time, energy and materials that the group seems to remember the most. I am becoming acutely aware of the group’s easy and open nature to talking about the connections they have to one another, and the ways in which they were created through the project – and the omission of any discussion about the project itself.

I ask the group about the project and Deirdre, “ooh, we all liked Deirdre, didn’t we” (agreement from the rest of the group) “yes, she was lovely, so enthusiastic, such a breathe of fresh air” (Betty, transcript of knitting session, 23.11.2016). Deirdre was wonderful, she always made time for us. I felt like she was always happy to listen, and she made an effort to get to know us. She never bossed us around or told us what to do, she was keen to know what we are like, and she was never afraid to just get stuck in. Even with the washing up. I liked that, the artist from the big city, but she was just like one of us” (Sarah, transcript of knitting session, 23.11.2016).

And what of the climate change aspect? Anne summed up the feelings of the group: “For me, it was about coming together to make something as a group, it was never about climate change” (Anne, transcript of knitting session, 23.11.2016). I must admit, when Anne told me this, my heart sank. The other members of the knitting group agreed with Anne, they weren’t interested in the climate change aspect, and in fact were resistant to talking about it when I tried to ask them more about Anne’s statement.

So, where does leave us in terms of the overall aims of the project? Does the fact that the group were uninterested, and unconnected to the idea of climate change four years on, mean that the project itself was a failure? This, of course, depends on both how we define the successful outcomes of a project, and how we define failure. The entanglements that I found on my return to the island in 2016 were not the same ones that had been made four years previously in 2012 as described by myself and Hawkins et al. (Burke, 2018, Hawkins et al. 2015). One of the issues with the empirical work done at the time was that it had a rather constrained time run (both myself and Libby Straughan, co-author on the Hawkins et al. paper, were on Mull for two weeks in the summer of 2012). This meant that there was no way to know how the connections would evolve or endure. Something had shifted in the intervening years, between the initial research for these papers and my return. The dynamic of the group had maintained a momentum of its own, but that momentum was very much based on the interpersonal relationships of the human participants – the knitters, rather than any connection to the concept of climate change

And yet, here there is interest, because it is not just about ties and entanglements that endure; because if we are to understand the thready geographies of entanglements, it is important to pay attention to the missed connections and the failed connections, the connections that have unravelled as it is to celebrate the things that have worked well (Price and Hawkins 2018). In order to think through the different elements that combined to make the project, the relations and the entanglements over time, I want to now consider the aims, aspiration and labour involved in the set up and design of the project itself.

The Labour of the Artist

In this section I want to consider the labour of Deirdre and the work that she invested in making and maintaining connections within the artwork; between the knitters themselves (which endured) and between the knitters and the idea of climate change (which did not). The artwork was commissioned by Cape Farewell, and as such had an agenda to explicitly respond to climate change – rather than other Anthropocene concerns such as dredging, over-fishing or the

proliferation of plastics in the oceans. Prior to the Cape Farewell voyage, Deirdre, although concerned about environmental change described herself saying that “I didn’t really know anything about climate change [before her involvement with Cape Farewell]. It was really interesting, the trip, and I care, I really do, but it’s not my “thing”, if you know what I mean. Ultimately I guess I’m just more interested in people.” (Nelson, interview transcript, 27.11.2016). Her work, then was as much – if not more - about the creation of a human-centred community and knitting group which created ties, friendships and enduring entanglements as explored in the first section of this chapter.

Deirdre’s affinity for humans over nonhumans resonates with the focus and the form of the entanglements overall, which leant towards the inter-human relationships rather than inter-species relationships. In order to consider these different types of relation, I want to consider the ways in which Deirdre, as an artist, made interhuman and human-tern relations. From an art theory perspective, artistic practices are gauged and judged through the identification of a relational aesthetic, a ‘theory consisting in judging artworks on the basis of the inter-human relations which they represent, produce or prompt’ (Bourriaud 2002, p. 112 cited in McNally 2017: p6).

If seen from this, anthropocentric point of view, the enduring relations between the humans would be the only thing upon which the artwork were to be judged. However, recent geographical scholarship has critiqued the focus of the relations produced as only being about inter-human relations, as McNally argues, ‘by making human encounter the aesthetic focus in relational art, the materiality of the event became consigned to a passive stage on which human interaction occurs’ (McNally 2017: p7). If we are then to consider other forms of interaction that extend beyond the purely human, it is worth paying attention to the materiality and the more than human practices which make up the artwork (Hawkins, 2013b, Hawkins et al., 2015, Ingram, 2013). The Bird Yarns piece was partly about the relations and participation of the knitters and the entanglements formed within the process of making, but it also had a final, physical output around which the participation centres. Much like the participatory work of Askins and Pain (2011), this work held a tension between the need for a professional art product (art for consumption) and the aims of

connecting people to the idea of the climate (participatory art as process). Deirdre had a clear vision about what the themes, media and shape of the end product would be; as she explains:

“It’s important to me that people get to have their own say in it, and that they enjoy it, and they are ‘their’ birds. But at the same time, it’s my work. At the end of the day, it has my name on it and I need to have it up to a certain standard. I can’t have any old crap in there, there needs to be some kind of editing, otherwise I’d have no idea what I’d end up with. So, I need to have control over what people make and what materials they use, to give the whole piece the look that I’m after” (Nelson, interview transcript, 12.01.2017).

Here Deirdre makes a claim for her use of the kits; although the participation and the knitting group are a part of the piece, the final artwork is very much designed by and controlled by Deirdre as the visual effect of the work is something that is very important to her practice. She further explains,

“I can’t have people just using whatever they have. You always seem to end up with horrible acrylic and crazy colours. That makes me sound like a bit of a snob, doesn’t it? But it’s not really about snobbery, it’s just that if they’re not done in the right materials, then the things people make can’t be used, and I feel terrible that someone has put so much time and love into making something and I have to reject it because it’s not right. No, I’ve learnt that it’s easier all round if I give people the wool and be very strict about the materials, even if it seems like I’m being a bit wingy at times. It saves heartache in the long-run.” Nelson, interview transcript, 12.01.2017).

As Askins and Pain (2011: p16) note, the ‘stuff’ of participation is really important in making building and determining the kinds of relations made in participatory arts practices. As they argue, ‘specifically, we want to address the role of things in social relations: their capacities in encounters; and particularly

how material engagement may dis/enable difference', suggesting that how these relations are supported and navigated has deep implications for the nature and formation of entanglements. So while Deirdre was very keen to have people involved, the aesthetic judgements and ultimate control of the work stayed squarely with the artist, which in turn had implications for the level of enduring connection between the climate change imaginary and the knitters.

Paying attention to the role of objects, and the ownership of the aesthetic outcome in participatory art practices exposes and mediates engagement and imbalances reminds us that participatory techniques are not always emancipatory at the site of 'participation' (Askins, 2008). Although the knitters were happy to complete the 'bird kits' as designed by Deirdre and they were free to add their own finishing touches to the birds, this arguably led to a disconnect between the idea of the piece and the ownership over the work, which may go some way to explaining why the knitters did not feel particularly connected to the overall aims of the project, and the institutional aims of Cape Farewell.

After the knitting group was over for the evening, we packed up our knitting bags and headed back out into the small car park; Dawn offered to give me a lift back to the house I was staying in which I gladly accepted. She apologised for the knitters not wanting to talk much about climate change and how cold they had been when I had brought the subject up.

"The trouble is – and they won't say this to you because they don't want to bad mouth anyone – but there was a feeling of resentment about the project afterwards with the knitters. I remember speaking to them at the time about it. They liked Deirdre, and they liked the knitting, but they were a bit baffled by the Cape Farewell people. You see, lots of people come to the island to "get a feel for island life", and there's this idea that you kind of go back in time when you come to Mull. But the people that live here, well this is their lives, with the whole Cape Farewell project, they felt a bit co-opted into someone else's agenda. Maybe I'm speaking out of turn, and this is a bit heightened by everything that happened with Comar; but we get a lot of people coming to the island who think they know what's best for us. I think when the birds were up on display, sadly

that's a bit how the knitters felt, like it wasn't really their project anymore." (Reid, interview transcript, 23.11.2016).

This feeling of a lack of autonomy, control and ownership of the piece is one corroborated by art scholars, Dean Kenning (2011: p14) queries 'most crucially what this eludes is the kind and quality of the relations that have been initiated: is anyone able to participate in an event, or interact with a piece of work, or only those invited to a private view, or the person who owns the work? Are the relationships in any way meaningful, or do they feel contrived, or even coercive?' With the Bird Yarns knitters, there was then a disconnect between feeling attached to the participatory and craft aspect of the project, the knitting, the working with one another, the finding beaks and feet, and at the same time feeling disconnected from the piece as an artwork as they felt coerced into something they did not fully consent to.

It appears that the engaged, embodied and physical relations of making the art helped to build the social relations within the group, indeed, for both the knitters and Deirdre as the artist, it was the social relations and the built sense of community that was most important to the project. In working with Cape Farewell, Deirdre had an institutional pressure to both display a 'professional artwork' and to make the artwork explicitly about climate change; these concerns appear to have stayed with Deirdre as the artist and were not mutually shared by the knitters. Following Askins and Pain (2011) and other scholars writing on the geographies of making together, it appears that while the embodied experiences of knitting and making are remembered discursively and through the body, these connections made with objects through the mediated points of connection opened up the potential for new social relations to be made (Askins and Pain 2011: p21). However, it appears that the fact that the knitters were separated from the artistic 'aims' of the piece, and indeed felt somewhat resentful of this separation, means that any connections made to the idea of terns, or environmental change during the initial making of the artwork did not endure.

In considering the enduring connections made within the *Bird Yarns* piece, I have looked at the role of nonhuman charisma in Deirdre's initial design of the artwork and the way that the terns were both charismatic in their fleshy form – to inspire Deirdre to make an artwork about them – and the way that Deirdre manipulated their charismatic qualities in turning them into woolly representations of terns. I then looked at the social relations between the knitters, which had endured and held fast over the four and a half years since the project's initial inception. Despite these connections and interhuman relations remaining strong, I found talking to the knitters, that any connections that were conjectured by myself and others to the idea of climate change did not seem to have endured in the same way, indeed, at all. While this is not what I had hoped to discover on my fieldwork, these missed connections are both troubling and generative; they alert us to be wary of celebratory rhetoric around human nonhuman entanglements and the making potential of creative practices, and even their direct-ability. In the final part of this section, I drew on participatory art theory and geographical art theory to suggest that one aspect of the artwork that led to a less than hoped for human-nonhuman connection was the level of artistic control and autonomy that the knitters had with the imaginary of the piece overall.

However, I do not want to suggest here that the piece was 'a failure'; there were many connections made, and supportive human communities built around making practices, who look out for one another and support one another are likely to be increasingly important in the Anthropocene. While I have so far focussed on the positive connections made and not made by this piece, I next want to think about the generative and troubling potential in the making of unexpected connections through the work. In particular through the lively and uncomfortable inclusion of another nonhuman into the project; clothes moths. This project is not just about the relations between people and people, people and their environments, but it is about people and materiality. The material concerns of the project do interesting work in the context of the Anthropocene; just because the human participants do not explicitly articulate them, doesn't make them irrelevant. The entanglings are complex and unexpected, and also interesting and important

Moth

Pest

In the years between 2012 and when I revisited the terns on their return to Mull, they had become infested with clothes moths. In this section, I want to consider the entanglements of this other nonhuman into the project, and the effect of the uncomfortable relations of this pest creature. Close, multispecies relations are not always ones that have an assumed conviviality, and the fraught tensions between humans and nonhumans are worth paying attention to – as it is often in the telling of stories that are less than celebratory that relations can become troublingly generative (Lorimer, 2014, Ginn, 2013). The moth's involvement in the Bird Yarns project offers a different way of conceptualising collective and mutually constituted relations in worlds that are made, remade and unmade through engagement, absence and difference.

When Mike opened the bag of birds, he described a scene of carnage; a jumble of dust and disembodied body parts. A moment, he describes as 'heartbreaking'. 'I remembered them being made, the woolly Wednesdays women sitting in the café, and all these little brown paper envelopes that came through the post for Deirdre. There was so much of a buzz about the birds.... And then here they were, moth eaten and forgotten in a bag. It's pathetic, really'. (Price, interview transcript, 21.11.2016).

Clothes moths are fairly ubiquitously seen as a pest for their propensity to damage domestic textiles and other forms of animal based materials that humans like to keep in homes and museums (Hinton, 1956, Parker, 1990). 'Pest' is a powerful narrative that influences our modes of relating and marks positions of belonging in the Anthropocene; pest animals are 'neatly identified, delimited and positioned so as to be separate from and not overlapping with other urban natures that are positioned to belong' (Latour, 2004 cited in Instone, 2014: p80). They, then are unwanted species which are positioned as out-of-place and whose

presence is met with discursive and material reaction (Philo and Wilbert, 2000: p6).

It is not clear where or when the first moth arrived, but it only takes one introduction event for an entire population to establish (Plarre and Krüger-Carstensen, 2011). Once the first moth had arrived in a tern, each time the terns were left settled together in bags and boxes as they travelled around the country would have supported the moths by providing a warm, safe habitat for them to breed. It was only a matter of time before the moth larvae had begun to eat through virtually all of the terns. The moths travelled with the birds, on their own journey through galleries and art centres across the country.

The webbing clothes moth, *Tineloia bisselliella* (hereafter referred to as 'clothes moth') is a small moth that ranges in size from 4 to 9mm and weighs up to 16mg although it is only the larvae that are able to digest their keratinous diet of animal fibres (such as wool, feathers and the bodies of other insects) (Plarre and Krüger-Carstensen, 2011). The soft, woollen bodies of the birds had been an ideal home, and the moths had thrived; tearing through the knitted exterior and soft wool stuffing interior of the birds until the heads and wings became detached.

Many species that are seen as pest species, such as cougars (Collard, 2012), possums (Power, 2009) or ibis (McKiernan and Instone, 2016), are understood as both living within close quarters with humans, as well as having livelihoods which are independent from human habitation. The tension between where these animals are viewed as 'ought to be' emphasises the tricky relations between humans and nonhumans in defining safe spaces and homeliness. Different border processes define the house-as-home, constructing it as a safe, secure space that is distinct from excluded nature, wildness, nonhumans and the 'outside' at multiple levels from household, to neighbourhood and state (Power, 2009). Yet despite attempts to keep unwanted visitors out, the home and human centred environments are porous, becoming host to a diversity of nonhuman pests (Holm, 2015, Power, 2009, Pacini-Ketchabaw and Nxumalo, 2015), as is the case with clothes moths.

Germ and pests are depicted as sources of anxiety in the home, their unruly bodies and habits contaminate homely and familiar spaces by connecting

it with spaces conceptually outside the home; they also destabilise home by drawing attention to alternate nonhuman ways of living (Instone and McKiernan, 2016). Yet, these ruptures and attention to the porosity between human and nonhuman delimitation also have the potential to reflect on 'other ways of being in the world' (Power, 2009: p31). Many studies of pest creatures call into question colonial histories and urban development as infringing on the concept of an 'out there nature' (Kaika, 2004, Muller et al., 2009). The concept of 'pest' therefore troubles traditional nature-culture divides by drawing attention to the indivisibility and complexity of human-nonhuman relations. In this case, these categories are even less clear cut, as the moths were destroying representations of animal bodies made out of animal fibres by human beings in human homes, thus very much blurring any concept of a human – nonhuman divide.

However, I would argue that clothes moths trouble the nature-culture divide beyond the porosity of human homes and settlements and 'wild nature'; as unlike other species that are seen as pests, the webbing clothes moth lives exclusively in human homes. There are no known studies which find populations 'in the wild' - the closest living relative to the webbing clothes moth, *Tineola anaphecola* has been found in the nests of social hymenoptera (an order of insects including bees, wasps and ants) and one instance in a cadaver in West Africa, so it is postulated that the webbing clothes moth once occupied similar spaces (Plarre and Krüger-Carstensen, 2011). Despite being so ubiquitous, very little is known about the cultural history of the webbing clothes moth, although they are believed to have been accidentally introduced to Europe with the trade of game trophies from Africa sometime in the mid sixteenth century (Plarre and Krüger-Carstensen, 2011). The effect of which is that there is no external nature to which clothes moths can 'safely' be contained within; their existence is exclusively, and troublingly entangled with human lives.

I was surprised at how sad I felt seeing the terns again. Last time I had seen them, four years ago, they were outdoors, buffeted by the wind and had crowds of tourists and locals looking at them, commenting on them, chattering about them. Now they were here on Mull again, tucked away in a forgotten corner of a gallery, a tatty collection of moth eaten objects, repaired and patched back together. When

I spoke to the knitters that evening, they shared their own experience of seeing the terns, they reflected on the same emotions of sadness at the current state of the birds, and hope that their ones had met a happier fate of being auctioned to charity. It was clear they did not know about the moths, the freezing, or the great bonfire of terns in Mike's garden that had taken place a few weeks previously (Field notes, 23.11.2016).



Figure 4.5 *Bird Yarns*, displayed in Comar gallery, 22.11.2016. Author's own photograph.

After the unwelcome silence speaking to the knitters about climate change, I asked them about the birds themselves. All of those who were independently mobile had been to Comar to see the birds in their new setting. "Oh, so many of them looked so tatty, some had been patched up, I don't know, I found it quite sad really" (Jan, transcript of knitting session, 23.11.2016). All of the knitters present had wanted to see if 'their' birds had made it, however none of them had been able to find the particular birds they had knitted. I asked if this bothered them, Jan replied:

“Oh no dear, I don’t mind. I knit to give the things away. I mean it would be nice if my tern had come back, I’d like to see how it got on, but it’s ok. Oh, I know that Deirdre auctioned a lot of them off, so if mine isn’t here, it must have been sold... I’m glad that my one has gone to a good cause”
(Jan, transcript of knitting session, 23.11.2016).

In being worried about the birds, and being emotionally affected by their tattiness, the knitters were vulnerable to the liveliness of the moths. I want to pursue this idea of openness to the other, and the ways in which this manifests in the multispecies community of humans, moths and woolly terns. The presence of the moths had upset the knitters, they demonstrated their care for their birds by worrying about what had happened to them. Interestingly, however, they did not stay long with the idea of the tattiness, that is, they did not stay long with the liveliness of the moths, the cause of so much of the devastation of the flock of woolly terns. Instead they chose to think that the terns had failed to return for a more positive reason; that they had been auctioned by Deirdre for charity. But, there is something else going on here. One of the reasons that they do not stay with the idea of the moths is that they did not, in fact, know about the moths. They were vulnerable and open to an unknown other, killed, on their behalf, before they even came into contact with them.

In order to think about the development of the relations between knitters and moths, and the way in which this is regulated and managed by Mike, is, in a way, after Foucault (1990 cited in Collard, 2012) biopolitical. Although not mortally ‘unsafe’, the way in which the moths infiltrate and have the potential to affect the emotional life-worlds of the knitters is enough to inspire Mike to carry out a series of material incursions on the project, killing the moths and destroying the woolly terns. The making and unmaking of spaces in the exhibition and over the duration of the project overall, revolves in part in the policing of which entities are allowed in and which are kept out. This biological control is a form of biosecurity; whose lives are policed, which are protected and which are eradicated is tied up in multispecies power dynamics and a matter of biopolitical calculation (Collard, 2012).

The threat the moths pose to the knitters is more emotional than physical, and yet, this is enough to render them 'killable' in the same manner which killing under biopower is condoned if the entity is perceived as a 'biological danger' (Foucault, 1990: p138). Whereas Foucault's interests are limited to humans, Collard (2012) argues that animals too, are subjects and instruments of biopower, their lives and deaths imbricated with our own notions of power and how these actions make and unmake spaces.

Various everyday practices, such as fence building, gardening, and lawn moving are constantly enacted to bring spaces of safety and security into being (Robbins, 2007) and yet, still the 'wild' flows through 'domestic' life from microbes (Hird, 2009), bacteria, slugs (Ginn, 2013), racoons, possums and squirrels (Pacini-Ketchabaw and Nxumalo, 2015, Holm, 2012, Holm, 2015), and large predators (Collard, 2012).

In order to make the moths 'killable', Mike sees them as being a large enough bio-threat to the emotional worlds of the knitters, to not only destroy the moths themselves, but to also destroy the careful labour of the knitters in the form of the woolly birds. He acts to save some of the woolly birds at the expense of other bird and moth bodies; life and nonlife. In one regard, this resonates with conservation discourse, and the idea that he is 'conserving', 'protecting' and 'restoring' some of the flock of woolly terns by premising their natural state as one without moths and in destroying the infested bodies, restoring the woolly flock to its 'natural state', akin to what Neil Smith has called "the conservative assumptions of saviour environmentalism" (Smith, 1998: p280).

Holm (2015: p38) defines non-animals as 'those that have lost the right to thrive normally guaranteed by the logics of environmentalism and conservationism and can therefore be curtailed, persecuted and even killed without repercussion or guilt'. In the moth's case, they become 'non-animals' because they flourish in human environments and contradict the idea that 'natural' spaces are better adapted to support nonhuman life (Holm, 2014). The moths, therefore are troubling because they are not only transgressing boundaries, between domestic and wild, but thriving in spaces deemed 'unnatural', such as the bodies of the woolly terns. In their transition to 'non-animals' they are also rendered killable.

However, the burning of the tern bodies is not just about the eradication of the moth bodies; it is also about the destruction of the entire habitat that supports their unwelcome liveliness. This then, implies that Mike's project to kill the moths (and in doing so, protect the knitter's emotional worlds), is not a transition between a kind of 'nature' that is damaged to something that isn't, it is about a choice between different forms of nature, which habitats belong where and to what purpose. This is particularly ironic given that what is being destroyed is a living animal (the moth) delineated as a pest, in order to preserve a non-living representation of a charismatic creature (the tern). It also blurs the boundaries as to what constitutes a habitat, as artworks however participatory, are made for specific purposes with humans aligned as central to their production at some point. This would then suggest that woolly terns then, are becoming more of a site for understanding and interacting with naturecultures than it seemed at first glance. The terns are a troubling boundary for what is natural and what is not, they confuse what is a habitat, or an artwork, and depending on these definitions elicits different responses. It is not so much a question of the value of 'an artwork' or 'a habitat that is at stake here, as what is clear is the way in which the woolly tern bodies trouble the relationship between artworks and habitats means that they become 'non-things' in the way that the moths have been made 'non-animals' as they trouble natureculture practices – and this then renders them 'destroyable'. What is also interesting about this is the issue that if clothes moths are not found anywhere else *except* for human habitats, then there is no 'safe space' into which the moths can in fact retreat.

In working to protect the emotional worlds of the knitters, Mike works alone. He alone decides to burn the moths in a demonstration of care and attentiveness to their emotional and affective wellbeing. And yet, in doing so, he is also taking away the agency of the knitters to make their own decisions about how to live alongside uncomfortable companions. He himself has determined himself as boundary-police for the art-habitat breach; and says more about his connections to the knitters than about his connection to the work. These affective and emotional connections are incredibly important, as Hayden Lorimer (2008: p552) suggests: 'life is composed in the midst of affects' and it is in the sticky, complex, unfixed and fleeting mix of 'properties, competencies,

modalities, energies, attunements, arrangements and intensities' of humans and nonhumans that worlds are made in specific times and places. These are powerful things, and life and death decisions are made on the back of them.

I am led to wonder what the knitters would have made of this turn of events. They are grown women, they have lost jumpers and favourite woollen clothes to moth infestations over the years. They have lost husbands, friends, lovers, even one of the members of the group to breast cancer between 2012 and my return in 2016. These are not women who are unknown to grief, sadness and pain. In keeping the moth, woolly tern destruction a secret from the women, Mike has in one way demonstrated care for them, but in another way has closed down different sorts of encounters, nature, relations and connections in affective registers. While he saw reducing the moth damage, and keeping from the knitters as a necessary step, this remains fixed to human priorities of what life belongs where and for whom; and who and what are able to make these decisions. Yet mutual cohabitation is rarely fully comfortable; it is amid these interactions accountability, caring and responsibility – for both humans and nonhumans come to matter, following Lorimer's call to 'allow irreducible human and nonhuman differences to flourish in tight confines with fraught histories' (Lorimer, 2010b: p492).

The discussion and mutual decision with what to do with the moths and woolly terns is part of a broader context of Anthropocene management practices – on a household scale. It draws attention to the mutually constituted lives of humans and nonhumans, especially in regard to the fact that clothes moths do not exist outside human houses. The synanthropic tendencies of moths heightens an understanding of how entangled humans and nonhumans are; that there is no 'out there nature' to which the moths can return, as there isn't for any human or nonhuman. In which case, this forced cohabitation in intimately close quarters, ought to acknowledge the limits of our capacities to bend space to our will and force us to recognise the vulnerability of human and nonhuman others – with the potential to be transformed by that recognition (Ginn, 2013).

In this section I have considered the transgression of the nature culture divide by thinking about clothes moths as a pest species, but one that is

exclusively synanthropic. In the Bird Yarns artwork, there was potential for a troubling, yet potentially generative interaction between moths, humans and terns, yet the knitters themselves were excluded from the conversation as the moths had been killed by Mike before they ever had the chance to come into contact with one another. What this demonstrates, is that like the knitting of the terns, whereby the knitters cared more for one another and their inter-human connections, is that the primary connection in this project was that of the humans involved. In order to protect the emotional world of the human participants, Mike takes great pains to make sure that they remain unaware of the involvement of the moths. He acts as self-appointed boundary-police and in doing so, demonstrates a level of care and concern for the knitters; which in turn has the effect of placing human needs above the potentially troubling knowledge that the entanglements between humans and nonhuman are not always comfortable or easy. In doing so, he prevents both knitters and moths from engaging in any form of multi-species connection.

Perhaps especially at a household level, these are important questions for the Anthropocene, and who and what gets included and excluded from the 'parliament of things' (Latour, 1993) is particularly relevant. In which case, the exclusion of the knitters points to another element of the piece that is worth considering; those things that are difficult to sense and relate to. I want to think about this in particular to the idea of grief within the Anthropocene, in particular how we account for the loss of things that we don't even know exist.

Loss

When Mike opened the bag of moth-eaten terns, he was faced with a jumble of terns and moths, but it was the marks and the tracks of the moths; the holes, the dust, the cases left behind and the smell that alerted him to the presence of the moths, rather than the lively moths themselves. He brought his own personal experience of mothiness to the bag of terns; was already attuned to the marks left behind by the moths (e.g. Hinchliffe et al., 2005). He had understood their presence without ever needing to see a moth itself; and it is in this uneasy co-presence and absence that I next want to consider the role of those things that

are not relational. For this is not just a story about the terns or the moths, but about the way that the knitters related to things that were beyond the things they come into immediate contact and co-presence with.

Kathryn Yusoff asks ‘what does it mean, then, to lose a species or population? To, in effect, initiate, orchestrate and, crucially, to witness (and thus be implicated in) what has been termed the Holocene Extinction Event (Yusoff, 2012: p579)? Perhaps on a small scale, the killing of the moths can be seen as a loss, one that is distanced from the knitters, indeed purposefully so, and it resonates with the loss of biodiversity and life in the Anthropocene and how we can come to terms with, and understand that?

In the face of biodiversity loss, there is a need to be able to account for the vast array of life and nonlife that we never come into contact with by way of meetings, reciprocity and relatings (Yusoff, 2012). Vast amounts of biodiversity and life are being lost, which never come into contact with humans in a relational way; yet this lack of interaction does not mean that these things are less important or that we should not make an effort to understand the violence done to them. But how to we account for such things? Yusoff argues that it is not about trying to make these things more present, but about trying to make sense of how to come to terms with those things that are less than sensible (Yusoff, 2012).

What I consider in this section, then is how the *Bird Yarns* project, and the human and more than human activities which constitute it held space for, and accounted for those things that are less sensible and thus more difficult to relate to. I am aware that discussing such huge concepts as the sixth great extinction and the vastness of biodiversity loss in terms of seventeen moth eaten woolly terns may seem jarring. However, I want to introduce the idea of the household as a sort of unlikely site for these discussions; in doing so, I follow feminist thinkers who argue for a consideration of scale to be important in the making of political worlds; wherein the personal is political (e.g. Katz, 2001, Mitchell et al., 2004, Gibson-Graham, 2011). This is not about envisioning the effects of the Anthropocene in far away places – for example starving polar bears – but rather

this is about the banal violence played out in the daily minutiae of households and small community groups.

Mike had called Deirdre and told her about the moths. After he had burnt and frozen the terns, he packaged them up and sent them to Deirdre's studio in Glasgow. There, she had diligently sewn the terns back together, repaired wings and tails, darned chests and head. Re-afixed eyes. She did her best to make the darns as tidy as possible, but the repairs were not invisible. It was as if the birds carried scars of their histories. (Author's summary based on Price's interview transcript, 21.11.2016).



Figure 4.6 *Bird Yarns* with moth holes 22.11.2016

Dierdre had darned the terns to cover the holes made by the moths as best she could. But, in doing so, she created new connections; it was clear to anyone who saw the moths that at some point they had been repaired by skilled hands. In a way, then, this act of repair draws attention to a history that is not fully articulated in the piece. The stitches, darns and repairs allude to an absence, they suggest a tear, a trauma, a hole – a loss, and in doing so they point to the thing that is no longer there. The tears point to the absence of wool. As Paul Harrison (2007) argues, there is a need to pay heed to those things that are beyond the relational for the things that are outside of relations that also constitute the relations themselves; 'simply put, it is my conviction that as the hollow gives the essence of a jug, the 'nonrelational' relates the 'relational' (Harrison 2007: p 591). Relations, therefore must acknowledge the 'incessant proximity of the nonrelational' (Harrison 2007: p593).

The killing of the moths, and their associated habitat is, in Yusoff's terms 'banal violence', following Hannah Arendt's characterisation of the 'banality of evil' as a function of thoughtlessness rather than radical will (Arendt 1963 cited in Yusoff 2012: p580); one which is structurally implicated in daily and mundane practices, such as the ways we deal with keeping homes and spaces separate from unwanted nonhuman incursions.

In thinking about the different ways the Bird Yarns project engages humans and nonhumans into relation with one another, there is a tendency towards configuring these entanglements around presence and sociality, rather than around absence. This focus around the possibility of meeting neglects, by default, forms of nonrelating based on absence and may be relevant to biodiversity loss (Yusoff, 2012). By thinking with the holes and the absence of the moths in the projects, I argue that there is both a relation based on revulsion and discomfort, but also a nonrelation by way of the erasure of the terms on which knitters and moths could come into relation. Caring for the human knitters then, is dependent on certain mundane acts of violence.

Judith Butler asks that we pay attention to not just 'how we are not only constituted by our relations, but also disposed by them as well' (Yusoff, 2013b, Yusoff, 2012). In this, she suggests that while fostering relations may seem like a reasonable goal, but only if that relationality acknowledges what is undone and

disposed by the hidden relations. The combined actions of the moths and Mike were hidden by Deirdre's darns. But in doing so, he disallowed another form of relation between the knitters and their terns. As Judith Butler suggests, 'perhaps what I have lost in you, that for which I have no ready vocabulary, is a relationality that is composed neither exclusively of myself nor you, but is to be conceived as the tie by which those terms are differentiated and related' (Butler 2004: p22). Here then, there is generative potential in sadness and loss, in a way that reveals the ways in that we are tied to the world and to one another.

And yet, in the darning of the tern bodies, the lives and deaths of the moths were made visible. This was not a complete erasure of all marks of the moths, although their bodies were eradicated before knitters and moth ever came into contact with one another, their absence was made present in the form of the darns and the repairs. The darns were small sites of mourning, small acts of material of recognition of something missing. Perhaps in a way the darns made by Deirdre can be thought of as sites of memorial to a past event, trauma or life that is not spoken about in words. As Harrison argues, when we recount, narrate or tell stories – in particular of loss, pain or trauma, there is a falling short of words. It is not simply those things that are necessarily hard to describe in words, but rather that something else is revealed when language falls short – what is communicated in this failure of communication? It is in the things that are nonrelational that traces the limits of social analysis (Harrison, 2007).

Here, then, perhaps the darns are a way to trace the nonrelational. They trace and delineate the things that are not spoken of, and allude to banal violence and small acts of care, however ethically complex these may be. The materiality of the darns alerted the knitters to something troubling, some kind of history they were not aware of. The story did not need to be told in words because the history of the moths and their incursion into the knitting was marked on the bodies of the terns. The knitters described feeling "saddened" by the state of the terns; so there was a kind of connection here – a connection of the loss and absence of something not entirely understood. What was clear from talking to the knitter, though, is that they had no explicit intention to unravel these stories.

In one respect, this could be seen as a 'failure of representation', a lack of engagement with the complexity and the negative aspects of the project.

However, Harrison (2007: p598) argues that a failure of representation is 'ultimately attributed to an unavoidable but frustrating divergence or muddying of contexts between actors, 'good' or 'successful' representations being ones which work towards the manifestation of their meaning so that they can be comprehended by or may persuade others'. And yet, perhaps this was never the point of the *Bird Yarns* piece at all; as nonrepresentational theory would suggest such acts 'were never meant to succeed' (Harrison 2007: p598). Perhaps the artwork, then - not unlike this thesis - is a way of paying attention to the entanglements, of slowing down and considering differences. What these particular unravelings perhaps show us is the difficulties of convening, in advance, human - nonhuman encounters within art projects. There are connections, relations and encounters made, however, they evolved in unforeseen and complex ways. This chimes with Gibson-Graham's (2011) call to attend to the small scales, to the things that are already existing, and to think about the ways in which different kinds of interactions take place in context specific ways. Things didn't work out as many people expected them too, and it is only in paying heed to the ways that relations did and did not endure in small scales that we come to understand how they work.

The darns, then, were a material trace of the stories that were not told, both because they were kept secret, but also perhaps because they held a trace of those things that were beyond the words that we have to tell. These gaps and silences made visible the limits of the relations between humans, terns and moths. They alluded to the nonrelational, and in the way that their presence was interpreted as a loss and sadness, they drew attention to the things we have lost that we didn't know and we never came into contact with.

The role of participation in the work

In this section I reflect on the role of the different forms of participation within this work, based on Michelle Bastian's (2017) four criteria for nonhuman participation; expanding life worlds, supporting cognitive estrangements, challenging issues of competency and designing methods for inclusion. My own participation was more akin to a traditional 'participant observation', as much as I joined in the knitting group on occasion, I was by no means an integral part of

the group, and this was not a particularly participatory research practice. However, I have considered the role of participation in the design of the project, from the point of view of the knitters, and although they participated in the physical manufacture of the piece, the lack of participation in the design of the project led to a lack of ownership over the work.

By choosing to situate the project in relation to the exhibition of the knitted terns in a new context, I attempted to 'support cognitive estrangements' by encouraging the knitters to see their knitted pieces, and the terns, in a new context. This reflection demonstrated a kind of care due to the way that the knitters were concerned about the state the birds were in – after four years of travelling. This sadness and disillusion about the birds was a key point in the analysis of the work that led me to develop a coding for the theme of loss, which formed the structure for the following section about the unexpected role of clothes moths in the work.

The nature of the work challenged issues of competency because it invited human participants of differing skill sets to contribute to and become involved with the work. It was a project that aimed to be 'accessible' to human participants – and for this it was successful in that it enrolled both non-artists and non-knitters in the project. The role of nonhumans was not a core consideration in the development of the piece, and as such the development of methods for including nonhumans in the artwork was not fully developed. However, I think at this point it is important to note that because this was not a primary concern in the design of the work, it is perhaps unfair to retrospectively critique the work on these terms

In the analysis of the work in the section *Pest*, however, I aimed to decentre the human in the analysis of the work and expand the criteria for whom participation counted. In this section, I took seriously the role of the nonhuman, the moths which had made the bird's bodies their home and the subsequent destruction of both bird and moth and in this way. In my analysis, I attempted to consider the dangers and rewards for moths of participating in human life-worlds. As Bastian (2017) suggests, stepping back from familiar ways of seeing the world, can be a productive way of analysing power dynamics and assumptions of human exceptionalism. By thinking with the moths, and

attempting to understand their participation in the project – as well as the effect that their participation had on the human participants – I attempted to break down traditional barriers of who and what counts as participants in a project.

Similar to the first section of this chapter, however, most of the nonhuman participatory concerns were made during the analysis of the piece, as they were not a core concern in the initial design of work. In turn, then issues of competency and designing methods for including nonhumans were not approached in this piece. However, by taking a step back as a kind of ‘cognitive estrangement’, and ‘expansion of life-worlds’, the analysis of the work attempted to if not decentre the human entirely, at least place a stronger emphasis on the active, and often destructive role that nonhumans play in human’s emotional worlds.

In this final section of the chapter, I have considered the entanglement of an uncomfortable presence in the *Bird Yarns* artwork, the webbing clothes moth. Their lively and unwelcome presence troubled the anticipated human-nonhuman relations. I argued that the inclusion of the moths, and the way they were dealt with by Mike as a ‘pest species’ draws humans, woolly terns and moths into different kinds of relations; ones that do not have an assumed conviviality, yet have the potential to open up different kinds of understandings about the way that we must necessarily cohabit with creatures not of our choosing in multispecies entanglements. In destroying the moths habitat (the woolly tern bodies), Mike at once became boundary police for the division of humans and ‘out there nature’, a practice fraught with power differentials and asymmetrical relations. I then suggested that the ‘presence in absence’ of the moths in Deirdre’s could be seen to act as a memorial to alert our attention, not to relations based on encounter with moths, but as a way to think about the way that absences and ghosts are rendered intelligible, as species are lost. And yet, even this remains almost entirely human centered as it is in the practice of a human artist that draws attention to the absence, and it speaks nothing of the absences for which we do not realise are lost at all.

Conclusions

In this chapter, I set out to interrogate the claims made by myself and other scholars for the types of human-nonhuman entanglements made through participatory artworks. If, as it is claimed, participatory artworks and making practices have the potential to tie humans and nonhumans together in complex entanglements which suggest ethical proclivities towards more sustainable ways of being within multispecies communities, then it is important to pay attention to the ways in which these connections and relations are made, undone and how they endure or unravel over time.

I considered the different forms of entanglements made in Deirdre Nelson's *Bird Yarns* project. To begin this chapter, I looked at the role of charisma in the initial concept of the artwork, and the role that the nonhuman charisma of the terns played in both the choice of the terns as a 'flagship species' through which to consider climate change, and the aesthetic choices made by Deirdre to heighten peoples emotional connection to the woolly terns, and in turn the climate. I then considered the thready geographies made in the knitting group, based on the group's shared activities and the friendships and quiet politics, which held the group together. To my disappointment, when I asked the knitters about the climate change aspect of the Bird Yarns piece, they rejected the idea that they were 'connected' to the idea of climate change through the making of the piece, instead emphasising the fact that it was the human-human relations that were most important to them. This admission then forced me to consider the 'work' of making and maintaining these relations, and to shed light on the ways in which they had unravelled over the intervening years since the piece was first exhibited and my involvement for my PhD research. I looked at the artistic labour in the piece, and the tensions between maintaining and 'overall look' to the work, and the level of creative involvement of the knitters as a way to think about the work of the making and maintaining multispecies entanglements and the potential impact that these aesthetic, artistic choices had on the degree to which the entanglements between knitters and fleshy terns had failed to endure in the ways that had been hoped at their conception.

Over the years between my initial involvement with the first iteration of the Bird Yarns artwork and revisiting it in 2016, the woolly terns had become infested with clothes moths, which had eaten away at their keratinous bodies. The moth's presence alerts us to a different kind of entanglement; an unintentional one that is uncomfortable and troubling. The involvement of the moths is hidden from the knitters, in an act of 'policing', and the moths killed. This opens up questions about the types of connections and entanglements we want, and what happens in the spaces when relations are less celebratory and less convivial. The hiding of the moths also serves as a way of thinking about those relations that are hidden, killed before we meet them, and lost to us without our knowing. As Deirdre darns the moths, she makes small material memorials to the creatures that once inhabited the woolly terns and were killed, almost as if drawing attention to a ghostly presence.

In this chapter, I hope to have articulated some of the complexities of the kinds of entanglements made within thready, participatory artworks. Although in some respects, the project felt disappointing as the convivial and positive connections that were conjectured in the literature did not endure, what this highlights is the need for more sustained and focused research on the ways in which entanglements are both made and sustained – and the work involved in making these. What the *Bird Yarns* project also calls attention to is the nuanced complex and flawed nature of the entanglements. The connections I found were perhaps not the ones I had gone looking for, but the ones I came across were troubling, difficult were awkward, and in a sense more generative and fascinating in their complicated nature.

In the next chapters, then I look to these complexities, and rather than stay with the celebratory and positive connections to Anthropocene concerns, I attend closely to the material nature of the entanglements, and to the role of artistic labour in making, supporting and maintaining the relations.

Chapter 5: Knit and Natter

Prologue

The five women of the “knit and natter” group settle into chairs in a horseshoe shape looking to a computer and projector that doesn’t appear to be working. It is a warm summer evening, and in the small classroom the windows and doors are open and a cool breeze blows in through the trees outside. Maggie is still standing and offers to make Richard a cup of tea, poking in the cupboards in the small kitchen area at the back of the room. There’s lots of cooing and giggling as the ladies in the group take in their surroundings, admiring the children’s drawing of plants and animals, a few taxidermy wildfowl and a little ‘nature scene’ created from felt and pipe-cleaners. We are in the East Reservoir centre of the London Wildlife Trust (LWT), and the aptly named Richard Van Neste is preparing to talk to the group about the impacts of climate change on the local area. However, the centre was broken into and vandalised the night before, so Richard is flustered and frantic as his day has been spent clearing up graffiti and what he hopes is cherryaid from the floor, walls and ceiling of the LWT classroom; his computer with a neatly produced powerpoint presentation is slow and reluctant to cooperate after a run in with the cherryaid-or whatever-it-may-have-been.

Maggie, an enthusiastic 65 year old; well-known and well-liked in the local area for her voluntary work with elderly people and the local community centre, begins the conversation by enquiring about bats in the local area, and the conversation begins at a roll into tales of childhood and fears of bats getting tangled in hair... Richard appears a bit perplexed by the direction of the conversation and reassures the 6 women and girls present that bats are nothing to be afraid of. He gently returns the topic of conversation to climate change, what we had come to the centre to talk about...

Richard: One of the first things, one of the first concerns is (goes quiet) how wildlife affects us. We’ll give that [the computer] a minute. Talking about how wildlife

affects us, and this is a perfect time of year and a perfect moment to talk about that, because the last few weeks have been really hot, haven't they?

Group: affirmative mumbling.

Richard: It's been so hot the last few weeks. Um, and we've seen in the last 10 or 15 years some record breaking heat waves. We haven't seen the record set this year for record temperature, highest temperature ever recorded in this country, was in Faversham in Kent, so not all that far away, an hour, an hour and a half from here, and it was 38.5 degrees.

Mary: Ooh wow! 35? That's as hot as Africa!

Richard: yeah

Miriam: 38!

Maggie: when was that recorded?

Richard: that was 2003 I believe

Richard: We had big heatwaves in 2003 and 2006. In 2003, throughout the whole of northwest Europe, over a period of 2 weeks we had a really big heatwave. I was 13 years old.

Olive: Chuckles

Richard: I bet if you go back and look at holiday snaps and things, you'll be able to picture it. But 20, 000 people died during that heatwave. That they could attribute to the heatwave. They didn't die "of heatwave" but they died of heart attacks, strokes, breathing difficulties.

Betty: We [older people] get more tired in this weather

Richard: They probably had underlying conditions, but it shortened their life, so it was 20, 000 people above what they would have expected. Hospitals were inundated with people; real, real problems ...

[tinkers with the computer, gives up and sits down with the group]

The conversation expands and progresses from painting train-tracks white to cope with increased temperatures, housing construction in African villages to keep inhabitants cool, grass roofs, little Egrets, magpies, crows and blackbirds to problems with pigeons and squirrels entering Mary and Betty's properties. The regeneration of the estate (one of the largest in Europe) is often on people's minds here, and there is a feeling of disillusionment that not more has been done to make

the new estate environmentally friendly – although the consensus on what this actually involves is somewhat confused. Maggie and Betty are disappointed that plans they were shown for the estate with solar panels, green roofs and underground car parks never came to fruition. Although the old post war blocks of flats have been replaced by have brand new, well insulated homes, there have been fewer ‘bonuses’ such as green spaces, parks, trees or solar panels to keep their energy bills down. Tea is drunk, and biscuits shared. Some of the women have brought their knitting with them, and Olive offers to help Richard cast-on a row – although instead, the group opts for a walk around the ‘private’ area of the nature reserve on the reservoir as this is the part that they don’t usually get to see. We head out onto the East Reservoir as the sun is setting over the London skyline and enjoy being outside in a secluded urban wildspace in the warm summer evening.

Following concerned discussions by the older members of the group about summertime overheating, Holly Morris, a local art student, picked up on the idea of shade, and suggested making a knitted parasol with a map of the area on. The group then spent the next hour or so of the session discussing ways of making the parasol: where they would find an umbrella for the structure, what fabric they would use, what wildlife they would attach to it, how they would attach things to it, how they would work out patterns... I offered to source an umbrella and cut calico panels to build the structure. They chatted happily for the rest of the session, taking breaks for tea, biscuits and sharing advice on knitting techniques. Field notes and transcript of session, 18.08.2014).



Figure 5.1 Knit and Natter trip to the East Reservoir, 18.08.2014. Author's own photograph.

Introduction

This chapter will explore the thready geographies of the “Knit and Natter” knitting group in northeast London. I set up and facilitated the “Knit and Natter” group; taking heed of Gibson Graham’s (2011: p7) call to ‘adopt an experimental orientation [and] approach the world with the question “What can we learn from things that are happening on the ground?”’. This chapter pushes this experimental approach in positioning myself at once the artist, the facilitator and in doing so enables a hands-on, integrated and nuanced approach to participating in the interconnections and the making of entanglements. Here then, I am as much a learner in the becoming world as the knitters are in the project to understand the Anthropocene in local terms and entanglements of human and nonhuman social worlds.

My co-creators and fellow participants in this experiment of learning to engage, entangle and belong in the Anthropocene are the human knitters, the

materials and the nonhumans who have come to be tangled up in our stories and projects. My narrators on this journey are two nonhumans who are symbolically and materially made by the knitters over the course of the 9 months the project ran; a family of mice and a grey slug. Through two sections *Mouse* and *Slug*, I address my research questions, firstly by thinking about the nature of the entanglements; who is entangled and who is not? How are the entanglements forged, built and tied, and how do they hold together? The making of the entanglements and ties within *Mouse* and *Slug*, also hold space for thinking about the different kinds of 'work' involved in building, sustaining and practicing these entanglements for the multispecies communities who participate in the project. The chapter, therefore is divided into two sections which resonate with Gibson-Graham's call to think connection involving sensory and intellectual receptivity formed around two ethical projects; one, a belonging to the world in a material sense; and the other belonging with nonhumans and humans based on a sense of kinship (Gibson-Graham, 2011). Before getting acquainted with *Mouse* and *Slug*, first it is necessary to get a feel for the group, its set up and its geographical context.

The Knit and Natter group

The PACT Knit n Natter group meets every Monday evening in the Redmond Community Centre, on the Woodberry Down estate in North London. The 2,000 homes in the area, mostly consisting of 1950s and 60s blocks of council flats are gradually being demolished and replaced with over 5,500 new flats in a mixed development of social housing, shared ownership and private flats (Hackney Council, 2016), leading to social and political tensions amid concerns around regeneration and gentrification (Chakraborty and Robinson-Tillett, 2014). The knitting group meets in the Redmond Community Centre, situated on the western edge of the estate, overlooking the 'west reservoir', one of two reservoirs which provide drinking water for London, the other being the 'east reservoir', where the knitters and I went on our excursion.

Before starting this PhD I was working at the community centre as firstly an energy advisor and then the arts officer. Having worked on the estate, and living

only a mile away, I knew many of the residents before starting the group. It was through my work as an energy advisor that I decided to set up the knitting group; with the initial intention to knit 'sausage dog draught excluders' to keep homes warmer, although in the end I was the only one who ever made one. The group was (and still is) advertised through posters and flyers in the centre and around the estate, but most people have come to it through word of mouth. Inspired by *Bird Yarns*, I had wanted to test out a different model of 'knitting climate change', one that focussed more on the choices and opinions of the participants than myself as an artist.

The knitting group is made up of a core group of 4 women who come every week, a further 12 women and children who drop in regularly, plus people who come either as a one off or either occasionally. For the purpose of this chapter, I will concentrate on the core members of the group. The women, Maggie, Betty, Olive, and Mary are all long-term residents of the estate who either live in the old council properties or the new social housing. Maggie and Olive are pensioners and while Betty and Mary work, they all are in receipt of some form of income related benefit. They have little prior knowledge about anthropogenic climate change, but most are actively involved in other local community activities through the community centre. For example, when asked about the causes of climate change in a focus group, replies included air pollution and volcanoes; ways to mitigate climate change focussed around recycling and food waste collection. The group has done a number of other collective projects including knitting blankets for the elderly, hats to raise money for a homeless charity and poppies for Remembrance Day.

The structure of the chapter

This chapter falls into two sections, *Mouse* and *Slug*, *Mouse* considers the material connections and entanglements made within the context of the group and the project and the connections made between yarn and knitter. The *Mouse* itself is made of many different materials, some new, some repurposed from other objects. The section begins by looking at the entanglements between knitters and the polyester yarn that they choose to buy new. I do this by thinking

about the material life and deadly entanglements of plastics, which have come to characterise the Anthropocene, through the haptic and embodied experiences of making with this kind of material. The second section of *Mouse* considers the reusing and repurposing of different materials, how assemblages that once were objects with different social and material lives have come to the end of their life and are – not repaired or maintained – but transformed into something new which in itself makes and unmakes different meanings, entanglements and memories for those involved. The final section of *Mouse* considers the role of the materials within the group for making human social worlds, how small acts of sharing and reciprocity focused around the shared materiality of the group forms and maintains the social relations of the knitters.

Where the focus of *Mouse* is primarily on the material entanglements and their resonances, *Slug* considers the symbolic and emotional entanglements of humans and lively nonhumans - both fleshy and knitted – as a way to understand the connections of ‘kin’ as suggested by Gibson-Graham (2011). *Slug* begins by considering the role of nonhuman charisma in the knitter’s decision to make uncharismatic creatures. I begin by putting Lorimer’s (2007) conception of nonhuman charisma into conversation with Crouch’s (2003) concept of ‘spacing’, in which quiet, small embodied encounters are brought to the fore, to suggest that through a process of micro-encounters the charisma of the slugs is developed by the knitters. Next, I consider the idea of nonhuman charisma in relation to the knitted representation of (rather than the actual fleshy) slugs and how they are transformed through the making process. I argue, after Tim Ingold (2011), that the decision making process is one of an ‘ecology of practices’ that brings together materials, availability of patterns, memories, skill in a complex web of connections as the knitters choose what and how to represent their local environment and the way it is changing. Having looked at the decision making processes on a relatively individual level – albeit influenced by many factors – the final section brings cultural geography into conversation with participatory art theory to think about the social relations through the lens of conviviality and antagonism, and the micro politics of the group’s decision making.

The chapter finishes with a summary of the key arguments and an acknowledgement of just how complex, tangled and snarled the details of

connections are, and the importance of 'staying with the trouble' in order to understand and tease out meaning from within the sticky webs we are a part of (Haraway, 2016, Bennet, 2010).

Mouse

Maggie takes a ball of pink, polyester yarn out of her bag. It is in a smaller, drawstring canvas bag containing all the materials and tools she is using to make her mice: a recently bought ball of pink acrylic yarn, a jar of sequins for eyes, a small bag of stuffing donated from Betty and another small bag with darning needles and tiny, neatly wound skeins of grey yarn for making the noses of the mice. Also in the bag are three small mice and one larger one. On her knitting needles is a partially made small mouse body. At the beginning of the session, the women take out the items they have made over the week and show them to one another. Maggie pulls the four mice out of her bag and holds them gently, showing them to Olive. Olive looks nonchalant, unimpressed even "Eurgh, I really don't like mice, Maggie" (Field notes and transcript of session, 01.09.2014).



Figure 5.2 Maggie's Pink Mice, 03.03.2016 . Author's own photograph.

Many of the materials for Mouse have been re-appropriated from other things. Very little is wasted, and this is something that is of utmost importance to the knitters. Although the group has a small pot of funding – enough at least to buy some yarn, needles and keep the group in tea and biscuits - the members prefer to bring in their own items, and reuse things that they already own, or that are being thrown out. The stuffing has been a toy dog, cherished by a child until a rather brutal run-in with a pet dog until it was no longer recognised and no longer wanted by its family. In a heap for the bin, Betty had seen potential in the materials and requested them for the knitting group. Maggie took apart some cushions she no longer liked to salvage sequins, beads and zips; Olive keeps a jar of 'odds and ends', buttons, poppers, iron on patches and beads for use in projects.

There is a strong ethos of not wasting materials; Betty is proud of the fact that she has prevented a sackful of unwanted material from ending up in the bin

and is pleased to be able to share it with her friends in the knitting group. (Field notes, 01.09.2014).

In this section of Mouse, I consider the reciprocal entanglements and material liveliness of the group; the way that the group ‘curate’ their chosen materials and the effect that these materials, in turn, have on the group. I will begin my thinking about the material qualities of newly bought yarn itself, the factors that influence the knitters’ decisions and the haptic and embodied effects it has on the knitters. The section then moves on to think about the way that materials are disassembled, remade and reused within the group, and the thready geographies of making material relations between the group and building and developing friendships amongst the human participants.

The knitters discuss where they get their “wool” from: which they invariably called “wool” despite being invariably manmade. The women of the knitting group are all on low incomes and each is in receipt of some kind of income-based benefit; meaning that the cost of buying yarn is a key factor in their choices. The materials they use have been donated, scavenged (as is the case of the dog-mauled toy) or bought at the local charity shops or low cost local department store, Selby’s. Although there are apparent environmental benefits to this ‘make do and mend’ ethos, the lively materiality of these plastic fibres means that the environmental impacts of the reuse and ‘upcycling’ of these materials are complex and – in terms of ameliorating environmental impacts - limited.

‘New’ materialism

“Selby’s is so good, Betty you know. You should go down there. There’s so much wool, all the different colours, oh there really is so much choice. And it’s really good value too. I got this ball of wool (holding up a large, 500g ball of navy blue acrylic yarn) for just £1.99. I can’t understand why some of the wool, in those expensive shops, you know like that fancy one in Clapton, I can’t understand why it’s so expensive,”

Maggie holds the yarn, she turns it over in her hands, putting her fingers between the threads and pulling a few threads up, stroking them between her forefinger and thumb. I notice how thin her skin looks, the sunspots on the back of her hand, the yellowed area at the end of her first and middle fingers from smoking and the gnarls of arthritis on her fingers. She comments on the colours and the texture. She likes how soft it is. She describes how for baby stuff she avoids anything with actual wool in it. She goes on to explain that it gets hellish itchy, and well, with baby stuff, you need to be able to just bung it in the washing machine. (Field notes, 08.09.2014)

There are a number of considerations the knitters make when choosing their yarn; availability, cost, colour, feel and durability. None of the knitters have access to the internet (nor use computers), so unlike many contemporary knitters, do not purchase yarn online, or share patterns or socialise in online forums (Hackney, 2013). Instead, they rely on embodied encounters, the look and the feel of the yarn in choosing what to knit with. The uptake in crafts such as knitting are often seen in terms of middle class hobbies (Price, 2015, Gauntlett, 2011), yet the women in the knitting group all define themselves as working class, and with low incomes, cost of yarn is a major determining factor. Maggie describes how she will begin her search in Selby's for yarn by price, starting at the cheapest per weight, she will then assess the yarn for other qualities; durability (whether it is machine washable on a regular, 40C cycle), colour and texture.

Based on the fact that she wants the finished product to be able to be easily machine washed, her preference is for manmade fibres and polyester. Polyester sits alongside other plastics that are 'emblematic of economies of abundance and ecological destruction' (Gabrys et al., 2013: p3). One of the consequences of uncontrolled growth and persistent proliferation of plastic – in all of its forms – is, in Küchler's words 'one the greatest ecological, health and environmental challenges of our time' (Küchler, 2015: p272). Although this artwork attended specifically to the idea of climate change, the use of materials in the artwork is interesting. Although the proliferation of plastics is not directly and immediately linked to the issue of climate change per se, it is a key factor in

Anthropocene concerns. The irony here is that we are in the process of making artworks about climate change with a material that is both toxic, pervasive and characterizes the Anthropocene. Plastic, in the form of polyester, not only lingers in homes, wardrobes and second hand shops, but is also responsible for vast amounts of micro-plastics being released into the sea with deleterious effects on wildlife (Hebrok and Klepp, 2014, Hebrok et al., 2016, Kuchler, 2015, Fletcher, 2016).

As Stanes and Gibson (2017: p30) argue, polyester is a ‘troublesome and contradictory material; it’s plasticity and indestructability at times celebrated, at other times a source of disgust, or in many cases simply concealed from obvious view’. The plastic content of the yarn they use is not a conscientious consideration for the knitters, instead they engage with the haptic qualities of the threads. This resonates with research that suggests amidst growing material excess, consumers are less attuned to the strength and durability of fabrics, what they are actually made out of and their environmental impact (Stanes and Gibson, 2017).

Taking an Ingoldian approach to the interactions between embodied skill, environments and material qualities means paying attention to the different nuances and relationships between the knitters and their yarns. In this perspective, making practices are not the imposition of an abstract and pre-formed idea onto a material substrate, but rather the skill of making with the material, in which material and maker are implicated in a relational and reciprocal process (Ingold, 2013). As a part of this process, the feeling of doing, and the choice of yarn becomes important.

As Maggie runs the yarn through her fingers, she comments on how soft it is, and how much she likes knitting with ‘this kind of wool’. “I like how it slides over the needles easily, it isn’t lumpy or bumpy like some wool you get, it’s just so soft and smooth”. In paying attention to the haptic qualities of the yarn, I aim to explore the ‘practical engagements’ with clothes to ‘unravel rich narratives...in terms of tangible and emotional experiences’ (Straughan, 2012: p22).

Throughout our whole lives, we are nearly always in contact with some kind of textile, from baby blankets to clothing, bedding and death shrouds (Pajaczkowska, 2005). Through the very way it is so mundane, we often don’t

notice fabrics, and it is only really in movement that we really feel fabric and textiles, and come to know the different qualities (Pajczkowska, 2005). Through holding the yarn, running it through her fingers and in the intimate bodily encounters with her materials, Maggie understands the materials in the way they move, respond to her needles and she generates knowledge through the acts of doing, moving and making.



Figure 5.3, Mary and Holly crocheting in the knitting group. 28.07.2014. Author's own photograph.

Polyester is comprised of layered and additive compounds, it appeals to the senses as light, flexible and soft, its composition measured by an embodied and sensory perception of comfort (Hebrok and Klepp, 2014). These appear to

be the qualities that Maggie and the other knitters value in their choice of yarn, building a sense of softness, and a sensory perception of comfort.

Comfort, at its most basic, is a sense of security and comes in many forms (Bissell, 2008). From the rather conservative idea of a 'comfort zone', to corporeal comfort, such as that of an armchair, comfort can be both emotional and bodily. Comfort is most accurately be both of these things simultaneously, each is dependent on the other; comfort is a specific affective resonance, which circulates between and through objects and bodies. Comfort is not an attribute of a specific object, but 'a set of anticipatory affective resonances where the body has the capacity to anticipate and fold through and into the physical sensation' of an environment (Bissell, 2008: p1701). Here, the haptic experience of the soft yarn serve as a launch-point for a host of other affective and emotive experiences of textiles, opening up a space of understanding; how the body acknowledges and negotiates space via visceral, unconscious and cognitive means (Straughan 2012: p21).

In this way, the embodied qualities of the yarn point to something more emotive. The haptic experiences of the knitters, in their search for softness, flexibility and dependency - in both a reliable 'feel' to the yarn and the ability to easily wash it - come to draw attention to other, more emotional ways of engaging with the knitting and the produced textiles themselves.

Reusing and re-appropriating materials

The material recalcitrance of polyester forces us to acknowledge the ways in which the fibre persists long after the value of it's initial use, in clothing or home furnishings is exhausted (Hawkins, 2001, Hawkins, 2013a, Gabrys et al., 2013). Things have social lives, but they have biological and chemical lives as well, which may only become perceptible when they begin to drop out of circulation (such as the cushion and the toy dog) (Edensor, 2005). Having been discarded or outlived it's original purpose, polyester and other manmade fibres move within reuse, recycling and resource reclamation economies; of which the knitting group can be seen as a small example (Stanes and Gibson, 2017). Although there are apparent environmental benefits to the group's 'make do and mend' ethos,

the lively materiality of these textiles - all of which are manmade fibres - means that the environmental impacts of the reuse and 'upcycling' of these materials are complex and arguably limited.

The proliferation of toxins and microparticles linked to plastics is one of the characterising elements of the Anthropocene (Alaimo, 2010). The sheer scale of the quantity and longevity of these materials is what makes this a global issue; and this is not something that is going to be prevented within a knitting group reusing old cushions. However, this is not to downplay what the group is doing. As Gibson-Graham suggest, it is not that these different forms of interaction and economy are suddenly going to override global capital, but by paying attention to the small scale changes, the spaces of different ways of doing things, or resistance and creativity, there are spaces for the "glimmers of possibility" of other ways of doing, being and belonging in the Anthropocene (Katz, 2001, Morrow and Dombroski, 2015, Gibson-Graham and Roelvink, 2010). Micro-interactions make meaning, connections and entanglements and held within these scales is the not just the possibility for a world that 'could be otherwise', but the actual doing and practicing of it too.

Instead of thinking about the knitters reuse of materials by looking at their 'rubbish value' or the ways that they are dismantled and their economic and social lives extended in the process, I focus on the transformation and the mutability of the materials themselves. This is an effort to think about how the thing and the commodity are moments in the circulation of matter and materials, and in doing so, this destabilizes the 'thing itself' (Graham and Thrift, 2007, Gregson et al., 2009). By thinking about the mutability of materials, and the mundane creativity and ingenuity involved in their transformation, I suggest that this opens possibilities for thinking about different approaches to tracing different forms and nuances of human-material entanglements.

The things that the knitters were undoing were things that had come to the end of their useful life and were destined for charity shops and landfill; a broken toy and some tatty cushion covers. Betty had brought in the stuffed toy dog, carefully unpicking a seam so that the stuffing could be removed. Maggie described how she had spent an entire evening with a pair of embroidery scissors neatly cutting the small stitches that held an array of tiny beads and

sequins onto the cushion, and collecting them in two separate jam jars, recalling it being very fiddly (field notes 08.09.2014).

There is care in both of these processes, for both Betty and Maggie, it is not about the destruction of things, but about the potential in the materials. They are seeing the toy dog and the cushion as 'assemblages, ontological conjunctures of stuff, materials, brought together and held together, but also coming apart and wrenched asunder' (Gregson et al., 2010: p853). In these processes, they are performing what Gay Hawkins (2006) calls the arts of transience; they are working with the mutability of things.

In undoing these specific, fabric entanglements we come to understand things as inherently unstable, materially as well as in their meanings (DeSilvey, 2006). Objects come apart, economically, physically, symbolically and socially. As such, the object is but a temporary moment in an endless process of assembling materials, a partial stabilisation and a fragile accomplishment that is always inexorably becoming something else, somewhere else (Gregson et al 2010: p 853). As the knitters pull apart their own and others possessions, they are pleased with their ingenuity and creativity; neither Betty or Maggie have a clear idea of what exactly they will use either the stuffing or the beads and sequins for, but they see potential in the materials beyond their current form.

The act of looping yarn over needles over fingers is one specific skill in the knitting, but – as Ingold makes clear – is only one aspect of it. Skill and craft are also marked and influenced by the environment, as he argues 'skills are not techniques of the body considered objectively and in isolation, as an instrument in the service of culture. They are rather properties of the whole system of relations constituted by the presence of the practitioner in his or her environment' (Ingold, 2011: p401). The knitters immediate environment is constituted by the larger environment (for instance the nearby nature reserve from which their ideas are influenced) and their material environment, the physical materials that they have access to and are available to them to work with. In the case of this knitting group, these are things that are cheap, and local to source, either from shops in close proximity to the group, or from their homes and the homes of their friends and family. The development of their skill then is

contingent on exposure and receptivity to the immanence of ideas and connected relations that are not necessarily to do with the present task (Ingold, 2011).

Through the integration of new materials and skills into their work, they are also exemplifying the 'endless process of assembling materials, a partial stabilisation and a fragile accomplishment that is always inexorably becoming something else, somewhere else' (Gregson et al 2010: p853). In this process, the knitters are acknowledging the precarity of their material possessions; they are developing embodied understandings of mutable, becoming worlds through their interaction with materials and their immediate environment. The time and effort they spend transforming these materials into something else gives the new configurations of yarn, beads and stuffing a different sense of being and becoming in the form of a small family of pink mice.

Reuse and the making of memories

Maggie describes how she had as a child she had a pet mouse. She would take it to school in her pocket, she talks at length about her mother's feelings towards the mouse (less than affectionate), about the time the mouse (which she had bought as a male mouse) had a litter of pups and she had to divide them up. She remembers the reactions of her school friends, some curious, some scared. She talks about walking to school in Ireland as a young girl, and becomes animated with the memories (Field notes, 25.08.2014).

Within these interactions of pulling apart the fabric and furnishings of homes, there is an element of transformation beyond the material transformation of the cushion and toy into 'mouse' in the way that memories and emotions are bound up and woven into the fabric of the transformations.

When I ask her about the mouse, and why she chose to knit it, she simply describes how she just liked it, and the way the yarn seemed to say 'mouse' to her. Once she had knitted one, she liked it so much she just kept going. She described how like the idea of making a little family (field notes, 25.08.2014). This choice of material echoes Ingold's thinking on making as 'continually responsive both to changing environmental conditions and to the nuances of the

practitioner's relation to the material as the task unfolds' (Ingold, 2011: p401). The mouse is also the composition of not just the yarn that Maggie has bought and saved, but it is a material revival of different, discarded items, and their transformation into something new, different and meaningful to those who make them.

These acts of memory resonate with the material work of disassembling and disaggregation in the previous section; I now want to consider the role of emotions and social bonds in the reworking of these materials into new forms. Because these acts are not just about the usefulness of the materials, however assembled, integral here are the social and emotional worlds of the knitters in working between materials, memories and one another to create something that is valuable and meaningful to them. The sites and materials of reclamation and remaking encourage us to recognise that these are 'processes of creativity and ingenuity which do not seek to reverse entropic processes of decay, rather to build something anew' (DeSilvey, 2006). Then, the way the knitters work with the materials they have to hand, and transform them into creatures, which will presumably have their own limited lifespans and forms of entropy demonstrate how the objects made are gestures of temporary stabilisation, and how things and objects are always in flux and always mutable.

The mouse has been made with a particular memory in mind, the choice of making the mouse, is – as Ingold has it – an ecology of practices which bring together skill and materials, but included in this is also the role of memory for the knitters. It is at once about holding the creatures from the nature reservoir in mind, but it is also about drawing on memories.

The pink yarn made Maggie think of her knitted mice, but in making the mice she also developed and added to her memories of them. Her pet mouse (I presume) would have been a shade of brown or white, rather than pink. Her choice of pink, is influenced by childhood sugar mice, rather than the furry fleshy versions, so in this she is also drawing on other, unspoken memories and bringing them into the knitted bodies of the mice in her canvas bags. The mouse then, does not 'speak to a singular (human) past... but works with an ecology of memory – things decay and disappear, reform and regenerate, shift back and forth between different states and always teeter on the edge of intelligibility.

Rememberance comes into its own as a balancing act... which salvages meaning from waste things and reveals the complexity of our entangled material memories' (DeSilvey, 2006: p336).

Materials, value and sharing as tools of friendship

Unlike the Bird Yarns project, the value of the finished project has little to do with the materials from which it is made. The knitters in this knitting group have different decision-making processes to the materials they use – and how and why they use them – to Deirdre's Bird Yarns artwork. They value their materials for their bright colours, for their longevity and for their easy availability. These are the things that Deirdre thinks of as being crass and gaudy, and the types of materials she tries very hard to keep out of the Bird Yarns piece and her other artworks; things she regards with distain and as the hallmark of bad taste. The London knitters have a different sense of what they do and do not value; a large part of how they come to value their materials is as the basis for their role in social interactions with one another. Betty brought in the stuffed dog to share the stuffing; Maggie brings in her jars of sequins and beads; Olive always carries at least two pairs of scissors with her – one to use herself and one to lend to others. They are collecting materials for use by the group. Therefore a large part of their value is that they are not, in fact, expensive, rare or precious, but that they can be given to others and shared generously without feeling outdone by the interaction (Gregson et al., 2010).

Sharing tools, materials and expertise is a core practice in making and sustaining friendships in knitting and crafting groups, providing informal care and support shaped by shared histories and experiences (Bowlby, 2011). The embodied 'being together' of the group is the social glue that binds the knitters together, and the items that are reciprocally shared, the scissors, needles and yarn, are an essential part of the process of developing understandings and trust within the group. However, this romantic idealisation of "community' and 'neighbourhood', which by virtue of their existence implies cohesion' is more complex than it may first appear (Bunnell et al., 2012: p496). The act of gifting to one another reaffirms social relationships and friendships (Bunnell et al., 2012).

Some anthropological literature posits a distinction between 'western' and 'non western' practices of exchange; western based on monetised systems of exchange (Mauss, 2002) and non-western which exhibit personal entanglements between people and things (Kopytoff, 1986). However, more recent geographical research shows that 'the boundaries between 'things' and 'people' are cut through with emotional affective and sensory connections', (DeSilvey and Ryan, 2018: p205) suggesting diverse forms of economies are already present and being made and unmade within capitalist environments (Gibson-Graham and Roelvink, 2010, Tsing, 2015). The knitting group is arguably one of the sites in which these diverse forms of economy are already existing; the social ties are composed not on a monetised system, but on networks of trust, friendship and reciprocity.

Summary

To summarise *Mouse*, I have paid attention to the material entanglements that are made in the knitting group. The knitters use embodied forms of knowledge and understandings to make decisions about the type of materials and thus the entanglements they form. Concern for the environmental impacts of plastics was not a part of their decision-making process, resonating with Stanes and Gibson (2018) who argue that consumers are more and more distant from the materials, textiles and fibres that we surround ourselves with on a day to day basis. Whether conscious or not, however, the knitters are making material entanglements with the yarn that they purchase and use. In looking at the way that they reuse and reappropriate materials, this is not just about straightforward repair to extend the social life of objects, it is about creatively re-imagining material futures, of seeing the possibility in undoing and re-doing assembled things. In working with the transience of objects and the possibilities inherent within these processes, they are engaging with new ways of being and belonging in the Anthropocene (Gibson Graham 2011). There are 'glimmers of possibility' in the way that they are engaging with the material liveliness of the material worlds they inhabit, which in turn are making social connection between the knitters themselves. The very act of finding, sharing and gifting

materials and tools is a way to make and sustain the (human) social dimensions of the group; and evidence of diverse forms of economy already present in per-capitalist environments (Gibson-Graham and Roelvink, 2010, Tsing, 2015).

While *Mouse* has very much focussed on the material entanglements and the social worlds that make them and are made by them, the umbrella is, visually and metaphorically a representation of nonhumans, using different textiles and fibres. In this section, I have concentrated on the entanglements between the liveliness of the materials and the humans, with the nonhumans playing something of a supporting role in the development of these ideas. In the next section, *Slug*, I turn to examine the different kinds of relations made by and with nonhumans as lively participants in the knitting group.

Slug

During the initial visit to the wildlife reservoir, Richard van Neste had brought in a series of pictures of little Egrets. Little egrets are a small, white heron with white plumes on the crest, back and chest with black legs and yellow feet (RSPB, 2018). As Richard explained to the group the last few years have seen an increase in little egrets visiting Woodberry Down, first as winter visitors, and now there are two nesting pairs who have over-wintered on the reservoir due to the climate getting warmer (field notes, 18.08.2014).

He liked little egrets, and in a private conversation suggested that they “seem like an obvious contender for the knitters to make” as they represented climate change in a way that was local, and somewhat positive. “We don’t speak about ‘invasive species’ in the London Wildlife Trust,” he explained “it carries all sorts of connotations about immigration and unwelcome species sort of imply unwelcome people too. In a place like London, and well, especially round here, we want to be as welcoming and diverse as possible.” (interview transcript, van Neste, 30.07.2014)

But there were no knitted little egrets on the umbrella, there was one blue tit, some butterflies, an array of different flowers, toadstools and mushrooms, and an abundance of invertebrates and amphibians; snails, worms, spiders, ladybirds, toads in various sizes; but the animal that caused the most amusement to the group was a knitted slug (field notes, 15.02.2015).

The Slug knitted by Olive brought on some fits of laughter as Maggie, Betty and Devon tried to work out where its body ended and its head began. They all agreed that it was not biologically correct, but all 3 knitters squeezed it and caressed it with affection. Maggie thought it looked more like a rabbit than a slug, she was a little confused that its eyes did not appear to be in the correct place, and tried to manipulate its shape by bending it at the ‘neck’ to make it more ‘slug-like’, although it resolutely popped back into the same position as soon as she let go (field notes, 29.09.2014).

Introduction

In this section, I turn to the choice of creatures that were made by the knitters. This project fosters and makes connections; it is a way for the knitters to represent what is special to them about their local environment. It explicitly speaks of what, how and why they cherish their locality and because of this. It matters if they make a reservoir or a solar panel; a slug or an egret. These are contested and considered choices, influenced by many factors. In short, what they make, matters.

Slug, then considers how the group's decision-making process is influenced by a range of interrelated factors; the charisma of the creatures themselves, personal preferences, level of skill level, materials and artistic and institutional factors. The decision-making practices sheds light on the nature of the entanglements between humans and nonhumans, and the ways in which they cohabit their shared environment.

Slugs are 'neither charismatic nor monstrous, rather they are probably most likely to be thought of as an irritation' if they are thought of at all (Ginn, 2013: p532). It is in this liminal space, between affection and revulsion that *Slug* becomes an interesting and thought provoking subject with which to think about human-nonhuman relations. 'We need to attend to the ambiguities and ambivalences of living with nonhumans close by and in familiar settings,' and it is in these geographies of uncomfortable and unloved nonhuman others that there are generative possibilities for understanding different forms of engagement and detachment that are less than straightforward (Ginn, 2013: p532, Lorimer, 2014).

In order to attend to the nuances of how the knitters made connections as a group, between themselves and nonhumans in the local area, in this case the uncharismatic *Slug*, this part of the chapter is divided into three sections. The first section considers the role of nonhuman charisma in fleshy slugs, by putting Lorimer's (2007) work on charismatic species into conversation with David

Crouch's (2003) writing on spacing and performance. The second section works with the transformation of the uncharismatic fleshy slug into a slightly more charismatic knitted slug, by way of the practice and comforting geographies of the practice of knitting. The final section draws on participatory art theory to understand the tensions between conviviality and antagonism within the group.

Nonhuman Charisma in fleshy slugs

"What are you knitting now? Olive, you are a funny one. I didn't know people knitted slugs, slugs! What ever happened to mittens and hats eh?" Olive described her husband's reaction to her knitting (field notes and knitting group transcript, 15.09.2014).

The knitters comment on the fact that the items they are knitting are unusual, they are not the things most retired women knit; there is something about this mild rebellion that touches the knitters, they giggle about confused comments from their husbands (field notes and knitting group transcript, 15.09.2014).

There is an importance placed on the representation of something that is different or unusual, there is a tension between the knitter's idea of the types of things "little old ladies like us are meant to knit" - as Olive observes - and the creatures they choose to knit; and Olive's slug is a prime example of this. Slugs are rarely thought of as being charismatic animals; the geographic literature that has engaged with human-slug relations has focused on humans as gardeners, and slugs as pests (Ginn, 2013). This fits into a wider body of literature, which considers the role of affect and embodied experiences which make up the relations between humans and lively nonhumans and their collaborative efforts to make greenspaces such as gardens, orchards and graveyards (e.g. Hitchings, 2003, Cloke and Jones, 2001). These works challenge traditional western notions of the human as having dominance over their gardens, and in doing so, alter their decision-making processes and activities to include and make room for – if not the interests per se – the agency of nonhumans, for example by

planting plants that are unlikely to get eaten by slugs, or moving plants to areas where they grow best.

However, something different was happening with the knitters and the slugs. The knitters were not gardening; the reservoir and its lively nonhuman inhabitants, was an area that they were not trying to alter in any way. The East Reservoir nature reserve has since been opened to the public (in 2016 by Sir David Attenborough), but at the time of the research, the only people allowed in the reserve were those that worked there, and specially invited guests like the knitting group.

“Wow, I’ve lived on the estate for 25 years, I’ve always seen the gates, and I guess I knew the reservoirs were there, but I’ve never really given them much thought. It’s amazing to see London like this isn’t it? It’s so peaceful, here. I can’t believe this was here all along. Away from the all roads and the noise. Is that the Shard over there, Richard?” (Mary, knitting session transcript, 18.08.2014).



Figure 5.4, Sarah, Maggie and Olive at the East Reservoir 18.08.2014. Author's own photograph.

This next section considers the role of embodied and affective responses to the reserve, and how the knitter's experience of it as reflected in their knitting practice through the idea of 'spacing' (Crouch, 2003). Although Crouch originally coined the term for use in mundane practices such as caravanning and allotment gardening – although arguably the knitters see the reservoirs as something more out of the ordinary – the focus on embodied practice and on the encounters and performances associated with space help to understand the ways in which the group slow down and pay a different sort of attention to their surroundings.

Crouch (2003) uses the term 'spacing' 'to identify subjective and practical ways in which the individual handles his or her material surroundings. Spacing is understood in terms of action, making sense (including the refiguring of 'given' space) and mechanisms of opening up possibilities' (Crouch 2003: p 1945).

It is a warm sunny late August afternoon, as Richard led the group of women out on to the nature reserve. The group went unusually quiet as they walked towards the reeds at the water's edge. There were some ducks and geese on the water; the regular mallards and Canada geese, and a few more unusual species such as tufted ducks and a pair of great crested grebes. Richard explains about the birds which nest in the reed beds and feed on small insects; the reed and sedge warblers and reed buntings as we watch small brown birds chirrup and flit in and out of the reeds. The reservoirs are home to frogs, toads and newts, he explains, and the women begin to poke the ground with their feet to make sure there are no rogue amphibians lurking in the long grass next to them. Sarah, Mary's eight year old daughter is excited about the idea of finding a frog and bending over, begins to walk along the edge of the path that leads round the reservoir to see if she can find a frog (field notes, 18.08.2014).

Here we can see that the women went quiet, they slowed down and began to tune in to the different kinds of noises on the reservoir; the noise of the roads and the city were muted by the large trees; it was as if this had had an effect on the dynamics of the group, as they themselves quietened. They listened attentively to Richard – whereas before they were busy chatting amongst themselves and talking over him as they knitted. But here, they were quieter, they were pausing to pay attention to what is around them and what has changed. The notion of embodied practice as 'expressive provides a useful direction for thinking about the relationship between touch, gesture, haptic vision, and other sensualities, and their mobilisation in feelings of doing' (Harre, 1993 quoted in Crouch, 2003: p1946). The group got noticeably quieter, while they had been very chatty, conversations petered out and they began looking around at their surroundings more than one another, and seemed to be walking more slowly, taking care where they were treading, and looking to see which

paths they most wanted to walk. Maggie and Mary were keen to watch the birds in the reeds, asking Richard questions about their nesting and eating habits. Sarah was interested in frogs, and she and Olive paid attention to the ground, movement in the grasses and were looking for cool, damp places that might be appealing for frogs and toads in the hot August weather.

In his research on 'spacing', Crouch (2003) uses the sites of allotments and caravan parks to interrogate the different ways people perform their environments and through routine and habituated practices they develop transformative possibilities of 'the simple, uneventful things they do, in terms of feeling rather than outcome'. The ideas then, are 'not just prefigured but (re)figured in embodied semiotics. Ideas, doing and feeling are not unknown to each other; rather ideas and doing work together.' (Crouch, 2003: p 1952). Like Crouch's performance of spacing, the ways that the knitters move in the nature reserve, the way they slow down and go quiet, breaking in to smaller 'interest groups', physically bending down to touch the grasses and feel the dampness of the ground, straining their eyes to focus on small birds in the middle distance, is a way of performing their local environment differently, and making them see their estate – that in many ways they are so familiar with – in a different light.

It is a place that in many respects is very familiar to them; but they are seeing it anew. They have shifted their mode of engagement, and are making an effort to pay attention to the lives of nonhumans, on their own terms. In this way, in their performance of spacing, the embodied and affective experience of being in the nature reserve is something unexpected for the knitters. This unexpected nature, and change in tempo signifies a shift from something that is familiar and mundane – and their state of being, within that – to this slower, quieter altered performative state, they are 'reaching forward'; from *being* in the security of the familiar group, to *becoming*. It is in this state of becoming, where 'performance's performativities may open up new, reconstitutive possibilities' (Crouch 2003: p1948). I would further argue that this slowing down and the possibilities for sensing things anew, resonates with Bruno Latour's idea of 'learning to be affected' (2004).

It was in their (ultimately unfruitful) searching for frogs and toads that Olive and Sarah had come across a slug. Underneath a log in a shady area of trees, where there was still a bit of residual dampness, it sat (lay?) there. They peered at it. Sarah wanted to get a stick to poke it, but Olive held her back. They watched it for a while. It didn't move. They laid the log back and left the slug alone, pleased to have found a possible frog habitat and moved on, keen to find another (field notes, 18.08.2014).

There is much in the performance and embodied liveliness of spacing and experiencing and being immersed in new environments, and the performance of slowing down and becoming affected by a different kind of temporality – a quieter, slower group dynamic – emphasises this altered state of becoming. However, I am also interested in the way that the group decided to think about, remember and represent this mundane-yet-marginally-out-of-the-ordinary experience in what they chose to knit.

The trip to the nature reserve was not just about new experiences of familiar territories and environments; it was also about the representation of these experiences and environments. As Crouch notes, 'these are drawn into a focus through the character of performativity, in nodes and knots of what they notice (Crouch 2003: p1955). When individuals speak of what and how they do, they compile events reduced to an instant. Although we 'may retain no trace of the temporal dynamic of the flow of time' (Bachelard, 2000: p57) moments of performance, when and through which things are remembered as significant, can be revealed.

Nonhuman charisma in knitted slugs

The slug appears, at first glance, to be an unusual choice for inclusion on an umbrella celebrating green spaces in the city. I am interested in the things that the knitters chose to represent their visit to the nature reserve; because what they make and why they make it matters. As noted by Crouch (2003), there is a large difference between the experience, feeling and performance of space, and

that which is later remembered, recounted and represented. But the knitting of the slug is not a straightforward reminiscence or representation; the knitters must make a decision based both on their memory and their skillset and ability to represent this memory and affective experience through their knitting practice. In order to better understand this back and forth relationship between thinking and making, I turn to Tim Ingold and the ways that cultural geographers have engaged with his ideas around skill and making as a way to understand the reciprocal role that making practices, representation and materials have on one another.

I draw, here in particular on Joanna Mann's (2018) work on knitting and how she conceives – after Tim Ingold - of knitting as an 'ecology of skill'. For Mann, Ingold 'insists on a relational perspective that situates the practitioner in the context of an active engagement with the constituents of their surroundings (Mann, 2018: p93). As such, Ingold understands skill, not as innate or acquired but rather as 'grown', 'incorporated into the human organism through practice and training in an environment' (Ingold, 2011: p292). The implications of this argument are that intentionality and functionality are not pre-existing properties of the user and the used but are immanent in the activity itself. The tools of skilled practice are not so much used, as brought into use through their incorporation into an accustomed pattern of dextrous activity (Mann 2018: p 93)

In this way, we can think of the many different environments that begin to shape the way and the things that the knitters can knit; they are influenced by the environment itself, the reservoirs and how they slowed down, and what and whom they notice in their local spaces, they are influenced by the patterns they can access, the time they have, the materials available to them as well as their perception of the political landscape of what they ought to be knitting (more on that later).

Before the knitters have even picked up their needles and started to work with plastic yarn and plastic needles to make their creatures there is a choice about the kinds of patterns that they can use. In the community centre is a small, volunteer run council library. It is sometimes open, and sometimes not, depending on volunteer availability, much to the consternation of the centre staff. The library has a small selection of knitting books, and it is a combination

of these limited books and the magazines and books that the group themselves bring into share with one another that constrain the possibilities for what can be knitted.

Maggie finds a book in the library of patterns for “25 birds, bees and flowers to knit”, Betty brings in some patterns for toys she made for her son, and later her grandchildren. Beulah has been browsing in the charity shop, and bought a bundle of magazines for 75p. None of the women use the internet, and only Betty has a computer at home. When I suggest that – if they let me know what they want to knit – I can look up a pattern on the internet, Maggie gets flustered.

“But how will we know if it’s any good? Where will we get pictures from? I need to know what I’m knitting before I start. But how will you print it? How will we take it home? Oh, no; I’m not sure Miriam. I’m not sure where I would begin. How would I know if I can do it or not? No, I prefer to see the pattern first” (knitting group transcript, 15.09.14).

Although I try to reassure Maggie that online knitting patterns are not entirely as unwieldy as she fears they are, I decide to just let Maggie, who at this point has become unofficial spokesperson for the group, stick with what she knows and feels comfortable with. And so, the choice of what to be knitted is determined by the familiar if random ability of the group to access published patterns that they feel comfortable with. This pattern choosing ability has resonances with the knitted kits in the *Bird Yarns* project, like the knitters of the terns, the knitters of the umbrella feel most comfortable working with patterns they ‘trust’. They show no desire to make up, or radically alter the patterns to suit their imaginations, although they are happy to make small changes. For these knitters, there is a creative process in the choice of patterns, even if the choice is somewhat constrained.

Returning again to Crouch’s idea of spacing, I am interested in the way that this idea of the mundane and the group’s willingness to ‘go beyond’ is constructed and constrained. It is clear that they find stability and reassurance in the regularity and knowing in advance what can be done and this is intimated as

security in what they do. They have a clear idea in advance of what their skills are, and what they are able to knit, even when they do not have a clear idea of what item they want to knit. There is, then a tension between the familiarity of their own skills and ability and their creativity and their ability to think beyond what they ordinarily make. In varied ways, individuals can contest and negotiate the tensions of the unexpected and the habitual. As Crouch (2003: p1955) argues, 'there is a pervasive tension in the narratives between holding on and going further that many respondents appear to negotiate, and these can be played out in their encounters with space' and I would also argue, that this is mirrored in the ways the knitters both negotiate their encounters as well as their ability to use knitting to represent these spaces and encounters.

Although a few of the knitters have knitted toys in the past, most of them have primarily knitted clothing for children, and occasional accessory items for loved ones; hats, gloves, scarves. They are intrigued and excited about the idea of making something out of the ordinary, but they need to know that even *out* of the ordinary has safe parameters to do with the kinds of patterns and the trust for known patterns that they will use.

Olive found some slightly sickly pale green yarn in one of the bags of donated materials given by another resident of the estate – now too old and frail to knit. The yarn, she said, made her think of the frogs that her and Sarah were trying to find that afternoon. "Ooh, but then we found that slug.... Hmmm, what colour would you say it was? Maybe I need some grey to make the slug. It was quite black, did you see it Betty?" Betty pulls a face of disgust, "no, and I'm glad I didn't," Betty jokes. Olive continues thinking about the slug "but I can't knit something that dark, no it makes my eyes go all funny and I can't see the stitches properly. I think I'll make it in a lighter grey" and she carries on rummaging in the bags for some grey yarn (field notes and knitting group transcript, 15.09.14).



Figure 5.5, Olive's Grey Slug, 03.03.2016, author's own photograph.

In reference to the things the knitters chose to make, here we can clearly see an Ingoldian sense of the interaction between materials, environment and bodies of various skills. At times, it is the yarn that 'speaks' to the knitters, it is the thing that sparks their interest and their memory, and at other times they specifically go to look for a certain type of wool. But even these choices are affected by their embodied interaction with the material, and their personal preferences for what makes 'good' yarn to knit with. Although my conception of making here is a human centred one, this approach – and the approach of the knitters - does draw attention to the interaction of nonhuman materials, lively nonhumans, relations and technical ability to suggest, as Ingold puts it that 'skills are not techniques of the body considered objectively and in isolation, as

an instrument in the service of culture. They are rather properties of the whole system of relations constituted by the presence of the practitioner in his or her environment' (Ingold 2011: p401).

Somewhat to my surprise, amongst the selection of patterns that the group had accrued, there was more than one pattern for a slug. One was a more lifelike pattern, involving quite intricate and anatomically correct patterning for the mantle, the keel, skirt, foot and tentacles of a slug. Olive rejected this pattern; she said it was "too complicated and a bit too... [pause] yuk" (Olive, knitting session transcript, 15.09.2014). Instead, she opted for a more caricatured version of a slug, the actual knitted creature whom we will come to presently.

The knitting of the slug, for Olive, holds a number of things. There is the memory of the slug itself, and a certain affection for the creature - afterall, she was the one who stepped in to prevent it being poked by a stick by Sarah. There is the memory of the slug, sparked by finding a green yarn which reminded her of the frog that she looked for and never found, and in turn to the slug that Sarah and her had found instead. There is the memory of the affectionate interaction with Sarah, and as noted at the beginning of this section, the comical feeling of mild rebellion of an old lady knitting a slug. All of these entanglements and relations interact to bring together a desire and a capacity to knit the *Slug*.

In its knitted form, *Slug* takes on a new dimension of aesthetic charisma that the original creatures arguably do not have. The knitted nonhumans have been altered from seemingly cold, slimy creatures to warm, fuzzy creatures with large eyes, through the process of knitting. Part of this is their tactile qualities, the qualities bestowed on the creatures by way of the fact that they are made of yarn; they appear soft and comforting. The knitted materialities and their embodied sense of tactility and comfort alerts us to the possibilities and politics of their changed charisma as knitted items rather than fleshy slug bodies.

Nonhuman charisma is something that can be manipulated and even created by people for specific purposes, such as for raising funds and awareness of particular species and particular environmental concerns (Lorimer 2007). The knitted slug, in Milton's (2002) terms 'personalises' the slug, by accentuating its eyes and face, Olive has diluted some of its less appealing traits and bestowed upon it literally, cuddly charisma.

It is in the action of holding of the slug in their hands that the knitters engage with the aesthetic charisma of the knitted slug; subtle and resonant comforting qualities are transmitted through the tactility and handling of the knitted creatures. A sense of closeness, familiarity and ability to bestow comfort on another is something of a unique quality of textiles, and it is through these soft textile qualities that the slug takes on a form of cuddly charisma. Comfort is not an attribute of a specific object, but 'a set of anticipatory affective resonances where the body has the capacity to anticipate and fold through and into the physical sensation' of an environment (Bissell, 2008: 1701). Through both the process of giving the slug a face, and developing its 'cosy' and comforting knitted body, Olive has transformed its aesthetic feral charisma into cuddly charisma. Feral charisma is described as being based on a respect for otherness and difference (Lorimer, 2007). In choosing to knit the slug, Olive chose a creature whose body and lifeworld is that is markedly different from her own, and in doing so articulates a fascination with the 'otherness' of the slug. It was a function of the scale of transformation – of something so feral, bordering on repulsive - being transformed into something cuddly that gave the knitted slug more charisma and charm than some of the other knitted creatures.

How far this goes to suggest that the knitters have changed their view of slugs 'in the wild' remains, however, unclear. It has been argued that knitting has the potential to connect those who knit – and those who handle and view the knitted items – to the things that are knitted, for example coral reefs (Haraway, 2016) or Arctic terns and climate change (Hawkins et al., 2015), in this particular case, I saw evidence of the knitters developing different relationships with one another through by way of the knitted slug, but not necessarily to live fleshy slugs themselves.

As the knitters pick up one another's knitting there is a sense of value and respect for the skill, time and craftswomanship in each of the items. Betty holds the slug carefully, inspecting the seams, the tiny lines of decreasing stitches, and the carefully sewed eyes. "How long did this take you Olive? How do you make this bit go like that?" Slug is not mechanistically made, but has taken on some of the imperfections and personality of its creator. Through embodied experience of handling the items and the unique fabric of the individual creatures, the

knitters develop an awareness for the uniqueness of coproduction of materials and the hands into a specific materiality (Barnett, 2013). In this sense, the knitters are not only touching the knitted creatures, but they are also touching – and connecting to – one another through the prosthesis of the knitting, through the action of hands and the ties that extend from hand, through yarn to hand, between material and human reciprocally (Pajaczkowska, 2005). It is through this movement, this touching of the materials and in it the touching of one another that a sense of comfort, familiarity and care is transmitted.

The skill of knitting, therefore can be seen as the circulation of care and comfort through the materiality of its practice and the gendered associations of craft and knitting as homely (Price, 2015). These knitted relations, between matter, human movement and nonhuman competencies coproduce a complex, affective development of imaginaries of comfort and affection (Bissell, 2008). These subtle and resonant qualities are transmitted through the tactility and handing of the knitted creatures, for it is in the holding of these objects in hands that the knitters really engage with their aesthetic qualities and charisma. As Pajaczkowska (2005: p223) argues that ‘we intuit the significance of wrapping as a prosthesis of touch, the continued existence of the hand in the absence of the body that offers touch’. Yet it is in the inter-human relationships that this is seen most clearly, rather than between humans and nonhumans.

However, this is not to say that the knitting project is not successful at attuning the knitters to their environments, or to relations with nonhumans. As we saw in the beginning of this section on slug, the knitters slowed down in the environment, they paid attention to the slugs, tracked frogs and listened to birds in new ways. The feral charisma of the fleshy slug was enough to make Olive want to knit a slug, but the transition into cuddly charisma in the form of the slug had perhaps more to do with the relationships between the human participants than human-slug relations.

I want to stay with this relationship between the human participants. The knitters were connecting to the nonhumans in new and interesting ways. However, it was clear from my time with the knitting group that the most profound connections, relations and entanglements the knitters were making were not to the materials or even the nonhumans, but ultimately to one another.

In this next section, I consider the work, and the labour of making these connections. I had set up the group and ran it for a year; it was a lot of work, more work than I was anticipating. Making sure there were enough cups, knitting needles, hot water. Phoning or visiting the knitters and making sure they were coming, checking bookings at the community centre to ensure we had somewhere to sit. There was a lot of 'behind the scenes' work to ensure that things ran as smoothly as possible, and 'smoothly' wasn't always the case. Making communities and connections takes time and work; sometimes the connections are convivial, sometimes they are less so. Wherever they fall on this spectrum requires labour from all involved. In this next section I turn to the ways the group came to make decisions about the umbrella as this process stands to demonstrate the nuances and complexities of building human-human relationships over time within this idea of a more than human participatory project. In order to do this, I bring in art theory as it speaks to the role of labour as well as the spectrum of conviviality to antagonism in the context of participatory artworks.

Art and the labour of collective decision-making

I arrive slightly late to the group, and a selection of patterns are already spread across a low table. Olive, Betty, Devon and Maggie are sifting through the magazines and loose knitting patterns. Betty pulls out a pattern for a sunflower. "Oooh, look at this one Olive, I would like to knit this!" Maggie interjects, "but there are no sunflowers on the reservoirs". Betty is clearly taken aback by the tone of Maggie's voice, which is bordering on aggressive. "Do you think that matters?" Betty asks, "Well, we can't just knit any old thing can we?" Maggie replies "But I just thought this one was really nice, I thought it would make a fun project". "Yes, Betty, but this isn't just a bit of fun, this is supposed to be a serious artwork, right Miriam", Maggie says, looking to me, she continues. "We have all these people counting on us, Betty, we need it to be correct. They need to be things that we know live on the reservoirs."

“Well, I suppose it makes sense that they should be things that do live there, but I don’t know that it matters that much, I mean, this is still our time and it is up to us too... I think if you want to knit a sunflower, that’s ok, Betty” Olive says, trying to make peace.

Maggie is visually flustered. She raises her voice. “No, Betty it’s not ok.” She grabs the pattern from out of Betty’s hands. “Sunflowers don’t live on the reservoirs. It shouldn’t go on the umbrella.”

Betty is shocked. Olive is shocked. I am shocked. Betty and Olive look at one another, unsure of what to make of Maggie’s sudden turn of mood. They smile nervously at one another and Betty shrugs her shoulders. “Guess not that one eh, Olive?”

Maggie has moved to the table where the tea is set out and begins tidying up, anxious and stressed she moves teabags, spoons and the milk jug about and sighs audibly. Betty and Olive sit close to one another on the sofa, arms touching, leaning into one another to speak so quietly so no one else can hear. I am left, somewhat startled by Maggie’s outburst sat next to Devon, we begin to talk about the weather (field notes and knitting session transcript, 25.08.2014).

In this next section of Slug, I want to think about the decision making processes for inclusion and exclusion of creatures on the umbrella. I have chosen to draw out this particular antagonistic moment in the group. On the whole, the group sessions were a convivial space, people chatted politely and made one another tea. But, the nine months of knitting sessions were dotted with three major incidents like the one detailed above, and numerous smaller disagreements, which would markedly change the dynamics for a few weeks; making particular members of the group quieter and less likely to talk in discussions, often Betty. I want to focus on this idea of antagonism and disagreement because it sheds light on the political and less “cosy” dimensions of working with people and materials with differing ideas and interests. In order to think about the relationship between conviviality and antagonism in participatory arts practices I turn to key debates in the contemporary art world for how the politics of negotiation in collaborative art-making are viewed.



Figure 5.6, Discussions about what to make in response to the trip to the East Reservoir, 25.08.2014. Author's own photograph.

During the art project, I was 'the artist' and the facilitator. This was a situation that I had created, and I want to reflect on my role in the creation of the conditions which enabled and sustained the umbrella to be constructed. From the beginning, I wanted the project and the finished piece to reflect the opinions, thoughts and feelings of the knitters. I saw my role as more of a facilitator than an artist: I had planned and organised the trip to the nature reserve, and I had suggested that the group makes something knitted in response. Aside from that, I was clear that the project and the project outcomes were the imaginative work of the knitters.

I did not set up the project either with the intention of being overtly political, or "feel good", I was clear that the project was the creative and material work of the knitters, and my role as 'the artist' was more facilitator (and fundraiser) than creative director. This being said, the project was a long term project, over nine months, and within this time there were different political alliances made and unmade between the knitters and their craft. Unlike Bishop's

(2004) contention that relational, and participatory art *ought* to be antagonistic, this project had elements of antagonism as well as many times of conviviality. As Shannon Jackson argues 'when a political art discourse too often celebrates social disruption at the expense of social coordination, we lose a more complex sense of how art practices contribute to inter dependent social imagining. Whether cast in aesthetic or social terms, freedom and expression are not opposed to obligation and care, but in fact depend on each other' (Jackson, 2011: p14).

As the knitters discuss their project with varying levels of conviviality and antagonism, they demonstrate the ways in which social creative art practices are a complex interrelation of individual expression, group dynamics – as well as obligation and care for one another. This is demonstrated in the ways in which they speak to one another, and the role of the materials and objects created play in these discursive moments. The discussion between Betty and Maggie revolved around an imagined and not-yet-material sunflower, and this is important; this is a discussion about an idea, not an object.

Olive has also knitted a brown rabbit. Maggie brings up the fact that she doesn't think that there are any rabbits living in the nature reserve. Betty agrees that she did not see a rabbit or rabbit hole. The conversation moves on to biscuits. There is no question that the rabbit, now fully formed will not be a part of the umbrella. Unlike the not-yet-knitted sunflower, the rabbit is physical. It embodies Olive's labour and time, there is an unspoken respect for those qualities that is unquestioned. Once the object is formed, these discussions take a different, more tactful tone. The reception of the knitted items has a marked effect on the knitters due to the materiality of the object and the levels of respect for the skill of the maker.

The relationships operate on different levels within the making of the umbrella; there are the social interactions on the day to day basis within the practices of making, and there is the level of antagonism and conviviality in the material piece that is being made. The group is a space for decisions to be created and discussed; which is more often than not, done convivially. However, these decisions are located within a broader context of social and economic relations, which have particular resonances for the knitters, many of whom are

retired, and all of whom are on low incomes. There is a precarity in their economic situations which I would argue leads to them making particular decisions about how antagonistic (or not) they feel they are able to be in the making of the artwork.

Shannon Jackson (2011) argues that participatory arts practices such as this one have the ability to 'provoke reflection on the contingent systems that support the management of life' (Jackson 2011: p29). She goes on to suggest that they can bring an 'awareness of our enmeshment in systems of support, be they systems of labor, immigration, urban planning, or environmental degradation' (Jackson, 2011: p45). With this in mind, I want to think about the process by which the umbrella itself was chosen as the item that would be knitted.

When I first suggested they think about what they would like to make in response to the trip, there was a nervous silence. I had prepared for this (it's not a straightforward question, being asked to 'knit climate change' after all!), so I had a few ideas and prompts to start a discussion. From the trip, I had made notes about the things that came up in the conversations with Richard, and I asked them what they remembered of these conversations; Olive made a joke about her memory being 'not what it used to be', so I reminded them of their conversation about their disappointment in there not being many solar panels on the new buildings (and where they were present, the residents were not seeing any reduction in their electricity bills). Following this, I suggested a 'yarn bomb' protest consisting of us making huge solar panels and hanging them from the buildings to draw attention to the lack of renewables on the site. They looked at me in something I can only describe as bordering on horror. "But how would we do that?" "Ooh, I'm not sure, how would we make something so big?" "oh, I wouldn't want to make anything that upset anyone" "yes, I wouldn't want to piss Genesis (the housing association) off" (Maggie, knitting session transcript, 25.08.2014). And that was the end of that idea.

We began speaking about the little Egrets, they were more disinterested than oppositional. Although they didn't take to the idea of knitting Egrets at all, it wasn't rejected as ferociously as the more politicised solar panels. We begin talking about how hot the summer has been, and how hot the new flats are. Holly, a local art student, brings up the idea of shade and keeping cool, and it was

her suggestion for a decorated parasol (affectionately known as ‘the umbrella’). “Ooh, I like that, we could knit things to go on it” (Olive, knitting session transcript, 25.08.2014) “we could knit the reservoirs” (Betty, knitting session transcript, 25.08.2014) “like the Stoke Newington Common map!” (Maggie, knitting session transcript, 25.08.2014). And with that it is decided that the group will knit ‘the umbrella’ to celebrate the role of greenspaces in keeping urban areas cool. The final decision is unanimous and made with conviviality, not conflict.

I had, however, influenced by Clare Bishop (2004), been keen for the group to make something more antagonistic than the thing they had chosen. I find it interesting that they chose to shy away from the more political project, for a more comforting, positive and cosy vision of their local environment. When I ask for the reasons behind this, Maggie tells me that she is “worried about how the housing association might react if we do something that’s criticising them”, Olive says that solar panels “would be really boring to knit”. Thinking back to Ingold’s assertion that all skills are created in the context of embodied and material relationships, here I find the creativity of the knitters, intricately entangled with their own knitting skills is also in the context of their embodied, material and political context.

In this decision-making then, is the imaginary of the practicalities of the making practices; knitting a series of huge grey rectangles is understandably, a less appealing prospect than knitting lots of small plants and animals. But there is also something surprising and jarring about Maggie’s response to the idea of a political or protest piece. She is the most antagonistic individual within the group itself, and yet even she is very keen to avoid conflict with the housing association (who they all rent their flats from). I don’t interrogate the topic further, but there is a clear unwillingness to make anything that they feel would reflect badly on themselves, or have personal consequences of any kind, and so they choose the far less confrontational umbrella. They begin to chat excitedly about the kinds of things they are going to make, and where they will find the patterns.

Shannon Jackson argues for a focus not only on antagonism, but a more general and complex understanding of social support systems. The knitting group has become a site for connecting with others, in the sense of ‘making is

connecting as postulated by Gauntlett (2011), but I would argue is between both humans and nonhumans; it is in the microinteractions and the small scale politics that this is seen most evidently. The idea of 'quiet geographies', developed by Kye Askins refers to a way of doing politics that captures "quiet politics and embodied (re)productions of place (Askins, 2014: p354). Here, she is referring to the everydayness, the small and slow actions that may work in some way towards change, social transformations in 'a profoundly feminist sense that remains fragile, emergent, powerful and hopeful' (Bratich and Brush, 2011: p235). The practice of knitting, the practice of making friendships through knitting and craft practices, and the slowing down to be affected by slugs, materialities and respect for one another's time, labour and skill resonate through the group. The group emphasise the value of slow production, personal expression and the gifting of these small knitted items. In this way, they are a practice of slow geographies and a particular feminist practice which values care and the creation of caring communities not dissimilar to the way that Mountz et al. (2015) describe a particularly feminised form of resistance to neoliberal contexts.

The role of participation within the project

In *Mouse*, the first section of this chapter, I attended to the liveliness of the materials and their material histories as an animated form of participation. In this sections, I reflected on how the materials and their complex histories and futures played a 'role in social relations [for] their capacities in encounters' (Askins and Pain, 2011: p813). In my analysis, I reflected on the role of the materials with the human participants of the project, but the most active and interesting forms of participation were in the second part of the chapter, *Slug*, so I will concentrate predominantly on that section.

In this project, unlike the previous project I was the artist and facilitator. This role enabled me to take a key role in designing the project overall. This positioning enabled me to better consider the role of participation for nonhumans as well as humans throughout the project. The project was designed so that the human participants could step outside of their usual ways of

interacting with their environment, by inviting them into a space that was geographically close, but inaccessible usually. This meant that the human participants were encouraged to expand their life-worlds by addressing a different perspective on familiar surroundings, with a particular focus on the nonhumans who lived there.

During this session, I discussed how the human participants were forced to 'slow down' in order to more fully open up to the presence of nonhuman neighbours. Isabelle Stengers argues that 'in order to attend to various environmental, ethical challenges in the world, people need to slow down, become open to previously overlooked agents and relationships in the world and to reconsider one's thoughts and feelings' (Ingram 2013:p8). Through the process of slowing down, we come to understand our humanness as an emergent property of our relationship with others, objects, technologies and concepts (Stengers, 2010). This action of slowing down and attending to often overlooked things and creatures is a way of opening up who and what counts as participants in discussions.

Reflecting back onto Bastian's (2017) four criteria for participation, expanding life worlds, supporting cognitive estrangements, challenging assumptions of competency and designing methods for inclusion, I now want to consider the ways in which different forms of participation worked in this project. By inviting the human participants to venture out of their comfort zone and into unfamiliar territory, the design of this project sought to expand life worlds, by taking more notice of the nonhumans in the knitters midst. In doing this it also supported cognitive estrangements because the knitters were forced to see something they thought of as familiar as new and strange.

The overall design of the project focused on the competencies, opinions and methods most suitable for human participants, rather than nonhuman. In designing the project as a knitting project in an already established group, I sought to invite this group to participate in a discussion around a topic that was new to them; climate change. In this way, I hoped to use the physical experience of entering into new territory and 'learning to be affected' (Latour 2004) in a similar way to which Hinchliffe et al (2005) investigated water voles. By slowing down and attending to the environment and creatures who reside there, I had

hoped that in cultivating an 'ability to listen attentively is a way or means of putting knowledge at risk and of allowing others, of all shapes and sizes to make a difference to the process of knowing (Paulson 2001, Stengers 1997 quoted in HInchliffe et al. 2005: p653).

The methods I used, of walking, talking, sharing and making were a way of experimenting with forms of participation and forms of collaborative knowledge making. The overall design of the project, however, was less about the active participation of nonhumans, but as a way of working with humans who are often excluded from climate change discussions, working class women. The project was designed to include them, and the competency (their knitting skills were key to the project) and the methodological innovation (of understanding climate change through the medium of knitting) was predominantly aimed at the human participants, rather than the nonhuman.

In this section, I have thought through the roles of conviviality and antagonism play out in a participatory arts context. I have argued that projects such as these have the potential to highlight the complex relationships between humans and the role that materials and wider social contexts play in this. In realigning art in this way, there is potential to question the role of art and artists, and decentre the artists in a way not dissimilar from attempts to decentre the human in the Anthropocene, in terms of uncertainty and unpredictability of outcomes for all participants.

Conclusions

In this chapter, I have considered the complex, messy and snarled entanglements that are made by and productive of the 'knit and natter' knitting project to "knit climate change". Through *Mouse* I focused primarily on the material entanglements within the project and the relations built between the human and the material participants in the group. The role of plastics and manmade fibres produced different kinds of thready geographies than that of *Bird Yarns*. The thready geographies of mouse highlighted inherent creativities in the reuse and reappropriation of materials, and in doing so, pointed to the ways in which the material liveliness of things is mutable and always in process. Rather than thinking about repair and remediation, this element of the project points to everyday vernacular creativity as being constitutive of new ways of working in the Anthropocene that involve reimaging and remaking material meanings which integrate memories, skills and at the same time build new ones. While it is clear that the reusing of these materials is not on a scale to engage with a significant shift in the deleterious proliferation of plastics, what it does suggest is that there are "glimmers of possibility" in both the appropriation and use of materials and of diverse forms of economies based on sharing and friendship, in which capitalist concerns are worked across and around (Morrow and Dombroski, 2015, Gibson-Graham and Roelvink, 2010).

In *Slug*, I more closely attended to the complexities of the human-nonhuman relations made within the project. Drawing on Lorimer's (2007) concept of nonhuman charisma, I considered the different ways knitters and both fleshy and knitted slugs were connecting to one another, and stayed with the entanglements, slowing down the process and attending to the corporeal and performative elements of their 'learning to be affected' (after Crouch 2003 and Latour, 2004). I then looked at the materiality of the knitted slug altered the charisma of the creature, from a fleshy uncharismatic being to one that has cuddly charisma by virtue of the materials and process of knitting. Finally I considered the different and complex relations between the knitters both convivial and antagonistic, and the different ways in which they interacted with the work and one another.

These relations are complex and snarled, there are no easy ways to unpick them and to make sense of them in neat boxes, instead I aimed to be in the 'thick presence' of the making and unmaking of these entanglements to enable me a nuanced and careful appropriation of the different ways that meaning was materially and symbolically made within these multispecies practices. As Hallam and Ingold (2007: p1) explain, 'there is no script for social and cultural life, all practices are improvised, and in being improvised are generative, relational and temporal'. Knitting is generative of social relations, the materials, the subjects represented and the contexts reflects the temporalities of relations in process. In this way, the nonhuman animals; the slugs and the mice, are contributing to the generation of different forms of social and material relation – even if they are not actively constituted within the primary sphere of relations themselves. This is an experimental way of working with materials and practice in process, the outcome and the relations cannot be known in advance, but it is about slowing down, and highlights a feminist ethics of care that is affected by the temporality and the spaces of the local environments (Gibson-Graham, 2011).

As artist-facilitator-researcher, I was very much a central part of the process, and this research reflects my close involvement and my own complicated relations with the materials, nonhumans and humans in the project. This artwork, and the role of the artist-researcher-participant then also crosses and blurs boundaries between what constitutes the artwork – the social relations made and unmade in the process of making – as well as the role of research in using creative practice to understand creative and collective interpretations of the Anthropocene, as a response to Sarah Whatmore's call to 'supplement the familiar repertoire of humanist methods that rely on generating talk and text with experimental practices that amplify other sensory, bodily and affective registers and extend the company and modality of what constitutes a research subject' (Whatmore, 2006b: p606).

Chapter 6:

Linen

Prologue

When I started this project, there was no “local community garden”, so in the spirit of action research I got my neighbours together and we made one. I live on a cul-de-sac, which backs onto the river Lea in North Hackney, flanked on both sides by light industrial estates and the site of an old saw mill. There are approximately 120 homes on the street; the majority of which are located in 3 blocks of flats built in 2009. One block (the one with views over the river) consists of shared ownership housing, another is social housing and the third block is ran by a Jewish housing association, its inhabitants all Charedi (ultra-orthodox) Jews.

The street is a narrow two way street, with small patches of ground on the side of the road opposite to the blocks of flats. These would have had plants in at some point, but the housing association is rather lax at keeping up with the gardening, and the soil is mostly inhabited by a couple of hardy, but increasingly leggy shrubs and some weeds. Behind the bed is a wooden fence with a propensity to breaking which divides the residential street from the factories behind. It is this, rather uninspiring patch of ground, which became the site for linen cultivation as part of this case study.

I printed flyers to advertise the project, and delivered them to every home on the street. They detailed the date and time of the planting workshop and invited all residents to come and join me for flax seed sowing, tea and cake. The day had started off rainy, but by the time of the planting workshop in the early afternoon had brightened up and the sun came out. 17 people attended the planting workshop over the course of the day; children, fathers, mothers, cousins and aunts.

A family of three children, their mother and her sister live on the third floor of the block of social housing, they are third generation immigrants from northern Pakistan. The patch of ground that is becoming our flax bed is the closest thing they have ever had to a garden. The only experience any of the children have of growing

plants is one of the boys, aged about 8 grew potatoes in school. He tells me how they grew the potatoes in a specially designed box in the playground. He took 'his potato' home and he was so proud when his mum cut it into strips and made him a small plate of chips with it; delicious apparently (Field notes, 27.03.2016).



Figure 6.1, Participants digging 27.03.2016. Author's own photograph.

As we are digging, a group of five Charedi Jewish girls come over to see what we are doing. They stand and watch, silently. I offer one of the older girls a trowel, she simply smiles and shakes her head. Her younger sister sidesteps slightly, until the two of them are standing so close, you would think they might push one another over. There are some Charedi boys playing football higher up the street. I invite

them to come and join in, they are friendly and talkative, but decline the offer - clearly they are more interested in kicking their ball and throwing Playmobil models at one another. There are another two families from further down the street who have joined us as well; an American – British couple with their two year old, and an Italian – Japanese couple with their one year old. We chat, dig, drink tea, pull up weeds. One of the elder Charedi girls picks up a trowel and starts digging, her sister still by her side. Another comes over and starts chatting to me, asking me to give her directions on what she should do. By this time, we have managed to fill two buckets with weeds, and detritus from the soil, a pair of Charedi girls offer to carry the buckets to the small compost heap at the end of the cul-de-sac, which they diligently do. It is the first time in the two years I have lived on the street that I have seen Charedi girls chatting and interacting with the other children on the street; the flax is beginning to bring us together already.

As we weeded and seeded and watered our new little neighbourhood garden, the children became more interested and more careful with the insects and invertebrates they found. The group as a whole chatted about what it would take to look after the plants so that they thrived, between us, we managed to locate 5 watering cans and the children ran back and forth from the tap in the bin store to water the seeded patch of ground. In the weeks that followed, I saw and chatted to the Charedi girls coming out in the evening to water and look over the emerging seedlings (field notes, 27.03.2016).

Introduction

This chapter considers a different kind of thready geography; that of making linen threads themselves out of flax plants grown in community gardens around London. The previous two chapters have focused on practices of making with threads and the ways these practices connect humans and nonhuman animals through both representation and the ways humans connect with the materialities and life-worlds of differently charismatic nonhuman animals within thready geographies. The previous two chapters have also considered the materialities, socialities and practices of working with different kinds of threads, one of animal origin (wool) and one of plastic origin (polyester). This chapter

then looks at the making practices and their temporal entanglements inherent in linen thread itself.

The project that forms the fieldwork for this chapter was called 'Grow a Ball of String'. It was a participatory art and gardening project ran by artist Kate Poland, and her collaborator Natalie Mady through their social enterprise, Cordwainers Grow. The project worked with community gardens across London, supporting participants to grow a crop of flax, then learn how to process it using traditional manual methods in order to turn the crop of plants into yarn, and eventually a ball of string that the participants then kept for their own uses. I participated in the project, and set up a small community garden with my neighbours in order to grow some flax of my own.

This art work is about connecting with past lives and livelihoods through the process of growing flax and spinning it into linen; it acts to enliven forgotten pasts and situate them in new places and times. This project has a distinct historical element to it, and as such resonates with the historical geographies of skilled making and memory work. This chapter seeks to extend this relationship between embodied making practices in the context of the 'resonances' across time from historical to contemporary concerns by focussing on the way that skills are re-understood, re-learned and re-practiced from both historic and contemporary sources. It responds to and develops Merle Patchett's (2016) contention that 'an attention to craft skills worked through the body can further bridge nonrepresentational and historical geography concerns' (Patchett, 2016: p390). But more than simply a historical re-enactment of past skills, this project also aims to highlight the environmental and social impacts of cheap fashion by drawing attention to the labour of producing cloth from seed.

Throughout this chapter, I draw on Caitlin DeSilvey's concept of 'anticipatory history' (DeSilvey, 2012). DeSilvey argues that telling of places and stories relies usually on the art of narrative – the ordering of events, actions and elements of experience in a communicative structure; which prompts her to ask 'whether it might be possible to story landscapes differently, framing their histories around movement rather than stasis, between past dynamism and future change?' (DeSilvey, 2012: p34). This chapter responds to DeSilvey's question by researching a speculative, exploratory and embodied way of

engaging with mutable pasts of linen production as a way to open up alternative ways of thinking about present arrangements and indeterminate futures. The project is about drawing attention to the methods of making cloth and clothing, and as such invites participants to consider alternative means of production, both for the present and the future. These are particularly pertinent questions in the Anthropocene - an epoch characterised by uncertainty and instability as Tim Ingold reminds us, skilled practice is situated in a constantly changing and dynamic environment, one that does not stay still (DeSilvey, 2012).

There are a number of things entangled in this project; there are plants and people, and there are the different stories and histories that are enacted and brought to the fore in the process. The empirical research focuses on multispecies ethnographies, haptic experiences and making skills working with flax plants as a way of developing connections to past and current human and nonhuman lived experiences and relations. The other aspect of the empirical research is the work of the artist, Kate Poland in supporting, generating and maintaining these diverse entanglements between people, plants and alternative histories.

This chapter uses slightly different analytic tools than the previous two, both in terms of plant geographies and the concept of anticipatory history. As such the introduction and background histories make up a substantial part of the research and the introduction is therefore larger than the previous chapters. This introduction is divided into four sections; firstly I turn to the research on plant nonhuman geographies in order to situate and guide my research into the plant materialities and agencies of the yarns being made in the project. Next I describe the 'grow a ball of string' project itself in more detail. Thirdly I situate the ancient production of flax in the Fertile Crescent some 5 000 years ago in terms of climatic and social changes as a way to trace the historical entanglements of flax and Anthropocene and climate related concerns. Finally, I describe and examine the artistic work of Kate Poland in her practice of 'learning from fragments', in which she pieces together and resituates traditional flax processing techniques in contemporary contexts.

The bulk of this chapter is then divided into four sections; earthworm, upheaval, spinning and artistic labour. Firstly, in *Earthworm* I consider the haptic

experience of digging and the encounter with an earthworm in terms of vulnerability and awkwardness. Secondly, *Upheaval*, is an auto-ethnography of growing the flax from seed, examining the charisma and agency of the plants in the project. Thirdly, I explore the haptic experiences of spinning yarn in *Spinning* and finally I consider the role of artistic labour in making and holding space for social relations, both within the immediate artwork, and situating the artwork within wider neoliberal contexts. I now turn to plant geographies as a way to understand the role of plant agency in the Anthropocene in recent geographic scholarship.

Grow a Ball of String

The '*Grow a Ball of String*' project forms the empirical research for this chapter. It ran from March 2016 to November 2016, and was the offshoot of a larger project called '*Grow a London Garment*', organised and facilitated by artists Kate Poland, Natalie Mady and Zoe Burt in 2015. Unfortunately, I was not able to be involved in the first iteration of the *Grow a London Garment* project because my daughter was born in May 2015 as the first flax seeds were planted and I was otherwise engaged in full time mothering duties for the remainder of the summer. I did however take her along to some of the spinning workshops later in the season when she was big enough to accompany me on my fieldwork in a wrap on my front. I am first going to describe the '*Grow a London Garment*' project, because although this research was not directly involved with this part of the project, it informs and influences all aspects of the '*Grow a Ball of String*' project, which was to all intents and purposes a smaller scale version of the original garment project.



Figure 6.2, A grown ball of string made and held by Natalie Mady, 02.02.2015, author's own photograph.

Artists Kate Poland and Natalie Mady run a Community Interest Company (CIC) called Cordwainer's Grow, based in Hackney, East London. Cordwainer's Grow worked with community gardens, housing estates, primary schools, city farms and children's centres around east London, supporting them to grow small plots of flax (each plot approximately 1m x 5m in size). Kate and Nat either ran growing workshops (funded by the Big Lottery fund), or posted small bags of seeds with instructions to groups who felt confident in being able to plant and nurture the flax seedlings as they came up (community gardeners being the

obvious example). The flax is then harvested and processed, using traditional manual techniques of rippling, retting, breaking, scutching, heckling and finally spinning. Over the course of the year as the project went on, different people became entangled in the yarn at different stages – initially it was people interested in gardening, and permaculturalists, then spinners and weavers via twitter and finally fashion students at London College of Fashion who dyed, knitted and modelled the jumper that was made from the linen.

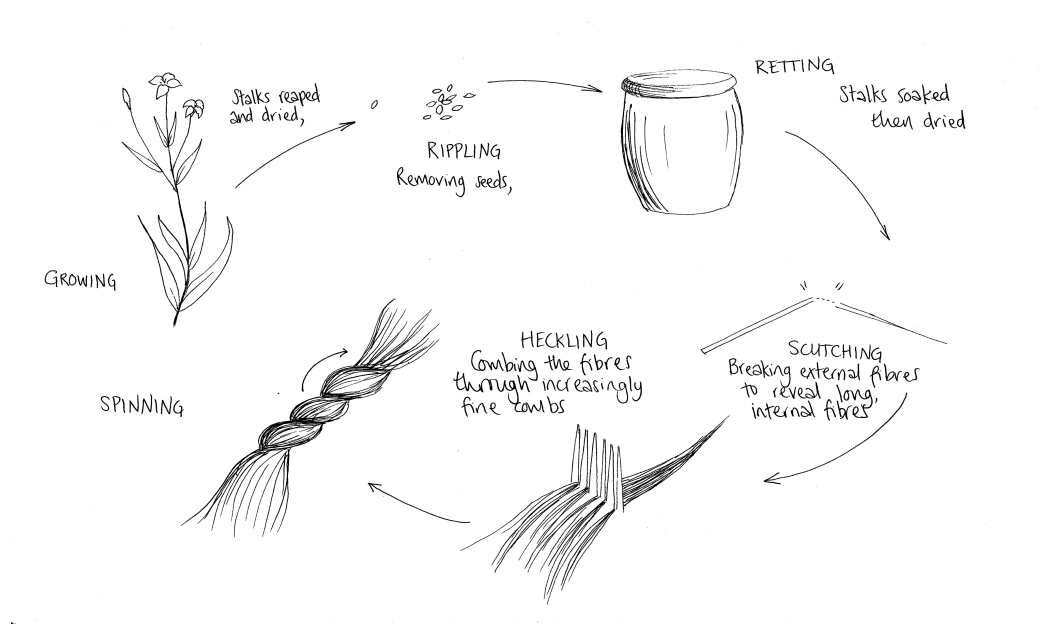


Figure 6.3, Diagram of flax production, author’s own design.

The project, as an artistic collaboration, was conceived of an example of ‘Slow Fashion’, to encourage people to think about where the fabric in their clothes comes from, the labour involved and question the globalisation and industrialisation of cheap clothing production. In her blog, Kate says ‘we were inspired by the idea of the threads that bind us together in the city. We wanted to show, through a piece of material, that individually we can come together to make something that we can’t do on our own.’ (Poland, 2014).

Following the ‘*Grow a London Garment*’, Kate describes how she was exhausted; “it was just so much work, keeping in touch with all those people, keeping the enthusiasm, making sure that no one was getting left behind. It was exciting, but there was just so much emailing, keeping up with social media, sending flyers out, putting up posters and calling people behind the scenes that

no one sees” (Poland, interview transcript, 25.02.2015). While she described her passion for the project to me, she explained her tension between wanting to keep the project running, but having neither the financial capacity or the emotional resilience to run it again. After discussing it with Nat, they decided together that they would keep running the project on a smaller scale for a few years while they decided where they would take it next. “We’ve been in touch with the National Trust who are interested in doing something with us, especially up north, in Lancashire and the traditional linen growing places. And then I was thinking about disused areas of land, next to motorways and railways would be perfect for more spots, we could make it a national project... Or work with the Israeli Bible Binders who want to make a bible from scratch, or the Crete weaver interested in historical techniques.... But right now, I’m tired, I have too much going on to take it on this year” Kate tells me (Poland, interview transcript, 25.02.2015).

And so this is where I became involved in the project, missing the initial rush of enthusiasm, but in doing so witnessing the results and the ongoingness of the project, the effects of what happens afterwards in the quiet reflective period, where things are moving along, developing, resting; not unlike the fallow years necessary for the growth of the flax plants themselves.

In thinking about the plants themselves, and their entanglements with people over seasons, years and millennia, I next turn to situate our story of flax production within a longer history of the plant’s early cultivation, domestication and its relationships with people and changing climates over time.

“Learning from fragments”

The artistic work that Kate engages the flax in does not explicitly attend to the larger socio-political environment in which the practices were situated, but rather situates them in a contemporary context. This next section considers the resonances of the discomfiting realisation of lost skills, lost stories and lost histories, as Kate tries to navigate and learn traditional processes. In the practice of re-enlivening these skills, Kate and her artwork offer a different way of understanding past lives; both plant and human, and in doing so, suggest

different ways of both storying the past as well as connecting these stories to mutable presents and otherwise possible futures (DeSilvey, 2012).

Although each activity and encounter I focus on in this chapter may appear minor, it is the accumulation of small scale labours that amount to the essential physical and emotional, often feminised work of maintaining and looking after more than human social worlds, both in the present and ways that resonate with the past. Drawing on the work of art theorist Shannon Jackson (2011) - whom I discuss in more length in the final section of this chapter - the project brings attention to hidden labours, in particular labour involving the maintenance of everyday life and social reproduction.

‘We also improvised breaking the stalks with mallets, meat tenderisers and bits of wood but, after experimenting in many ways, found that the machine did the job better and in much less time. If you’ve ever read Ridley Walker (Hoban, 2012) or other post catastrophe fiction, it felt a bit like that: trying to learn something from fragments of a greater knowledge lost to us but so familiar to our forebears. Quite soon we had a jumble of cake, tea, a variety of combs, drop spindles, bits of wood – and our precious tow and line on our tables. Diane Sullock showed us how to use the drop spindles so that we could spin some rough thread.’

- Kate’s blog (Poland, 2014)



Figure 6.4, Nat demonstrating using the scutching machine 02.02.2015.
Author's own photograph.

In her blog Kate Poland, describes her difficulties in trying to navigate and learn 'long forgotten skills' that 'would once have been so familiar to our forbears, but are now lost in the depths of time.' (Poland, blog post, 2014). In an interview with me, she describes how she felt like she had to:

“start from the beginning, learn about the plants properties, what worked and what didn't, what were the ideal growing conditions and what were the best ways of retting, heckling and spinning. Once, these things would have been so common place, people would have grown up growing linen, either for their own

use or on a more industrial scale, and these skills would have been ordinary and mundane things. But linen isn't grown like that in this country anymore, those skills have been lost as the last people that knew them died and no one was there to pass them onto" (Poland, interview transcript, 25.02.2015).

In this interview, Kate describes her difficulties and frustrations with learning about the processes of turning flax plants in to linen yarn. Mann argues that although skill is often thought of as a key component in crafting literatures, the actual acquisition of skill itself is often left undertheorised (Mann, 2018). As Kate describes, the process of learning how to ret was one of both trial and error, and the practical considerations of what was available to her, both time wise and financially. Learning about both the physical qualities of the flax involved learning how they grew best to yield the longest and thickest stems (as opposed to the most seeds from which to get linseed oil, which is what most flax in the UK is now grown for) and how their plant structures were best turned into something that was ready to be spun.

"There are lots of books about linen growing that document the different tools, stages and processes. But it's just so difficult to get a *feel* for those things without someone to really show you how it all works. Take the retting, for instance, most of the books just tell you that you can either dew ret it, or water ret it, but not which is the 'best' way of doing it. So I had to try both. I found the dew retting too risky, you basically just have to leave all your flax out on the ground for it to rot – the word ret is related to rot – you just need to leave the flax stems to rot a bit and go mushy and then dry them out again. I guess this is practical when you have fields of the stuff and no nearby bog or river to do the job for you. But it is really dependent on the weather, and well, whether people are happy to just leave your flax there, which isn't so easy to find a spot in London (she laughs, shrugging her shoulders). So in the end we decided to wet ret it. We then had to work out what would work best, and settled on those big blue barrels you get for keeping stuff dry on boats, they're cheap enough and you can screw the tops on. But when you open them,

jeeze, the stuff doesn't half smell! They don't tell you that in the books, and then you need at least two of you to tip the whole thing out and lay the flax out somewhere sheltered to get it properly dry, which can take weeks." (Poland, interview transcript, 25.02.2015).

These processes are all part of a rich network of relations; between the plants, the soil, the weather, the urban environment, risks of damage and vandalism, the knowledge of Kate herself and her need "to get a *feel*" for the plants and the processes. In learning these skills and in the process of the artwork to remake and rebuild networks the project was also about temporal entanglements, it is about links to the past as well as networks of relations in the present. As Kate says in her blog:

"throughout the project we were tugged back into our pasts and our fairy tale memories – from the ancient boredom and sociability of harvesting, to gazing at the huge pile of flax straw and wishing Rumpelstiltskin was nearby. Similarly, there was a fairy tale quality to our own spinning. It didn't matter how much we processed, our pile of thread never seemed to grow any bigger" (Kate Poland, bog post 2014).

The embodied nature of the skills and the materiality of the processes, plants and interactions are made up of both cultural and natural processes, it is in the intermeshing of the growth of plants and coming to learn historical skills which processes and tied together humans and plants highlight the ways in which natural histories and social histories are dynamic and mutable. The transformation of both the materials and Kate's skills as she learns with others over the course of the project resonates with Küchler's (1999: p63) claim that these objects and processes might 'instigate a process of remembering directed not to any particular vision of past or future, but which repeats itself many times over in point-like, momentary . . . awakening of the past in the present'.

The experiences of practicing and learning skills, then are speculative, they are about the haptic and embodied histories of flax production; they take place on small scales, and in ways that weave the past through the present,

reflecting, perhaps, Walter Benjamin's insistence that history should stop 'telling the sequence of events like beads on a rosary', and operate instead through a 'telescoping of the past through the present' (1999: p63). Kate is learning from the fragments, from learning how to grow the flax plants and the most effective ways to ret, heckle, scutch and spin, through these embodied processes and repetition, she is connecting to past human lives and skills through the materiality of the plants.

But it is not just about connecting to other humans, the plants have their own preferences and agency; their most effective ways to grow straight and tall or the ways in which their cellulose structures break down most effectively through the retting process. There are processes that are a jumbled mix of wildness and domestication; obscuring any attempt at dividing 'the natural' from 'the cultural' (DeSilvey, 2006). Their material structures carry preferences and quirks of their own histories, and the ways in which these histories are entangled inexorably with human histories through ancient processes of cultivation and domestication. I contend that the plants themselves carry an 'awkward assembly of subjectivity out of miscellaneous materials [and] disparate experience' through their longstanding historical relationships with humans; these fragments, are 'only legible through an oblique process of alignment' (DeSilvey, 2006 :p413). Kate is undertaking a speculative process of alignment, as she works closely, bodily and experimentally with the plants, getting to know their preferences and 'knowledges', she traces threads through their materials to their forebears and her own, and begins to understand the ways that plants and humans were intertwined and interdependent in the past through her attention to the ways in which she herself is becoming intertwined with the past through her own interactions in the present.

This speculative, historical working opens a different way for thinking about not just pasts, but futures and alternative presents too, echoing what Caitlin DeSilvey calls 'anticipatory history' (DeSilvey, 2012). As Kate works with the plants, other people and embodied skills, she is offering a different way of understanding traditional linen production. By opening up new ways of knowing about process and stories, she is enabling different stories to come to the fore, and different ways of telling and understanding the processes. In doing so, she is

restructuring and in a way challenging the written accounts of traditional linen production in the British Isles by bringing the agencies of the plants themselves into dialogue with historical texts of 'how to' produce linen. In doing so, the project prompts participants to question how fabric is produced – and the labour involved in production methods to bring to light the 'cost' of cheap, mass produced, throwaway fashion. The project then suggests alternative means of production, both in the present and for alternative futures.

In this introduction, I suggest that by working with past practices and the learning of embodied skills with humans and plants, we can come to understand the past as dynamic and lively. The next sections of this chapter play close attention to the processes I have described in the introduction, to think more critically and precisely about the different ways in which the different skills of this project draw and make relations between humans and nonhumans over time. The following sections are laid out in a linear arrangement, starting from the sowing of the seeds, to growing the plants, to spinning and finally to the work of the artist in holding space for the plants, human embodied skills and their entanglements to grow.

Earthworm

We cleaned the soil of plastic, cigarette butts and broken glass. We pulled up weeds and turned the soil to give it air and watered the soil. Our hands became muddy and soily. We tended to the soil, made it as hospitable as we could for the seeds and our potential seedlings. We discussed how big the plants would get, how often we would need to water them, who was going to pull up any weeds that grew, and how we would tell the difference between weed and flax seedling. There was a lot of talk of 'looking after' the new, plant neighbours. The children took it in turns to run into the bin store with one very large and one very small watering can to fill the cans and run back to the plants to water them (and one another, much to the disdain of their aunt) (field notes, 27.03.2016).

In this first empirical section of the chapter, I turn to the sowing of the flax seeds, and the relations that are made through this process. As I will explore the activity of sowing the seeds involves the practical skills of digging, weeding and cleaning the soil. In the process of 'getting to' the soil (Straughan, 2012: p22), myself and the other human participants in the project slowed down and attended to our own embodied relations with the soil and the multispecies communities that dwell there (Crouch 2003). This section thinks about the relations between humans and a soil-living invertebrate, an earthworm. In the previous chapter, I considered the work of slowing down and attending to a slug through Crouch's (2003) concept of spacing, for earthworm, the context is different; the humans are working in soily, wormy worlds, and we become aware of multiple vulnerabilities in this practice. This section starts by thinking with Karen Barad's ideas of touching and reciprocity, and goes on to argue that these relations and experiences are precarious and (to different degrees) perilous for both human and nonhuman participants. I then draw on Lorimer (2014) and Ginn's (2013) concepts around awkwardness and mutual vulnerability to suggest that there is generative potential in relations made in the awareness of our own embodied vulnerabilities.

Having never planted a crop of flax before, I had consulted Kate on the best way to grow the crop. As Pitt (2014a: p48) suggests for learning to attend to how people become enmeshed with plants that as researchers we turn like 'novices' to plant specialists, refining our awareness and attending more diligently to learning from plants. She had told me that flax grows well in poor soil (we definitely had that), but it does not tolerate stones or weeds well. And so, we had two separate buckets, one for weeds and stones that would go on the compost heap and one for plastic and glass to be sent to landfill.

We dug in the soil with whatever tools we (as flat dwellers and container gardeners) had to hand, mostly small hand tools – trowels and small gardening forks. It was a more nerve racking affair than I had anticipated. Without gardening gloves, we were very close to the soil, our flesh vulnerable to sharp objects and detritus. The area we were digging was next to a place people temporarily park their cars, a casual and unmarked parking space, and so it was littered with the 'stuff' of people waiting; lots of cigarette butts, plastic bottle tops, shards of silvery crisp packets with the paint peeling off and shattered glass from a car window that had been vandalised a few months previously. I was surprised at how far down this 'stuff' went. A few people had brought gloves, but most of us worked with bare hands, picking out the litter along with bits of concrete and large stones, presumably from when the bed had been made. Despite the recent rain, the soil was dry, densely packed and breaking it up was a challenge (field notes, 27.03.2016).

I had found experience in digging in the human detritus and soil mixture a far cry from the flourishing and caring ethos that gardening supposedly brings (e.g. Plumwood, 2002, Merchant, 2003). Hitchings (2003) and Power (2005) show gardens are precarious and relational achievements where plants, insects and wildlife shape and respond to varying levels of human care and involvement. Yet, our 'garden' then was something of an underwhelming achievement, with the human involvement being mostly to destabilise the immediate environment through the accumulation of rubbish and the jettisoning of lots of different items at best inconducive to the flourishing liveliness of nonhumans.



Figure 6.5, Participants digging, 27.03.2016 author's own photograph

The experience was disconcerting, and alerted me to the multiple possibilities of bodily harm as we grappled with rubbishy soil and soily rubbish. I realised cutting and grazing my hands, and getting grubby, possibly infected wounds was a very real possibility. The others noticed this too, cautiously picking through the soil, and warning children off picking up sharp objects, and steering them away from the soil which had the most broken glass. This cautiousness and awkwardness is generative as disconcerting encounters have potential to prompt thought, practice and politics (Lorimer, 2014). We were beginning to become cautious and aware of our entanglings in complex and fraught – and damaged worlds. It was as we were digging, cautiously and awkwardly that one of the children found the worm.

One of the children, a boy of about 7 picks up an earthworm from the soil we are digging over. There are squeals of excitement and horror. The worm falls back to

the ground, it tries to burrow down back into the earth. The children are screaming and yelping “eurgh, it’s disgusting, get it away”.

In calmer voices, one of the adults in the group begins to talk about earthworms. About the soil, about how worms keep it healthy, help plants to grow. I wonder what it must be like for the worm, feeling uncanny, unsettling movements throughout its entire body as we dig in the soil and occupy its spaces; I imagine it digging deeper into the earth, past the stones, the roots, the odd bits of plastic. The worm is up and out in the open again. This time on a soft warm hand. Its body is being stroked, held in a child’s hand. Another child is holding another worm, this time, they seem more intrigued than scared.

“Dave, you’re called Dave”. The worm is carried carefully in these hands for a much longer time. It is shown to a mother, to a sister and a cousin; big brown eyes gazing intently at it. After a few minutes it is carefully deposited back onto the soil and allowed to escape downwards (field notes and transcript of growing session, 27.03.2016).

Over the course of the session, I try to pay attention to the different ways the relationships between humans, nonhumans and the environment develop, in a form of multispecies ethnography. I do this by paying attention to what Tsing (2005) refers to as ‘more than human sociality’, in which all of the actors learn about each other in action and researchers become companion participants in sticky webs of connection, engaging in experimental and inventive practices. Learning these new skills of observing, researching and doing are akin to what Latour (2004) calls ‘learning to be affected’ – that is becoming attuned to the many ways that human and nonhuman bodies are moved, disconcerted and enlivened through their common world encounters. This means, not only paying attention to the ways in which the human participants are moved and affected by the animals they encounter, but also paying attention to the movements, actions and even preferences of the worms, ants, water, plants, seeds, plastic and soil.

Inspired by Crang’s (2013) call to ‘touchy feely’ methodologies, I want to consider the bodily sensations and to explore the use of touch as a means of

'getting to' (Straughan 2012: p 20) the sensations and experiences of digging, cleaning and weeding soil via the haptic system. Haptic senses are not only sensitive to contact with the skin, but also move beyond the surface to registers of the body felt through muscles, tendons and joints (Straughan 2015). Other senses are involved in gardening - and this is not to exclude those - but paying attention to the haptic offers an opportunity to explore 'how touch operates as part of the complex bodily senses - one that provokes feelings and emotion to influence the engagements we take with them' (Hawkins and Straughan, 2014: p132). Touch is, then, a sense that draws attention to the import of both the internal and external aspects of the body in sensing and making sense of the world, situating imaginaries of touch that are shaped by immersion and entanglement (Paterson, 2009, Paterson, 2007).

As the small worm rests on a small hand, there is a feeling of pressure, an exchange of warmth, an exchange of worm mucus and human sweat (field notes, 27.03.2016).

To begin with, the children had seemed tentative and afraid - of the worm, of one another - but over the course of a few hours, they develop a cautious embodied familiarity with the bodies and the worlds of the worms. When a worm is held in hands, cold flesh meets warm flesh; look close enough and it is hard, perhaps impossible, to tell where soily worm becomes wormy soil and fleshy soil becomes soily flesh. The worm is light to hold, it doesn't take much to hold it's entire being in the palm of a hand, and it is easy to see how vulnerable this small, individual worm body is in this situation.

Karen Barad describes touching as 'a sensuality of the flesh... of presence, a proximity of otherness that brings the other nearly as close as oneself. Perhaps closer' (Barad, 2012: p206). Thinking with Barad, the materiality of our flesh is composed of charged particles and empty space which exist in proximity to one another to form - what we understand as - our skin. But this skin is porous, permeable and ultimately interchangeable with other particles and other space, especially in such close quarters as when worm flesh comes into contact with human flesh. Thinking about our own bodies on this material level, we come to

realise how closely connected we are with the environments that we inhabit. Fundamental to our imaginary of touch, is how it “speaks to our exposure to, and immersion in, the world of other[s]” (Shildrick, 2001: p388).

Ethical engagements with nonhumans and our environments are intrinsically and inescapably bound with responding to things around us. Indeed, for Karen Barad, the very idea of responsibility comes from the ways in which we respond. This is not a one off event, but an enduring process, ‘an on-going rupture’, one that is complex, troubled, and unlikely to be straightforward. A key part of this responding, for Barad, is the recognition that we are other to ourselves at the same time that others are ‘other’ to us. Barad points out that ‘ethicality entails hospitality to the stranger threaded through oneself and through all being and non/being’ (Barad, 2012: p217). She goes on “How truly sublime the notion that it is the inhuman—that which most commonly marks humanity’s inhumanity as a lack of compassion—that may be the very condition of possibility of feeling the suffering of the other, of literally being in touch with the other, of feeling the exchange of e-motion in the binding obligations of entanglements” (Barad, 2012: p219).

As I watched the boy and the worm – and although I have chosen to pick out this small segment of the day - this interaction did not occur in isolation to the rest of the digging in the flowerbed. We had been cautious in our own micro-encounters and explorations of soil for our own fleshy vulnerabilities, careful not to cut or harm our fingers and knees as we prepared it to plant our seeds. And yet the worm navigated this world without apparent recompense to the same worries that we had – although there are fleshy affinities between humans and worms – the worm was (presumably) less troubled by the presence of sharp objects in the soil than we were due to it’s own ability to navigate through the soil (Vergara, 2012, Edwards, 2004).

While we felt vulnerable in its world, the vulnerability was more mortally dangerous for the worm itself as it was picked up, stroked and prodded; these entanglements are integral to the workings of power (Collard, 2012). While there was the beginnings of a complex and shared fleshy vulnerability between worm and human, the relationship was an asymmetrical one – fraught for all parties, but especially the worm as is so often the case in human – nonhuman

encounters (Collard 2012). This awkward encounter is one in which both humans and worms are co-implicated in the discomfort. As Lorimer argues,

‘it makes little sense to talk of a non-relational awkwardness. Absence and ignorance are not awkward, at least not for those involved. Awkwardness has distinct affective and thus ethical logics. It can be differentiated from both comfortable, loving and caring relations and those marked by horror, abjection and phobia... it is neither detached nor fully engaged. Awkward relations nag, they preoccupy inconsistently, bubbling in and out of sensibility.’ Lorimer (2014: p 196).

This may be a small interaction, but it highlights the minimal ways in which humans come into contact with other lives which are not ‘big like us’ (Hird, 2012: 262 cited in Taylor and Pacini-Ketchabaw, 2015); the things that live in our midst, yet we rarely come into direct contact with. In coming into physical contact with the worm, and the discussions that arise between the adults and the children present, we are becoming aware of the myriad small lifeforms, including worms, other invertebrates and microbes which support the lives of other, larger animals including our own. This interaction then, has a generative potential of alluding to an ethics that is sensitive to human and nonhuman vulnerabilities; in which it might turn out that humans might be some of the most vulnerable (Sharp et al., 2000: p1).

Although touch can be seen both as a way to connect to others, for example as an embodied and affective way to connect to the earthworm, Elizabeth Straughan (2012) reminds us, touching nonhumans is unethical in instances that the nonhumans in question (in her example deep sea corals) are damaged or harmed in the exchange. As Collard (2012) argues, there is then a necessity to understand how ethical relations are formed and maintained at a distance when physical co-presence and proximity are unsafe for all parties.

In the interaction with the earthworm, there is a tension and an awkwardness; although there was an apparent affection and connection between the boy and the worm, the nature of the interaction means that it is difficult to know or to relate what this means for either boy or worm as

ultimately, certain aspects of the world of worms and soils remains unfathomable to me as a human (Dowling, Lloyd, and Suchet-Pearson 2017: p 826). What this interaction does bring light to, is that the embodied practice of digging and physically connecting to earthly worlds is a complex and potentially fraught undertaking for both humans and nonhumans; in which complex, dynamic relationships between people and nonhumans are constantly made and remade (Doody et al., 2014: p113).

This interaction calls us to be aware of the complexities and potential generative effects of awkward encounters within the garden overall. Yet, 'ethical sensibilities based on embodied affective relations will only extend beyond personal networks through reflexive awareness of how all lives are interdependent' (Popke 2006 cited in Pitt 2017: p269), leading Pitt (2017: p270) to argue that 'this must be supplemented by a collective perspective considering how a single act or relationship relates to the big picture of human–nonhuman relations including their history of neglect' (Pitt 2017: 270). In some ways, the conversations between the adults and the children alerted the human participants to the complicated entanglements between humans and worms. The children learnt about the worm both through their immediate physical interaction with the worm, but also by the sharing of knowledge and expertise by the adults present. However, this is just one small way that the worm-lives are put into context in the project; and it speaks nothing of the 'history of neglect' that Pitt points to.

Yet, in the broader constitution of the 'Grow a Ball of String' project as a whole, these small interactions are called into question by situating them in the political context of the mass production of fabrics and the effects on traditional skills, and growing practices in the British Isles; although it is unlikely that either worm or boy paid much attention to these contexts.

The participatory elements for this part of the project involved the participation of people who were not normally involved in climate or artistic activities, the focus for bringing in people was through a geographical locality – in this case my street. This meant that the participants were brought together through a 'matter of concern' (Latour, 2005), and encouraged to consider their

environment and the life-worlds of other creatures through the action of digging and growing on the street.

This part of the project sought to 'expand life-worlds' and 'support cognitive estrangements' (Bastian, 2017) by encouraging the human participants to see things that were familiar to them in different ways, in this case to reconsider their relationship with soil, rubbish and worms. In my analysis of this part of the project, I tried to decentre the human by thinking about the ways that the participation of these events related to the earthworm and to the soil itself. Although I found, like Pacini-Ketchabaw et al. (2016: p149) that it was 'much easier to theorise about decentring the human than to walk the walk and find congruent, innovative ways to 'put new concepts to the test' (Lorimer, 2010: p238 quoted in Pacini-Ketchabaw et al. 2016: p149).

Pacini-Ketchabaw et al. (2016: p151) draw on Latour's (2005 – reassembling the social) idea of 'common worlds'. This is based on 'an insistence that we live in not just exclusively human societies, but in common worlds with other species that runs counter to the human-centric impulse to divide ourselves off from the rest of the world and re-enact the self-perpetuating nature/culture divide' (Pacini Ketchabaw et al. 2016: p151). The participation in the analysis of this project was then to 'challenge issues of competency' and 'design methods for inclusion' (Bastian, 2017). In this, I tried to take into account the different forms of participation of nonhuman others and quietly observe the interactions of humans within more than human worlds, however, like Pacini-Ketchabaw et al. (2016) I found that it was difficult not to revert to traditional dichotomies of seeing things from the point of view of how the humans were interacting with other lifeworlds and the effect this had on the humans.

However, what I had hoped to do in facilitating this aspect of the project was to enable a situation in which the human participants were less competent (as none of us were experienced gardeners) and were thus reliant on the competencies and participation of nonhumans, from earthworms to soil and rain. This part of the project was designed in such a way as to include the participation of nonhuman others as crucial to the project, but it was predominantly about designing methods that would enable the human

participants to better recognise their own reliance and bodily involvement in ecosystems and mundane ongoing lifeworlds around them.

The participation then was designed to support (albeit small) transformations in the ways that the human participants saw their own bodily involvements within nonhuman worlds. As facilitator, I tried to hold back, sense and observe the interactions of humans in more than human worlds, in line with the broader methodological shift that Sarah Whatmore (2006: p604) describes as moving 'from an onus on meaning to an onus on affect'. The affect that Whatmore describes is the ways in which sentient beings are affected and moved by one another within the fabrication of 'livingness' in a more-than-world' (Whatmore 2006 p: 604).

This, then is one interaction in the 'Grow a Ball of String' project, I hope to have drawn attention to the textures, awkwardness and complexities of the seed sowing aspect of the project. I now turn to the practice of growing and tending to the plants, after they had a somewhat disastrous run-in with some new gardeners.

Upheaval

I came home one day to find the flax gone. I could see it from a way up the street. I had Tova in a sling on my front, and I stood for a while and stared at the patch of ground, tears welling up in my eyes. The housing association's gardeners were still there, tackling an area of overgrown Buddleia further down the road, but I couldn't face a confrontation with them. I was sad and angry. I went back to the house, had a cup of tea and tried to calm myself down a bit. Tova sat and played on the floor, while I worked out what best to do. After thirty minutes or so, I walked over to the gardeners van – after all, they weren't to know why I would be peering in the back of their pick up truck. I could see the flax, big handfuls, pulled up by the roots. Maybe there was hope after all. I plucked up the courage to speak to one of the men. I explained that the flax was part of a project I was working on, and that residents of the street had been growing it together. The gardener was apologetic, he hadn't seen the sign, he said. He thought it was an infestation, they didn't know

what the plants were, and worried they were some kind of invasive species decided to pull the lot up, rather than trimming them. He said that he felt terrible to have ruined my 'school project', and unloaded the plants, carefully placing them on some heavy duty, black plastic sheeting. I carried them back over to the bed and put them in large buckets of water. Tova and I began sorting, sifting and replanting the plants. My neighbor Charlotte and her daughter Amber saw me working, and came over to see what had happened. After I had explained, she went home, made two large cups of tea for me and her, a plate of cake and two cups of water for the children. She brought over a trowel and commiserated with me as we replanted the flax. Some plants died almost immediately, others managed to hold on for the few weeks until harvesting, producing thin flowers and seed heads, although their growth was stunted by the trauma, and they never did reach full size (field notes, 29.04.2016).



Figure 6.6, Replanting the flax, 29.04.2016, author's own photograph.

In this next section ‘upheaval’, I develop an auto-ethnography of my experience of growing the linen, marked by this moment in which the housing association’s gardeners pull up the crop we have planted. By focusing around this moment of conflict and failure, I want to attend to the less than perfect resolutions in making and the ways in which networks of people and plants navigate less than ideal situations, where things do not work out as once hoped for – which is perhaps a fitting analogy for the Anthropocene.

As Kate writes in her blog, these are messy relations; “we made mistakes and wasted a lot of time and flax getting it wrong and lost people and plants on the way, but we had some great days” (Poland, blog post, 2015). Kate’s experience of the work is complex and challenging, she acknowledges the mistakes and the failures in the project, the plants that died, the people that got bored, fed up and confused. The failures and the ‘less than ideal’ situations are important here, as they are all part of the process of learning to do and learning to be.

This is a project about learning, in trail and error sort of way, after Gibson-Graham (2011) which is about the small transformations and the tricky parts that make up the entire project, to which Price and Hawkins remind us are important to remain critical and attentive. These make up part of the wider geographies that preclude making and form important documentation of the less enchanting experiences of making and doing: the frustrations, failures, abuses, pain and generally uncomfortable geographies of making that are learning to do (Price and Hawkins, 2018).

In the subsequent aftermath of the plants being pulled up, I spent more time tending to them, and more time with them. I built a small fence around them and made a bigger sign. I watered them each night - for good measure, where previously I had only watered them if they looked particularly dry. I uprooted the ones that were struggling to give the others more room and nutrients to survive. I got to know their ‘planty knowledges’ (Head et al. 2012: p26), which Hannah Pitt (2017: p92) describes as involving “a combination of what humans learn about plantiness, and what plants themselves understand or sense of the world” (Pitt 2017, 92). It was unfeasible to replant every stem individually, so I had planted them in small bundles and I observed how they

grew, bundled together. The plants on the outside tended to droop, the stability of the interior plants depended on how well they were supported by the stems around them. Although I had read about this in books, the whole process of 'what the plants know', became far more clear on a visceral level as I supported them and watched them grow over the weeks that they remained in the ground (Pitt, 2017).

The hard, structural fibres of the flax plant, in linen making terms are called the 'boon' and help form the physical structure of the plant. Nutrients in the soil and the process of photosynthesis come together to form dense, woody stalks, on top of which grow small blue flowers, and later in the season, linseeds. The way in which the fibres form is manipulated by humans; flax for fibre (rather than seeds) is sown very densely together, forcing the plants to grow straight up with no off shoots, thereby making the longest fibres (Baines 1985). The plants that remained in our little garden remained small and stunted. Although many survived being uprooted, it was clear that, structurally they had been damaged by being pulled up. Once the stem had been bent past a certain degree, there was no support for the plant to stand upright, and it would collapse. I became adept at spotting plants for whom the 'lean' had got too great, and careful at removing them, yet disturbing their neighbours as little as possible.

I began to notice, more acutely than before when weeds started to sprout between the clumps and I would carefully pick them out, ensuring that I took as much of the root as possible. Somehow I began to feel more attached to the small patch of compromised and fragile plants, and I began to care for them, worrying about their weakened stems them in wind and the heavy rains.

The plants were displaying a particular kind of liveliness, and their agency, or at least their recent history exerted particular influences over me. Hitchings (2003) writes of how different plants use different 'techniques' to work to a greater or lesser extent in getting people to attend to them, through beauty, intrigue or by exerting calming influences. Power (2005) describes how plants draw (and are drawn into) patterns of care with people; it was in this charismatic shift, from thriving and healthy crop to the traumatic incident which lead to me being more attentive to the plants needs as somehow I came to see them as more 'in need' of my help than I had before.

Engaging deeply with beings such as plants is easier said than done, as Head et al., (2015) argue, most of us profoundly background plants, and it is arguably only because of an emotional narrative that I had attached to these particular plants that meant that I became more engaged with their lives. I think Yet, it is questionable whether this is, in fact, engaging with plants on their own terms, or the degree to which my emotional investment in the plants was determined by my particular narrative and feelings of responsibility towards them, by somewhat anthropomorphising them and bringing them into my worlds. As Hitchings and Jones (2003) suggest, there are distinctive, methodological challenges in accessing some of the more subtle aspects of plant agency.

I tended the depleted crop of flax plants for another two weeks, until the weather started to cool, and after a phone conversation with Kate, I decided they were unlikely to grow any more. As I harvested them, there was barely any rooty resistance, unlike the other flax plants I had harvested in Kate's company. But they were there all the same, smaller, stunted, but alive and surviving, despite the attempt to kill them.

The precarious nature of the plants, and of my working with the plants was highlighted by their getting pulled up; it alerted me to the fragile and tentative nature of our entanglements. The history of linen and humans is also one of precarity; these are not new discoveries. Throughout history, and long before the Anthropocene, human-linen relations can be seen as both precarious and enduring; and co-constitutive of one another. This project was about histories and embodied connections to momentary experiences that are historicised in different ways. From my micro-encounter with crop failure, I now consider the fraught histories of ancient linen production.

Ancient linen production

The earliest evidence of linen production is from an upper-paleolithic excavation site at Dzudzuana Cave in Georgia where archaeologists discovered flax fibres preserved in pollen from 34, 000 years ago; they are the oldest evidence of manmade textiles ever discovered (Kvavadze et al. 2009). Flax first started to be

intentionally cultivated and domesticated in North Africa and the Fertile Crescent around 5,000 – 7,000 years ago (2018). It began appearing in ancient Mesopotamian city-states like Babylon and Ur; but the process was so labour intensive and laborious (more on that later) and so only members of the elite, such as priests and royalty could afford linen clothing and other items. During this time, linen accounted for only about 10% of textile production (Shaw, 2003). Growing flax leeches nutrients from the soil such that the fields must be let lie fallow for several years after a harvest. It was not until the domesticated flax was brought to the fertile Nile valley that production increased. The annual flooding of the Nile brought alluvial deposits that replenished the nutrients, depleted by the flax plants. Coupled with the slave labour of the ancient Egyptian cities, flax became Egypt's top non-edible crop (Shaw, 2003). Egyptian priests wore clean white linen as a symbol of divine purity. It was also used as a bandage and to bind embalmed Egyptian bodies because of its protective qualities against insects and the ancient Phoenicians used closely-woven linen as armour because it was lighter and more flexible than chain mail (Pahor, 1992, Baines, 1985).

I want to pause for a short time to tie our linen threads to an ancient climatic change; to consider these social changes in the context of climate change. Not the anthropogenic climate change of today, but the mid-holocene climate shifts. Nigel Clark (2017b) draws a link between shifts in the climate, around 5,200 years ago when there was a marked reduction in rainfall in ancient Mesopotamia. Although it has different effects in different places, the signature of this 'mid holocene climatic transition' shows up more-or-less synchronously in environmental records from across the Middle East, Africa, China, South America and Europe (Brooks, 2012). How significant this shift is, is contentious, and what it meant for human social life is even more so. However, there is substantial evidence linking the Mid Holocene Climatic Transition to the shift from small, relatively egalitarian villages based on subsistence agriculture to large fortified urban centres with intensified social stratification and administrative hierarchies. It had the effect of concentrating populations in those urban centres such as Eridu or Ur that were on higher, more stable ground.

Clark argues that – climate driven mobility or migration is not an afterthought its at the very heart of what came to be known as 'civilization'

(Clark, 2017a). The very idea of a specialised system of rule and administration with jurisdiction over a population and a section of the earth's surface cannot be understood in isolation from climatic-environmental variability in the earth system. Clark argues that the power of the climate to change societies was less about aridity, rainfall, drought and flooding, but about the instability of the land itself.

As the climate changed in the mid Holocene, climate thresholds were crossed, ice sheets melted and great ice dams burst, raising the sea level very quickly and dramatically around the world; numerous great floods are likely the basis for the plethora of great flood myths of this time – evident in every culture around the world (Sloterdijk, 2014). Perhaps there was something in the cultural psyche of that time, about the instability of flooded lands - of sea level rise 100m a year in some places - that led to a human understanding of land as something shifting and unreliable that led to the desire to build huge walled cities, develop systematic counting, registration and administration in order to make sense of a landscape that appeared, with alarming frequency to be fluid, shifting and often inhospitable. This was one particular response to climatic shifts; the invention of debt, accounting, slavery, hierarchy (Clark, 2017a).

These ancient societies from 'the cradle of civilization' were based on agrarian land claims, trade, commerce and debt. One of the crops at the heart of these systems was flax; linen was a holy cloth, reserved for priests, royalty and the elite. Therefore, it could be argued that the history of linen is intimately linked to climate change, and the hierarchical systems that characterize western civilization as we know it today.

My own experience of growing flax, and the fragile micro-encounters therein are admittedly small in the scale of the Anthropocene, yet still they point to the fragility of the relations, entanglements and even survival within a larger picture of the Anthropocene, in which our vulnerabilities are interdependent and shared. This project was not explicitly about ancient flax production, but in a material sense the other participants, myself and the flax are entangled together in ways beyond those which we are consciously aware of. The past traditions of linen production resonate through contemporary experience, even if this is not a conscious entangling, like the knitters and the terns in *Bird Yarns*, the

entanglements exist all the same, the material connections still co-exist regardless of our conscious acknowledgement of them.

Donna Haraway writes that our working together is speculative, there are no 'assured outcomes' for any of the players (Haraway 2003: p30), which became evident in this growing phase of the project, there are interests, relations and experiences that exceed and impact those of the individual and groups of humans and nonhumans within the project itself. This was a low grade success in terms of flax growing, to have a fraction of the crop I started with is better than no crop. The upheaval the plants suffered draws attention to the things that were lost and that died along the way; alerting us to the precarity of liveliness and the entanglements which are beyond our control.

In this section of 'upheaval', the destruction of one crop of flax forced a way of thinking about both the changing role of charisma and agency of the plants as they were damaged by human action. I argue that this the appreciation of failure, or at least partial failure in both research, practice is important in not only attending to the difficulties of these things as they happen 'on the ground', but it also situates this precariousness and vulnerability to human action in the wider context of the Anthropocene. In the following empirical section, I look to the skill and techniques of spinning the fibres from the plants into yarn, and consider the haptic relations built between plants in the process.

Spinning

It was a mild day in late September, and I had come over to a wellbeing centre in Bromley by Bow for a spinning workshop. It was one of the busier workshops I had attended, the gardening group who had grown, harvested and retted the flax were part of a charity for people with mental illness; the group was active with about 15 regular attendees. We started in a small community centre in the garden, and Kate gave her well-rehearsed talk about the history of linen production in the British Isles and an explanation of the scutching, heckling and spinning processes we were about to undertake.

There were twelve other participants eight women and four men, ranging in age from thirty five to seventy. The group was predominantly white British and Irish, three of the women were black British. Tova and I sat in a horseshoe shape around Kate, she handed round bunches of prepared flax stalks and people began to remove the seeds, a process known as 'rippling'. I began to get lost in the careful, gentle and methodical process of pulling out the seed heads in order to preserve the seeds, and as I did, the conversation began to change. A man of about 70 who had been very quiet and still beckoned Kate over to him. He started to tell her about his memories of growing up in Ireland where he can remember his granddad coming home after long days working the linen. He had not heard the words scutching or heckling since he was a young boy and it was bringing back memories of the songs his grandfather used to sing while he worked.

Once the seeds were removed, we moved outside to scutch, heckle and spin. Standing up and moving around seemed to liven up the group dynamics. Three women came over to me and were cooing over Tova, they asked if she was a boy or a girl (a girl), how old she was (4 months), if she was a good baby (a question that never failed to baffle me) and what her sleeping was like. One woman began telling me about the cardigan she was knitting for her granddaughter, and another younger woman told me that she herself was pregnant, but it was too early to make it common knowledge. A woman of about 40 offered to hold Tova to allow me to do some spinning. So, grateful of the help, I unpacked my little girl from her sling, and a team of three women cooed and sat down next to a flowerbed with her, chattering amongst themselves and showing Tova the flowers they had grown.

A squat, quiet man of around 50 held out some lengths of tow, offering, wordlessly, to spin with me. He held a hand drill, but seemed unsure of what to do with it. Having spun using Kate's "drill method" before, I knew how to persuade this rather vicious looking homemade drill contraption into a spinning wheel. Together, the man and I wound the tow onto the hook and tied it securely. I handed him the drill, he gently turned the handle, and I teased out the tow from my hand into an ever lengthening line of linen string, stepping gradually backwards away from him as the single ply of yarn grew longer and longer. At about 3 metres, I was stood next to Tova, pleased to be able to make sure she was ok while I worked, and we stopped spinning. I held the yarn at its midpoint, and folded it in two. In my hands I twisted the string back on itself until it settled. I passed the man the string we had made, he smiled and took it to show his carer who was sitting next to the fence, watching us the whole time. The quiet man hardly spoke as we spun.

After spinning, I started to break the husks from some more flax, and I listened to people's conversations. A young woman in her early 20s was talking to a tall, slight woman in her 40s while they worked the heckling machine. They were talking about the history of their names, their Irish heritage, and the older woman's Jewish ancestry (and related hair complaints), remarking on how everyone seems to have a shared history if you talk long enough (field notes, 26.09.2015).

In this section, I consider another stage of making the flax into yarn; scutching, heckling and spinning. This research is taken from one of the other community gardens I attended, in which the processes of breaking the hard husks from the plants (scutching), the combing of the long thin fibres to get them to a state which can be spun (heckling) and the spinning itself all took place on one afternoon. By this point, the flax had already been grown reaped, retted and dried. This becomes another form of entanglement with plant materialities as the spinning is the process by which something that is recognisably plant-based, is turned into something distinctly thready. This section, focuses on the thready geographies of what it takes to make thread; the histories, the socialities, the materialities and the practices of making together with other people and nonhumans. In order to do this, I first draw on my own first hand experience of

making the thread as a participant in the workshops, drawing on craft literature on making.

Historical linen production in the British Isles

The skills of historical linen production in the UK were working class, mundane and gendered– men undertook the growing, harvesting and retting and the heckling and spinning were performed by women. The geographies are also inherently political; linen was often grown in places where the keeping of sheep for the more lucrative wool industry was banned, most notably the case in Ireland (Baines, 1985).

In her presentation to the group on flax production, Kate gives a potted history of linen production in the British Isles, she explains that many words that come from the process of making linen: ‘line’ comes from the long lines of linen as they were spun; the verb ‘to heckle’, meaning to shout out of turn and provoke, comes from linen heckling (the process of combing the long, internal fibres). It is dusty work, and the hecklers would often drink beer throughout their working day to soothe their sore dry throats. When the supervisor walked through the heckling rooms at the end of the day, he was likely to have abuse and insults shouted at him – which came to be known as heckling. The term ‘spinster’, an unmarried woman with derogatory connotations is believed to have originally come from female linen spinners, who with enough skill to provide a good income and lifestyle on their own terms did not have the same social and economic pressures to get married as other women, and often chose to remain unmarried.

The more recent socio-political histories of linen production are a key aspect of this work, the project functions as a way to connect to material histories, and lively pasts through micro-encounters with plants. By teaching and experimenting with manual skills, Kate aims to encourage people to encounter fabrics differently, slowing down the pace of ‘throwaway fashion’. The embodied encounters with the threads as they are being made is crucial to this practice; which is where I turn to next.

Making the thread

By paying attention to the haptic and more than human aspects of skilled practice, Elizabeth Straughan argues that making is a 'creative process through which corporeal entanglements emerge' (Straughan, 2015: p364). With practice, I learnt how much force was needed to pull the fibres in order to get a smooth, even thread, without so much pressure that the material yielded and snapped. I learnt to feel with my hands what was too thin to bear, and what was too fat and would leave big lumps in the yarn. I learnt how to tease out wide spots by gently teasing the excess fibres away at the edges, and repair parts of the yarn that had got too thin by introducing extra fibres and holding them close to the yarn, snug enough so they bound together with the existing thread, twisting them together between my fingers so the yarn became one continuous (albeit somewhat lumpy) line. I realised I was also drawing on long forgotten muscle memories of hours spent as a child, hand spinning threads from household items including hair and tissue paper (which I am rather embarrassed to admit here).

There is a reciprocity in this sense, that the yarn was moved by the action of my hands, and that my hands learnt about the plant, the fibre and the yarn as the line moved from one state of being to the next, through the process of combing, teasing and spinning. It was hard on the skin of my hands, the fibres can be rough and dry, pulling out the moisture of my skin and snagging, quietly and gently on the rough edges of my fingers. Hands and yarn worked together to spin the line into being, tentatively at first and then more confidently and bolder as the session went on and the joints and muscles aligned with just the right amount of tension and support needed. There was a relationship between fingers and thread, and a degree of reciprocity between material and hands was made.

Learning, and becoming more proficient at these skills produced new embodied knowledges. O'Connor (2007: p129) describes his experience of glass blowing, how he developed the sense of knowing when he had collected just the right amount of glass: 'this is marked progress for the novice, who accustomed to serving the instrument then finds the 'instrument through techniques' actually becoming a part of her.' Holding the tentative yarn between two people gave a

sense of how much resistance was held between the flax and the two spinners, it was not always easy to distinguish how much was the other person and how much was the yarn. Sometimes the yarn snapped, sometimes the yarn fell slack, and it was a careful and gentle process to support and construct the thread through a responsive relationship between spinners and yarn. This sensitive and responsive relationship necessary for constructing the yarn was equally about a sensitivity to the person I was working with as it was a sensitivity to the material. It didn't really matter where one ended and the other started, because there was no way to separate them, they were one and the same, although the relationships with the other spinner were often wordless. Our concentration was on the becoming thread, and the tentative teasing and turning, altering resistance and softness with the fibres to make the yarn as equal as we could. The thread we made was lumpy and more like course gardeners twine than fine thread. While, it was abundantly clear that our spinning skills left a lot of room for improvement, it was recognisably string, nonetheless.

In her study and practice of the embodied process of working with dead animal bodies in making taxidermy mounts, Straughan (2015) engages with the Luce Irigaray's concept of porosity. Reciprocity is central to the concept of porosity, in which living bodies can touch and be touched, can feel and be felt, and it is this reciprocal element which signals the nonhierarchical character of this sense. For Irigaray (1993), bodies touching become open to the effects of one another; "[t]he internal and external horizons of my skin interpenetrating with yours wears away their edges, their limits, their solidarity. Creating another space - outside my framework. An opening of openness" (Irigaray, 1993: p59). While my hands, making the yarn are touched by the plant materiality of the flax and are dried, and chafed by the fibres, the fibres absorb some of my bodily moisture and warmth and this is woven into the new structures of the becoming threads. However, as plants, the reciprocity is asymmetrical as the dead plants can not, arguably, 'feel' my touch as I work with them.

However the yarn does instigate response in the body of the other person with whom I work to spin the thread. As Irigaray argues for a 'sociality of touch' and Braidotti argues that objects are also the subjects of our enquiry, both matter and life are capable of touch and being touched and both are catalysts for

affect (Straughan, 2015: p372). Between my own body and the body of the other spinner, is held a line of tentative, becoming thread. There is a physical connection and movements, twists and jerks are passed down the yarn between us, the yarn then becomes a channel for which the reciprocity of touch flows, it is a conductor for a tactile and haptic understanding of the working of another body, a wordless communication between hands. Here then, perhaps is the sociality of touch; played out between human bodies and plant bodies, each depended on one another for the development, understanding and production of both bodies and yarn.

This was a skilled, nuanced and necessarily gentle practice, determined between the different tensions and excesses of bodies and materials in close, physical contact with one another. Although the spinning was often wordless between the human participants, there was creativity and embodied understandings produced during the interactions and the making. These bodily understandings, I argue, form the basis for subtle, complex and quiet understandings of plant materialities and their existence in the context of entangled becomings of plants, humans and their different environments as we learnt, through trial and error the skills of spinning, working with and integrating the fibres into yarn.

The participation in this part of the project was in the form of the human participants and the linen materiality working together to make string. Much like Bastian's (2017) approach to more than human participatory research, this aspect of the project sought to involve the participation of nonhumans, in this case linen plants through bodily experiences. Where in the Connected Communities programme that focused on the Wye Valley Forest that Bastian writes about, participants spent time alone in the forest, they collected materials and practiced wood carving. These practical activities, which involved bodily encounters with plants (in Bastian's case trees, in mine, flax), were a way to foster different kinds of understandings between humans, plants and the more than human worlds within which they interact.

Reflecting back onto Bastian's (2017) four suggestions for more than human participatory research, this element of the project aimed to 'expand life worlds' and 'support cognitive estrangements' through the involvement of

people who were not usually partial to gardening or to spinning, and invited them to interact with plants in different ways than they often did. In the talks given by Kate at the beginning of each session, she acted as something of a gatekeeper between the worlds of plants and humans by offering the human participants an insight into plant-lives and plant-histories they would not have otherwise been party to.

Similar to the gardening section, the spinning section also ‘challenged assumptions of competency’ (Bastian 2017) in the way that Kate and the spinners attempted to learn long lost skills that were unfamiliar to all. Because of the absence of knowledge and skills about spinning linen, the human participants had to rely upon the materialities and structure of the plants. This then was a form of learning together, humans and plants and sharing interconnected embodied skill, resistance and practice as a form of making, rather than imposing form on an inanimate object (Ingold 2013). The humans were, all things considered, not very competent at spinning, some more so than others, but this lack of competency initiated a different kind of reliance on the materials and the plants we were working with. This kind of opening up to the acceptance and realization of different forms of competency within the participatory practices of the project enabled an openness and was key to the transformative potential in which the human participants were able to learn with the plant participants.

The methods here were designed to include the bodies and materiality of the plants, and in a way the participation of the plants. However, the participation of the plants was reliant on their uprooting and harvesting. Like Bastian (2017) querying if woodcarving is less of a participation for the trees involved and more akin to a dissection, this raises questions around the nature of the participation for the plants. Flax is an annual plant (it only grows for one season), and would die back in winter after scattering its seeds, the types of flax that are grown for linen have been developed to be interdependent with human sowing and maintenance. We relied on the uprooting – and ultimate death – of the plants in the project in order to work with them, so there was an asymmetry in the project in that the humans chose at what point the plants would live and what point they would die. This then has the potential to draw attention to the

asymmetrical power dimensions and institutional histories of flax farming, as was highlighted in Kate's talk.

In this section, I have considered the making of human-plant and human-human relations through the process of transforming plant materialities into yarn. Building on the work of multispecies ethnographies, I contend that the act of making with plant bodies - rather than tending to or growing plants - offers a different way for working with and coming to know their "planty knowledges". Albeit that the plants have explicitly been grown for this purpose, not only for this one project, but for the making of linen yarn for thousands of years, the plants have agencies, tendencies and indeed histories that are known and knowable through the process of making *with* their fibres. Yet, these interactions have only been made in this way at all because of the 'Grow a Ball of String' project. The relations, vulnerable, awkward and twisting were made possible through the support and maintenance of the overall project; and that is the work of Kate as an artist. Her artistic labour and input was what made the relations happen, and this work does not happen easily or by chance. I turn now to the final section of this chapter to think about how the artistic labour in the project supports and makes these relations.

Labour of the artist

I had arrived late to the workshop. It was in an area of London I didn't know well, and travelling across the city with a 7 month old baby on two trains and three buses had taken me longer than I had anticipated. By the time I got there the session was winding down and people were beginning to disperse into the adjacent cemetery nature reserve. The session had gone quicker than Kate expected as well, and the hall was still booked for another hour. A few children and adults were milling about with small pieces of linen thread tied to wrists and bag straps. Kate and Nat were collecting the leftover tow, the dregs of cups of tea and half eaten biscuits. Kate apologised that the session had ended early and offered to spin some yarn with me. We used "the drill method" and Tova curiously poked the string with a small finger. The cogs of the drill caught her tiny finger and she yelped. Kate and I decided that was probably a sign to stop spinning and I took Tova out of the sling for a cuddle and a feed. Once recovered from the shock encounter with the drill/spindle, I put her on the floor with some toys and helped sweep the floor of the leftover flax husks known as 'boon' and coarse, stringy fibers or 'tow' (field notes, 09.01.2016).

In this final section of the chapter, I use the 'boon' and 'tow' of the plant as an allegory for the supportive and often invisible artistic labours of Kate Poland. The artwork was designed to firstly draw attention to human and nonhuman entanglements, and secondly to the often overlooked labour of humans and nonhumans involved in clothing manufacture; which I have explored through the themes of an earthworm, infestation, retting and spinning in the previous sections of this chapters. This section aims to think explicitly about the labour involved in the project, attending not to the work of the participants (human, plant and otherwise), but importantly to the work of the artist. As a participatory art practice, there are often complicated and unclear divisions between the 'work' of the artist and the 'work' of the participants, nonhuman and human. Recent geographical work has demanded a closer attention to the work of art, both in regards to the material, social and political effects of artworks (Hawkins,

2013, Hawkins et al., 2015) but also to the role that nonhumans play in participatory arts practices (McNally, 2018).

This section, responds to these calls by focussing on the unseen supporting structures of both plants and the artist. I draw on Richard Sennet's (2012) assertion that there are many interlinked skills between making things and making social relations, and yet the relationships between them are neither linear nor straightforward. In order for the project to function, Kate must develop multiple skills, both embodied and social. Within the project itself, I think about the artistic work of making social relations through the work of art theorists, Nicholas Bourriaud and Shannon Jackson primarily (Bourriaud 2002, Jackson 2011). Jackson's work in particular calls us to attend to the supportive work of artistic practice and in doing so, makes explicit the invisible work of maintaining social relations. This artistic labour, however, is not just about the relations made, supported and unmade in the project itself, but it is also about the practicalities of running a project like this; finding space and funding and the work of 'selling' her practice in a neoliberal context, which is explored in the final section of this chapter.

I meet Kate in the garden after lunch. She is tired, she tells me. She offers me a cup of tea, and digs out her Kelly Kettle from the shed. We collect a few dried twigs and make a small fire in the base, fill up the flask with water, put the kettle together and wait for the water to boil. Kate plucks a few leaves from a nearby lemon balm plant and distributes them between two enamel mugs. She has been working on the linen project for the past few days and is feeling overwhelmed and overworked by the project. She's trying to get another garden involved in the project, but they are not very good at keeping in touch and she feels like she's putting in a lot of work to something that may just prove to be another dead end. It's hard to tell what will work and what won't work, she says. Even after years of working in community artworks, there is no real way to tell; you just have to 'keep at it'. But someone who she met by chance at another workshop is interested in writing a magazine article about the project, and did she tell me that the jumper is going to be displayed at Hackney Museum? It's funny, she says, "some things have a momentum of their own, and take off without much input from me, but most things are just a long,

hard slog to keep going". The water starts to boil, we make our tea and go and have a look at the rectangular bed of flax growing at the far end of the garden. She jokingly vows never to do another project on this scale (field notes and interview transcript, 25.02.2015).

There are many different forms of work and skill that Kate employs in running this project; including embodied crafting skills themselves, and her means of transmitting them. Over the duration of the project, Kate has had to learn the best way to grow and ret the flax according to the conditions and resources that she has available to her, and she has collaborated with people and plants as a way to develop embodied and material skills of spinning the finest and smoothest yarn possible. As a participatory artist, one of the key aspects of her practice, is not just her own embodied skill, but also her skills in passing on what she has learnt – of getting others involved and supporting and teaching other people how to grow, process and spin the yarn for themselves.

As Sennett (2012: p199 - 200) reminds us, although:

‘we want to learn what physical work might suggest about strengthening social bonds, we don’t want to commit the error of imagining that people who are good at this kind of labour necessarily become good at social life. Physical skills of making and repairing do more or less than provide insight into social relations’

While social connections can be formed through the socialities of making things together, and making skills in general, embodied knowledges of making do not necessarily or straightforwardly translate into social skills. They are different creative skill sets, entangled and intertwined as they are made, but there are no easy and straightforward causal ties between the two. The labour of the artist is manifold; consisting of her embodied skills, her skills as a teacher, her skill of making the immediate spaces for the multispecies social interactions to take place, and her skills of organisation and orchestration of the project over its entire duration. It also includes her emotional management and the care and labour involved in this. Although these skills interweave, they consist of very

different requirements in order to culminate in an engaging and successful artwork.

The '*Grow a Ball of String*' project more than the other two projects I have looked at in the preceding chapters, aligns closely with the participatory artworks such as those outlined by Nicholas Bourriaud in that it is less about the final work (in this case, the 'final piece' were somewhat underwhelming small balls of string which are kept by the human participants), than it is about the making social relations and entanglements of various forms during the project (Bourriaud, 2002). Kate's artistic work is made up of constructing the spaces and infrastructures that enable multispecies skilled and social relations to be made, remade and unmade.

Temporality and social relations

Kate has spent time and energy considering what types of connections, social relations and entanglements she wants to bring to the fore in her artwork. The connections made in this project have the explicit aim of bringing people and plants together and to form skilled, embodied understandings of the workings of plant fibres among the human participants. The relations that Kate aims for, therefore are the ones that are co-operative rather than antagonistic, as she notes, "it's important to me that people get on, this is a break for them, ultimately, I guess I want them to have a good time too" (Poland, interview transcript, 25.02.2015). Over the duration of the project, there are difficulties to be overcome (for example the flax being mistaken for an infestation and pulled up), there are a spectrum of different relations made ranging from somewhat disastrous – the loss of an entire crop - to more minor obstacles such as the failure of some of the stems to ret properly, to the familiar snapping of threads as they are spun. While these instances are testing in varying levels, they do not characterise the project itself, the project is seen as a learning exercise in which to generate more positive and educational social relations between people and plant fibres.

Where many participatory arts practices are praised for highlighting social disruption, antagonism and tension (Bishop, 2004), Shannon Jackson

argues for the value of artworks that draw attention to the emotional and physical labour of care, sustenance and support in everyday life (Jackson, 2011). She argues that 'when a political art discourse too often celebrates social disruption at the expense of social coordination, we lose a more complex sense of how art practices contribute to inter-dependent social imagining' (Jackson, 2011: p14). As the previous section of this chapter in the spinning of the yarn demonstrates, this project focuses on the minor interactions, and the necessity to work collaboratively and communicatively with other human participants, planty materials and wider support networks of nonhuman labour, such as the earthworm. After Jackson, then, the 'work' of this art is in bringing attention down to the small scale, slow and tentative interactions which are all too easily forgotten in the 'rush' of throwaway fashion. This art practice not only contributes to the social imagining of how people are interdependent in terms of learning skills and working together, it also explicitly highlights the interdependence of more than human social interactions, and the wider environments in which they are situated – and indeed the difficulties, labour and tension involved in these processes.

There is a sense of shifting temporality throughout many of the interactions in the project; the sessions, spaces and relations that Kate orchestrates are about a shift in temporality, there is a specific focus on activities that operate at a different pace to a lot of city life; which constitutes her artistic work and the building of more complex social relations. The spinning sessions are as much about learning embodied skills, between materials and other people, as they are about slowing down, and attending to the nuances and subtleties and difference within plant bodies and human bodies and the ways in which they interact to form new, thready materials. They encouraged the participants to become more aware of the micro-encounters of hands and threads, of the different intensity or softness – both physical and emotional – of working with the thread and other people.

Throughout the string growing project, different people were entangled at different points, those that grew the flax were not necessarily those that came to the spinning workshops. Participants had their own interests and skills, which they brought to the different stages. The project was designed in such a way to

accommodate people coming to it for differing durations. Much like objects, matter and material that are handcrafted between skills, bodies and makers – social relations can be simultaneously transient and enduring (Price and Hawkins, 2018: p232). Many of the social relations that were formed, especially during the spinning workshops were short lived and transient. The concern of Kate, then was not to make long term, enduring connections between any of the participants, but to facilitate the space to enable participants to bring their own skills and knowledges to the process, and to engage as much or as little as they chose to, in both the successful and celebratory aspects (making an actual length of yarn), and the frustrations and difficulties involved in the process (yarn snapping, children’s fingers being cut).

Part of the telling of these stories of flax, through the shared stories of participants and the shared practices that shape them is about transience and the possibility of short interventions and relations – and the potentiality within that. The *‘Grow a Ball of String’* project overall points to the possibility of other ways of being; other small and transient ways of connecting to plants and to people. The relations made through this project and its integral making practices then are as much ‘about the promise and process of what *can* become, as it is about the product that is made’ (Price and Hawkins 2018: p232). Where making practices of other people form a part of Kate’s artistic practice, these dispersed making practices and the way that Kate’s work supports and enables these practices is a core element of the ‘work’ of Kate’s art. A crucial element of her skill as an artist is in bringing different people, skills and plants together in generative and productive ways as a way to offer different forms of potentiality. Echoing Ben Anderson’s argument that the micropolitical ‘involves a temporal reorientation of knowledge practices, to the emergent and the prospective (what has not yet become)’ (Anderson, 2017: p594).

These dynamic, hopeful and emergent relations are a key component of the artwork. They are played out in everyday, vernacular spaces, and in the processes of learning to do as much as in skilled practice. The work of the art is to hold space for people and plants to work together, to engage and entangle with one another in experimental ways. The spaces that Kate creates for the interactions to occur is a way of opening up opportunities for telling stories of

labour and capital otherwise (Gibson-Graham, 2011). By drawing attention to the complexities of the social relations in making practices and the manufacturing of threads and thereby cloth, the project situates the labour and relations in the context of larger issues around global commodity and trade circuits, in order that materials, labour processes and production methods have the possibility to be envisaged otherwise.

The work of these internal relations within the project all take labour, skill and care in order to cultivate and sustain them. In this section, I have argued that these are skills which are both central to the project - and while intertwined with the embodied skills of making in the previous sections - they are distinct artistic social skills. Yet it is not just the social skills of supporting the project as it happens and unfolds, there is a huge amount of artistic labour that goes into the provision and preparation for each of these workshops and situations; and it is to this work of sustaining and managing the project overall which I consider next.

Organisational labour

The workshop described in the prologue to this session took place over three hours one Saturday morning. It took place in a small church community hall about five minutes walk from one of the gardens that had participated in the previous year's flax growing project. The venue had to be found, booked and rented. It was not possible to hold the workshop in the community garden as there was no indoor space, so in case of rain Kate and Nat had to research small, affordable venues in the local area that were close enough for the gardeners to get to. As the funding for the project is running low, there are also financial pressures connected to renting spaces, and Kate tells me she often uses her own money to prop up the project. Once the venue is secured, then there needs to be publicity, flyers, social media, phone calls, text messages. Kate packs her car, and takes down a boot full of bags of flax, the heckling machine, various drills and spinning equipment, face masks, bags of seed and information about the project. This is the work that she tells me she "finds exhausting and thankless; the behind the scenes labour that holds the project together and keeps it ticking over"

(Poland, interview transcript, 25.02.2015). This is the invisible emotional labour, which is neither seen nor made explicit, but is essential to the smooth running of the project.

Relational and participatory arts practices often focus on drawing attention to blurring the boundaries between 'art' on the one hand and 'life' on the other, as a way to highlight the often invisible labour of women, migrants, sex workers or other people deemed 'marginalised' in some way (Jackson, 2011, McLean, 2017). In many ways, this project follows a tradition of 'maintenance art' set forth by artist Mariele Laderman Ukeles which draws attention to the maintenance of repetitive daily life practices, such as cleaning and looking after children by calling our attention to the practices and politics of clothing manufacture and the way in which they are made invisible (Jackson, 2011). But there is another layer of hidden labour in this project; that of the orchestration and organisation of the project overall. This aspect of participatory arts practice is one that is far less written about in the literature and yet these are skills that are absolutely crucial to the running of the project.

An attention to the diversity and multitude of labours within the Grow a Ball of String project, demand an appreciation of the diverse and differing skill sets brought together by the project – including the organisational aspects. In doing so, it undermines traditional idealisations of the artist as an autonomous, almost shamanic individual and places both artist and artwork squarely within a relational framework. Although very few art scholars would defend a special status of artists or bohemian autonomy from social codes, the myth of the autonomous artist still persists to this day (Miles, 2010). Giordano (2016) argues that this idea of an autonomous artist is akin to the disconnected idea of 'objective scientific truths', which Haraway describes as 'the God trick' (1988).

Social arts practices, such as the string growing project, are only possible with the assumption that other humans, nonhumans and materials bring their own unique skills to the project, and that it is in the orchestration, accumulation and patterning of these different qualities that make up the artwork itself. In this way, the socially engaged nature of the practice can be seen more as coming from a certain standpoint, where the artist is already embedded in complex networks of relations with which she works (Giordano, 2016).

Like the other skills and forms of relation, entanglement and artwork discussed in this chapter, these orchestration skills are 'generated in the course of the gradual unfolding of a sensuous engagement of the practitioner with the material he or she works with' (Sjöholm, 2018: p37). To make these kinds of artworks with the materials at hand – that is other people's skills, knowledges and plant materialities, the artist must be constantly developing, learning and practicing the skills required to bring these things into relation with one another. As Kate notes in the above prologue, this is hard work. Over the years the project has ran, she has learnt different ways of contacting people, that sometimes emailing works better than calling, and vice versa. Her preferred method of getting new people involved in the project is to meet them face to face, and she travels around the country to hold meetings about where the project can go next. There is trial and error in the making of these social networks, as much as there is trial and error in the practical and physical engagement of water and flax stems, or drills and line. In this process, 'each generation contributes to the next not by handing on a corpus of representations, or information in the strict sense, but rather by opening up opportunities for perception and action through providing the practitioner with the structures of platforms needed to be able to continue (Ingold, 2010: p94). The making of this kind of art, much like the making of more 'physical' works of art, the practice is dependent on skills being modified and refined, which opens up new possibilities and futures for the artist and artwork.

This repetitive practice and the making and honing of skills of participatory artworks need to be also followed by self-monitoring as well as awareness and on-going adjustments in constantly changing conditions. Kate works almost constantly on trying to find new sites and directions for the project overall, building on the ways that she understands her materials, both in terms of a physical sense and a relational sense of thinking through more than human social relations *as medium*, her practice contributes and extends Ingold's suggestion that 'as practitioners, the builder, the gardener, the cook, the alchemist and the painter are not so much imposing form on matter, as bringing together diverse materials and combining or redirecting their flow in the anticipation of what might emerge' (Ingold, 2001: p22).

At the time of writing, the future of the growing project is shifting and altering to new and different entangled conditions. While there is the possibility for new avenues with the National Trust and Network Rail, Kate's primary community garden is under threat of redevelopment. The community gardens Kate works with are often precarious in their existence, formed in underused or forgotten spaces. Indeed, Kate's primary community garden was an overgrown area of scrubby bulddleia and brambles at the back of the London School of Fashion, which she requested to take over. The site has been sold to developers and she is in discussion with a mental health charity about using some land to the side of their building as a new site, which will come with it's own stipends about the involvement of people who already use the building (Poland, summary of interview transcript, 25.02.2015). Part of her practice, then becomes about finding new spaces and practices of working in neoliberal contexts (Harvie, 2013).

Because of the precarious nature of her garden workspace, Kate has become more and more adept at 'selling' her work and the 'benefits' of the type of work she does. Her skilled practice is situated both within the practice of getting other people and nonhumans involved in the projects, but also about ensuring the very survival of the project itself in neo liberal contexts where space is at a premium and funding is being cut. The precarity of the project overall, and its temporal nature situate it both physically as well as socially and economically in conditions where materials, people and nonhumans are increasingly destabilised, and call attention to the ways the Anthropocene is beginning to characterise many different practices and ways of being (Carr and Gibson, 2015).

Yet there is hope in this project. While challenging, Kate is attempting to navigate and hone her skills at keeping the project afloat and shifting its dynamic. The Grow a Ball of String project has offered a different approach to both the manufacture of thready geographies, but also to the making of more than human social relations in the shifting and uncertain political and economic environment of contemporary London.

To summarise this section, I have attended to the textured and nuanced ways in which the making of, and holding space for, social relations in

participatory arts practices are a skill set that is both made by and productive of the embodied skills of making in the 'grow a ball of string' project. By engaging with art theory, in particular the writing of Shannon Jackson (2011), I contend that the labour of holding these relations together makes the supporting, background work of such efforts - that is so often side lined - more visible. In bringing these things to light, the project draws attention to the hidden labour of both human and nonhuman work in making participatory art projects, gardens and fabrics. The relations made are often short lived and transient, but in their temporal nature they allude to other possibilities and other ways of being with humans and nonhumans in the Anthropocene. In the final section, I situated the 'Grow a Ball of String' project in a wider context of in order to attend to the labour of the artist in managing and running an art project.

Conclusions

At the beginning of this chapter, I argued that the 'Grow a Ball of String' artwork could be thought of as a kind of anticipatory history (DeSilvey, 2012). After outlining some histories of linen production, the remainder of the chapter considered embodied entanglements of plants and humans through the processes of sowing, tending and spinning the flax, then finally considered the labour of the artist in the process. In this conclusion, I want to bring these moments and practices together and argue for them as a form of anticipatory history.

The project, which demands close attention and learning *with* other humans and nonhumans, ties its participants to different understandings of past lives and lived experiences. It resonates with recent work in geography that departs from an iconographic or representational understanding of landscape, examining instead how landscape emerges through 'mobile and material practices' and is composed of discontinuous and contingent histories (DeSilvey 2012: p36). By disrupting static histories, and bringing to life different, nuanced experiences and sharing these experiences with the participants of the project, the work is also making room for different kinds of imagined futures.

In getting to grips with the plant materialities and a diffused and shared network of knowledge, both from human and nonhuman participants in the project, Kate enlivens embodied histories and memories of flax production that are absent from the types of information present in reference books. The learning of new skills and the teaching and passing on of haptic knowledge and embodied skills extends past, present and future understandings of landscapes and agrarian histories into the nonrepresentational; less about the narrative and more about the material beings of different times.

Like the other projects in this thesis, this research focuses on the process of artmaking, rather than the finished objects themselves, it is about the process of making new connections and connecting to lost skills, perhaps then it is also a process of repair; the maintenance of practice and skills, as opposed to the maintenance of objects and materials? This 'making good' is about maintaining a continuity with the past, and while Carr and Gibson (2015) argue that the

Anthropocene is a threat to patterns of continuity and ongoingness, this project can be seen as an effort to maintain such histories and patterns (Carr and Gibson, 2015: p 305).

The micro-encounters of embodied experience, of repairing and making flax, alert us to the wider system of making in general, the oppressive and exploitative nature of historical, present and future manufacturing processes. Not only then, is making and skilled making in particular a way to imagine things and futures otherwise, it also becomes a way to connect to the politics of Anthropocene discourse 'and how we comprehend alternatives within the exigencies of everyday life and work'. (Carr and Gibson, 2015: p310)

Chapter 7:

Conclusions: For thready geographies

Theorists are urging for a radical rethinking of the ways in which we relate to nonhumans and materials; that is to recognise the way that living creatures (ourselves included) and the dynamic environments which are a part are interconnected and co-dependent: that is they are entangled. Following the work of feminist thinkers such as Donna Haraway (2016) and Gibson-Graham (2010) I suggest that a focus on everyday worlding practices - which are already in existence - may hold the potential for understanding ways of thinking and acting in more ethico-political ways that are important for the Anthropocene. Carr and Gibson (2015) argue that making practices are a particularly important site for understanding connection to the Anthropocene because the material production of things is deeply implicated in the current crisis. Embodied and artistic practices of making; working with materials, other people and nonhumans in shifting multispecies communities around a particular issue, theme or topic therefore offer a particularly rich potential for understanding particular and localised ways of making worlds and the entanglements therein. I make no claims that this will halt climate change or environmental destruction, however, the practices in this thesis gesture towards ways of being that create conditions for better environmental practices to emerge.

In this final chapter, by way of a conclusion, I return to the three research questions I posed at the beginning of this thesis in order to consider the ways in which thready geographies extend ways of both living and making in the Anthropocene. The questions asked firstly, what the nature of the entanglements were; secondly, what the work of making the entanglements involved; and thirdly, how these creative making practices can help researchers get to grips with some of the methodological challenges of the Anthropocene.

The Nature of the Entanglements

Across the empirical chapters of this thesis I have identified and developed in depth accounts of the types, textures and nuances of different entanglements made within thready making practices. Different sites, practices and socialities were productive of, and produced by these projects, and this section considers the making, maintenance and unmaking of these different entanglements.

Chapter four looked at the *Bird Yarns* project, which sought to engage human knitters with a specific aim; to engage local knitters with local impacts of climate change by way of knitting woolly Arctic terns. The entanglements this project made were both complicated and banal. The group had continued to meet over the intervening four years between the inception of the project in 2012 and my return in 2016. They continued to be involved in one another's lives; the friendships, relationships and quiet politics of care of the group had endured in ways that had exceeded the initial intention of the project itself. However, the connections and enduring relationships that the knitters described were more strongly bound to a human social world than a more than human one. They cared for one another and looked out for one another; brought together by the material practice of knitting woollen Arctic terns.

They were brought together in other ways too; through the involvement of another nonhuman, webbing clothes moths, whose agency characterised and altered the group in other ways. The involvement of the moths was felt most strongly by the effects they had on the human social dynamics of the group. The gallery curator Mike worked to keep the infestation a secret, demonstrating care and attention for the emotional worlds of the knitters. This involved him, somewhat ironically, destroying living creatures, the moths in order to 'save' nonliving woolly terns. Yet, what this also demonstrates is the ways in which the nonhumans' agency proved to be a determining factor in the ongoingness of the group; the relationship between moth, woollen terns as their food source, and the emotional connections of the knitters formed enduring connections that required work and physical and emotional labour to hold fast.

The entanglements here were snarled; they were complex, often subtle, and sometimes secret, but still they endured, twisted and changed over time. The

nonhuman animals, the terns, the sheep's wool and the moth's nesting and reproductive habits contested the perceptions of boundaries between human and nonhuman worlds and lives. These were done in small scales, the scale of the moths destruction was small, the emotional response of the knitters was small, yet within these domestic and corporeal scales, the entanglements did real work. They had material and emotional impacts and consequences on bodily scales. There were enduring friendships formed, care demonstrated in the way that the knitters helped and supported one another's knitting practices, and the concern the knitters felt when the knitted birds were devastated by moths. As Gibson-Graham (2011) argue, the Anthropocene is not only something that is understood on global scales, it is something that is performed, understood and responded to in myriad scales. This project served to draw attention down to these scales, to slow down and consider some of the smaller, slower, quieter entanglements of the Anthropocene.

In chapter five, I facilitated my own project, *Knit and Natter*, it was again a mundane practice; a story of small scale, everyday entanglings. As facilitator/artist, I organised a trip for the members of the knitting group to walk around their local nature reserve. They took the time to slow down and consider their local environment. I argued that this slowing down was a way for them to consider their relations to nonhumans who lived in their midst. The creatures they chose to spend time thinking about were not those usually considered charismatic, but rather slugs and mice - creatures often overlooked or thought of as an irritation. Their representation of these nonhumans demonstrated affection for their locality, a connection somewhere on the spectrum between affection, intrigue and revulsion.

The group itself was characterised predominantly by a human social world, while nonhumans such as the slugs and mice played a role in this, it was the human relations that appeared most strongly throughout the project. In choosing materials, the knitters' decisions were heavily influenced by cost, and as such they chose cheap, polyester yarns. The proliferation of plastics is one of the emblematic features of the Anthropocene, and while it may seem an ironic choice, it is one characterised by the invisibility of the ongoing material effects of our day-to-day lives in western society. The plastic in the yarn was unnoticed by

the knitters, echoing other research that suggests that consumers are not aware of the material histories of their textile garments (Gabrys et al. 2013). Yet the material agency tied the knitters to both its production from crude oil and the devastating long term effects on wildlife that polyester and plastic textiles have.

The making of the umbrella was a story of locality, it was everyday actions, everyday hobbies and experience; a walk around a reservoir and the picturing, making and representation of memories of entanglements with nonhumans. This project was interesting for the way that, much like *Bird Yarns*, the 'environmental message' of the work was quickly side-lined by the participants in favour of telling and practicing human social worlds. And yet, the choices that the knitters made, around what they wanted to knit, and what they didn't want to knit; and the textiles and threads that they chose and did not choose tell the story of everyday, corporeal entanglements with nonhumans beyond that which the participants were fully engaged with or necessarily aware of.

In chapter six, *Linen*, the project worked with the making of the threads themselves, rather than making things *with* the threads. The focus of this research was less about the human social connections the project made, and more about individual connections, and the doing and making of bodily connections with threads. This project brought together different kinds of skills; growing plants and spinning threads. In this way it enabled a different kind of slowing down, like *Knit and Natter*, this project encouraged participants to slow down, and to actively attend to the nonhumans in their midst, the earthworms, the soil, the plants. The project supported a way of working collaboratively with nonhumans through the practices of growing and spinning, rather than imaginatively in *Knit and Natter*, or even antagonistically in *Bird Yarns*. Hence there were different kinds of corporeal connections made, as the working of bodies with nonhuman bodies, especially plant bodies became important.

These practices spoke not only to the immediacy of making and growing in contemporary sites, but they drew explicitly on histories of growing and making, in recent UK history and the traditional production of linen, and ancient histories of early settlements and agrarian livelihoods. I argued that by situating these practices historically, and working with lively histories, this is a way to

make history itself less static, and more mutable. If we can think of histories as being diverse and contested, then, following Caitlin DeSilvey, I argued that this project also nurtures other ways of imagining alternative presents and futures in which humans and nonhumans are entangled in different kinds of configurations and more ethical practices are possible.

All of these practices are situated in mundane spaces, these are stories of homes, gardens, community centres and the small scales of ordinary ongoingness. These are day to day interactions between humans with other humans, with other nonhumans who live close-by and with common materials. The practices and the politics are small scale and specific. Each of these projects served to slow down the participants – at different times and for different purposes – but in each of the projects, participant’s attention was drawn to interactions with nonhumans. In this way, the participants became affected by the agency of the wild-things around them, sometimes in conscious, careful ways, sometimes not.

The nature of the entanglements, and the process of becoming aware, in diverse ways of these entanglements are small. However, here I follow Gibson-Graham (2011) and others in thinking of transformation less as grand shifts and changes, and rather more as incremental, daily, perhaps even imperceptible movements in bodies (human and nonhuman) attitudes and affective dispositions. The transformations and shifts in awareness and dispositions are small, but nonetheless important. This thesis has showed that through the process of making, of creating and working with materials and nonhumans in different ways, entanglements between humans and nonhumans are made. They may take us by surprise, and not necessarily look like the ones we expected to find, but that does not mean that they are any less valuable for it.

The work and labour of making and maintaining entanglements.

The chapters in this thesis have all explored how entanglements are made and how they transform out material and social relations, how they produce, make, unravel and reimagine geographies. But all of this takes work, it takes particular

kinds of labour, which I divide into physical skilled labour, emotional labour and artistic and organisational labour.

Firstly, skilled, physical labour is evident in the practice itself, the physical work of knitting, of gathering materials, of unpicking cushions and planting seeds. These are skilled labours, they are corporeal practices that take work to evolve and develop, in the case of the *Bird Yarns*, and *Knit and Natter*, the skill of knitting was one which many of the participants, to varying levels, brought with them, skills honed in previous times in other places that constituted and made the particular entanglements within the project. There are the skills of learning skills, most evidently in *Linen*, in which the artist herself must learn in collaboration with plants and participants in order to make the thread; it is a necessarily collaborative process, one full of trial and error and the physical work of bodies learning new skills in different environments. As Tim Ingold (2000) describes, the intention and the means of making something, are not pre-existing properties of the maker, but rather they are immanent in the relational and active engagement of the maker and her materials.

The second type of work is the imaginative work of these practices, imagining the possibility of what an old cushion, a seed or a ball of wool *could* become, a hopeful politics for imagining. This includes the emotional labour of the projects, the work of imagining futures that include the other participants; the work of Mike as he keeps the moth infestation a secret in *Bird Yarns*, and the work of Betty and Olive in *Knit and Natter* as they negotiate with Maggie as to what is and what is not appropriate to make, and why. These are intrinsically tied to practices of making, because making must necessarily involve connections to the human social worlds (Gauntlett, 2011) as well as to more than human social worlds (Hawkins et al. 2015, Ingram, 2013). The work of imagining worlds is not just about imagining future or present consequences, as *Linen* demonstrates, it is also about the labour and imagination of working with the past, of traditions and skills that are lost to modern memory. The imaginative work here, runs back to entangled multispecies pasts as well as entangling us with multispecies futures.

A third type of work is the organisational labour, especially the case for the artists themselves. The entanglements and relations brought to the fore in

the projects exist because of the work of the participants, but making, holding and maintaining the spaces for these relations to take shape, transform and endure takes work. This is perhaps most eloquently described by Kate, who tells me she is tired, the work is too much, and it is as much the behind the scenes labour that is as exhausting as the physical or imaginative labour. This is the often unglamorous and uncredited work of making sure the right venue has been booked; that each of the participants has the correct tools and apparatus and knowledge to do the task they have come to do, be that planting, knitting or spinning; and even ensuring that there is enough tea, biscuits and snacks (taking into account allergies and preferences) for everyone attending.

All of the artists are female; all of the knitters in both *Bird Yarns* and *Knit and Natter* were female, and although there were a few men involved in *Linen*, the majority of the participants, and the vast majority of the work was done by women. These labours are particularly gendered kinds of labour. Thread based crafts have particularly feminised histories (e.g. Parker 1984, Hackney 2013, Turney 2012, Price 2015), and there is an implicit feminist ethics of care throughout this research. This research itself is shaped by a similar ethics of care that promotes potential of slowness, community mindedness, and participatory and collaborative working that recognises the impact of small, local, everyday changes and challenges accelerated and strident geographies (e.g. Mountz et al., 2015).

Each of the projects is about everyday practices, ordinary materials and quiet, implicit activism. They resonate with work on social reproduction, and the care and maintenance of ongoing fleshy, messy stuff, which keeps lives and emotional worlds going (Mitchell, 2004). The work of all of these projects, I contend amounts to particular kinds of social reproduction, in particular a more than human social reproduction. The sharing of caring practices and the sharing of skills, the slowing down and the attention to nonhumans, all amount to types of learning about and looking after others in these projects. This is particularly visible in *Linen*, where skills of growing and tending are brought into conversation with the kinds of futures we want, an experimental, collaborative orientation to the future.

This in particular resonated with my own experience of the project; I learnt to spin thread as I learnt to breastfeed. What I learnt about spinning reflected what I learnt about babies, and what I learnt about babies taught me about spinning. Breastfeeding is a skill, it is a collaborative practice and one that did not come easily to me and Tova. It was hard, exhausting work. I felt as though I was trying to teach a creature something that I did not how to do myself. I refer to my baby as a creature because she was otherworldly, she functioned to a different rhythm to me, and responded in unusual and surprising ways, to me she was not yet human. Slowly, slowly, with practice and patience we got the hand of one another and got to know what worked and what didn't. It was emotionally and physically painful.

This process taught me the vital importance of social interdependence; I could not have breastfed my baby without other women to teach us both. In another time, without this education, she would have died. As it was, I had other options, and I am grateful for that. But what it showed me, more viscerally than I imagined, was that the social work of working together is not – to borrow Gauntlett's (2011: p162) phrase – 'merely pleasant-but-optional 'icing on the cake' of individual's lives, but is absolutely essential for personal well-being and for a healthy, secure, trustworthy society'. These practices of working together, of teaching one another skills that sustain life are not pleasant additions, they are fundamental to who we are as humans, and who we are as nonhumans, who we are as fleshy, messy earth creatures. For me, this is particularly apparent in *Linen*, in which the re-learning of skills is paramount, and the only way to do this is collaboratively. This is the stuff of more than human social reproduction; it is the sharing of social skills, of survival skills, of making and getting on and getting by. As Carr and Gibson (2015) argue, these skills of handcrafts, of making, of being careful with resources, of acknowledging the role of material production – as well as I would add the role of nonhumans in making processes – are increasingly important in Anthropocene futures.

*How can creative making practices help researchers come to grips
with the methodological challenges of the Anthropocene?*

As I this thesis I hope has shown, arts practices of many forms enable ways of making and considering types of multiple, simultaneous and multispecies relations that produce the types of entanglements that are important for the Anthropocene. Johnson and Morehouse (2016: p477) argue that the 'challenge posed by the Anthropocene to a politics of experimentation is not only to negotiate the difficulties of alliance building among human constituencies, but also to account for 'deliberations between multiple forms of agency, expertise and subjectivity – some of which are human, some of which require tuning into the diverse becomings of non-human forms and processes' (Lorimer and Driessen, 2013: 3)'.

Through this research I have staged, experienced, participated in and observed three projects, which used different kinds of making practices with different kinds of communities, materials and practices. I contend, therefore that participatory making and art practices have within them the potential to address some of the methodological issues raised by Johnson and Morehouse (2016) for the problems posed by the Anthropocene. Participatory practices are by their very nature involved and make no claims on a disembodied objectivity. They involve other people, other materials and other nonhumans, though human invitation and otherwise. They then hold the potential for building, making and imagining the kinds of skills, communities and practices that are important for ways of researching and living in the Anthropocene (Carr and Gibson, 2015). However, they are not without their own politics, power dynamics and complexities.

Throughout my research, I researched different kinds of participatory arts practice. Across the case studies, my changing role as artist, facilitator and ethnographer– engendered different kinds of research and data gathered. I will now reflect on the learning these different kinds of approaches enabled.

In the Bird Yarns project, my role in relation to the art practice was more akin to that of geographic ethnographies of participatory art, wherein the researcher was an involved observer of the project. This follows a similar approach to geographers studying other participatory arts projects such as art works to raise awareness of environmental issues(Ingram 2013, Hawkins et al.

2015), and social inclusion and material agency (McNally 2017). The initial project had taken place four years before, and I entered the group during a reiteration of the project. Of all of the case studies, I found this one the most difficult to access and gain the trust of the participants. The participants had found themselves distanced from the 'climate change message' of the piece, and were reluctant to discuss this with me. In my analysis of the project, I drew on the findings of Askins and Pain (2011), and suggested that part of this distance was due to the way in which the participants were not a part of the conceptual design of the project. Like Carr and Gibson (2017), however, I found that my own skills as a knitter enabled me to join the group and gain trust based on my making skills. Although this did not open the door to discussions around climate change, it did support and open up conversations around knitting, family and home that would have been difficult to gain insights into without the shared understandings that came with shared material practices (Bowlby 2011).

I therefore suggest (after McMorran 2012, O'Connor 2007) that in relation to researching creative practice, that the researcher's own making skills can offer unique social insights into ongoing practices. Although it is not always the case, for example, the learning and honing of skills can also be important research tools when researching making (for example Hawkins 2015, Mann 2018, Straughan 2015), already acquired skills can enable specific forms of insight and acceptance.

Within the *Knit and Natter* project, I acted as artist and facilitator, as well as researcher. Drawing on traditions of participatory action research, I used art making as a method by which, after Tolia-Kelly (2007), is a way to afford new and more nuanced understandings of a situation, as compared to textual discussions of issues. This constituted one form of participation - the ways in which a team of people worked together on an art project in order to make an artwork in response to the concept of climate change. Their processes and decision-making became central to the analysis of this project. There were other kinds of participation in this project that I also reflected upon in the analysis. This included, for example, the agency of the nonhumans such as the slugs, mice and materials, which became involved in the project. Drawing on Michelle

Bastian's (2017) work on more than human participatory research I reflected on the different ways that nonhumans became more or less active participants in the work.

As both facilitator and researcher, I found tensions between how much I 'observed' the group, and how much I 'pushed' the group to consider things that they may not have done otherwise. As I described in the methodology section, ethnographies, especially ethnographies of art and making practices, require the researcher to have an active and embodied role in the making of work (Carr et al. 2017). Although I did not attempt to represent my research subjects, as a rendition of the world 'as it is' (H. Lorimer 2008), and rather understood my position to be impressionistic and creative (Vannini 2015), my position as 'lead artist' complicated my positionality. This was a tension that at times, I felt difficult to navigate.

Unlike other research practices, such as the art-as-method participation of Tolia-Kelly (2007) or Askins and Pain (2011) in which the creative project was the main reason the group were brought together the knitters were brought together by their shared interest in knitting, and it was my influence that brought the addition of climate change to the project. Because of this, I was acutely aware of the being sensitive to the situation, and only to push the group towards climate change in ways that they felt comfortable with in order not to lose them. They did not have much interest in environmental change, and that for them the knitting group was a space to enjoy one another's company, to practice their hobby and to relax, in a quiet politics of being together (for example, Askins 2015). It was not a space for them to be challenged.

In *Linen*, I was both participant and participant-facilitator within the project, with the conceptual design of the project already having been worked through by another artist. My role as participant enabled a different kind of research in which I had more space to reflect on my own embodied involvement in the project, without the pressure to either run the entire project myself, or to try to gain access to a pre-existing group as I had in the other projects. In this project, the importance and relevance of learning new skills came to the fore. The theme of the project was about re-learning lost skills of handcrafting linen thread, so

the methods drew on this theme and my own learning in terms of spinning skills resonated with the theme of the project overall. As geographer-practitioners have pointed out, the learning and honing of skills is a way to gain insights into embodied practice as well as the emotional labour involved in learning (for example, O'Connor 2007, Hawkins 2015, Straughan 2015, Mann 2018).

Learning to work with my body, other bodies (human and nonhuman) and materials was one set of practices that I undertook in researching the arts practices in Linen. Alongside these more corporeal practices, the on-going and close relationship between myself as a participant and Kate as the artist enabled a reflection on the different kinds of emotional labours – as well as physical labours – involved in her running of the project. In particular, I drew on the writing of Shannon Jackson (2011) who calls us to recognise the different types of maintenance and emotional work that goes into art and life – reflecting both one and the other.

Along the way there have been failures, unexpected turns, lost lives and lost friendships. These practices have been antagonistic; some sought to kill nonhumans as they sought to nurture others. While as researchers/ artists/ makers we may try to design these encounters, they contain an 'inherent unpredictability' (Wilson, 2016: p465). Within this unpredictability, there is a requirement for the maker to develop a 'sensitivity that is an ability to identify the potentialities of materials and material things' (Collins, 2018: p79). This is particularly important in the context of the Anthropocene because making practices are about embodied knowledge, skill, the building of social worlds and about intimate encounters with materials; all of which are becoming more precarious because of environmental change (Carr and Gibson, 2015).

This research has intersected with different kinds and forms of participation in geographical research. It has cut across developing art as a research method - akin to PAR (e.g. Tolia – Kelly 2007, Askins and Pain 2011) - ethnographic studies of participatory art (Ingram 2013, McNally 2017), participation and facilitation of artworks and embodied understandings of making (Straughan 2015, O'Connor 2007). Often these participatory art

methods have been predominantly focussed on human worlds and human bodies. Drawing on concepts of nonhuman participation in research practice, such as those that have developed out of the work of STS scholars such as Bruno Latour (1993) and Donna Haraway (1998), I have also tried to consider material participation and the participation of nonhumans within these projects. In order to structure how I did this, I have reflected on Michelle Bastian's suggestions for developing more than human participatory research (Bastian, 2017). In this thesis I have been keen to put into practice ways of thinking and acting that take seriously nonhuman agency. In *Bird Yarns*, I reflected on the participation of the moths; in *Knit and Natter*, I reflected on the way that nonhumans encouraged a 'slowing down' and a different way of experiencing familiar environments amongst the knitters and in *Linen*, I reflected on the role of plant materialities within embodied interactions with human participants.

While the theory of decentering the human in geographical scholarship is well established, the methods to do this remain difficult and often elusive (Pacini-Ketchabaw 2016, Bastian et al, 2017). I feel that it is important to note that the humans were preoccupied with human social relations while environmental consequences often went un-noticed. This was especially pertinent in the use of plastic yarns in the *Knit and Natter* project, and the preoccupation that the knitters had with one another in the *Bird Yarns* project. This was not what the methods had sought to achieve; indeed I tried to design them in such a way as to find the opposite. However, it is an important finding which shows the stubborn dominance of human affairs in the way that humans think. On balance, this finding suggests that it is very difficult to get beyond this dominance in meaningful and durable ways, even when the methods are specifically trying to do that.

Although there was a foregrounding with human-human relations across this whole thesis, I would like to make some tempered claims that despite this focus, there were other, small but interesting findings that emerged that could be seen as specific sensitivities to nonhuman others and material practices.

I suggest that there are two main types of sensitivity that have emerged from the methodological approach I have taken in this research. The first is a

slowing down - suggesting a different consideration to things and environments than participants, artists and researchers (and iterations of the three) had first thought. For example, in deciding what to knit, the artist in *Bird Yarns* and the participants in *Knit and Natter* each took time to consider the charisma nonhumans in their midst, negotiating conflicting feelings and representing these in different ways. This demonstrated how the creative practice of making necessitated a way of attuning to environments that was slower and arguably more considered than what would have been otherwise.

Secondly, I suggest that there are material sensitivities developed through the use of participatory art practices that are relevant and useful for ways of understanding the Anthropocene. In my research these included the entangled and not entirely convivial relations the knitters of *Bird Yarns* had to the woollen threads and the moths who came to eat them, in *Knit and Natter*, the choice of plastic threads suggested a disconnect between the knitters and the environmental impacts of their materials, and in *Linen* the embodied relations between researcher/ participants in the act of making the thread became important. Taken together, what this suggests is that because participatory making practices have a necessary focus on the material, this provides a useful theme to understand embodied and emotional connections and understandings to materials and environments, building on the research into embodied making practices, such as glass blowing (O'Connor, 2009), surfboard and guitar making (Warren and Gibson, 2014), and knitting (Price, 2015 and Mann, 2018). What became clear in my research was that these entanglements between makers bodies and materials were not always conscious or known to the participants. However, what I would argue is that just because these things are not consciously known does not make them unimportant. In fact, the ways in which the participants talk about their connections – and what they do and do not know – is important for understanding the kinds of entanglements and the kinds of work they do in these practices.

Linking back to my initial research question, of how these creative making practices can help researchers get to grips with some of the methodological challenges of the Anthropocene, I suggest that these creative methods can focus on people's material relations and what they do and don't

know about them can expose the kinds of thinking (or lack of thought) that currently govern human/nonhuman relationships. This in turn can open up questions around what needs to change in order for those things to be different.

Taken together, I would argue that this combination of participants/ researchers/ artists slowing down and becoming sensitive to their materials is a particularly fruitful way to understand how people become attuned to, and relate to their environments. The methodological choice of engaging directly with humans, nonhumans and materials in embodied encounters produces knowledge about the relations between these things. In the physical and conceptual processes of making – as Gauntlett (2011) argues – there are necessarily connections made, and it is in the process of participating in and facilitating these kinds of encounters that can help researchers attune to the ‘politics of experimentation [in which] to negotiate the difficulties of alliance building among human constituencies’ (Johnson and Morehouse, 2016: p477).

Suggestions towards ‘best practice’ in relation to participatory art practice and research.

The very nature of participation is contextual, emergent, and in flux, therefore it is hard to come up with concrete ‘best practice’ guidelines. However, I have developed the core themes and tensions that came up within my research into five suggestions for best practice within art and environmental participatory projects:

- 1) Don’t be afraid to make bold, ethical commitments to others and to the overarching aims of the project. As Gibson-Graham (2010) describe, the Anthropocene is about muddling through, about making commitments to others and to take an experimental ethical approach, enacted with sensitivity. In retrospect, I feel as though I could have been less timid in my approach to talking about environmental issues; for example, within the Knit and Natter project, I never questioned the knitter’s use of plastic yarn. This suggestion is dependent on being able to effectively navigate the next three principals.

- 2) Make sure the project is designed with the active involvement of the participants. My own research findings echoed those of Askins and Pain (2011), in which the participants felt most ownership of the project, processes and outcomes when they had decision-making power within the initial design stages of the project. This was particularly clear in the *Bird Yarns* project, in which the participants were not a part of the initial design of the project. This resulted in them not feel especially connected to the project four years on.

- 3) Be sensitive to the motivation of the participants, and their reasons for wanting to take part in the project. There may be tensions between what the researcher would like to achieve and what motivates the participants, therefore how the researcher navigates this becomes important. Be clear and keep discussions open in order to inform your approach. Each of the participants in the projects had their own unique motivations in wanting to participate. For example, in *Knit and Natter*, the knitters came to the group in order to relax and socialise, they therefore did not want to make adversarial artworks; the nature of why they came was reflected in the types of art they wanted to make. A number of them also felt precarious in their economic and housing situation and did not want to make this any more precarious by making artworks they thought of as being confrontational. In order to keep them voluntarily coming to the group and to motivate them, it was important to respect these reasons behind their participation and not push them into making artworks they felt uncomfortable with.

- 4) Be respectful of the ethics of emotional labour within the project; especially that of the artist(s) and those of the participants. Running art projects is hard work, especially for the artists. As was particularly clear in *Linen*, the emotional labour and voluntary time taken by the artist and the participants was substantial. As Shannon Jackson (2011) emphasises, this emotional work is feminised and often overlooked. If we are to take

an ethical approach to the 'work' of art, a large proportion of this is to acknowledge and respect the emotional labour that goes into running projects.

- 5) Take seriously the role of nonhumans within the projects and wherever possible take their agency and needs into consideration of the design of the project. In order to reflect upon nonhuman participation within the projects, I drew on Bastian's four suggestions: firstly expanding life worlds, secondly supporting cognitive estrangements, thirdly challenging issues of competency, finally designing methods for inclusion. Although I did not set out to include nonhumans as participants, per se – and hence do not feel able to offer guidelines for nonhumans - I have nonetheless reflected upon their participation in each of the projects, in future, it would be interesting to develop best practice guidelines specifically for working with nonhuman participants in participatory environmental art projects.

Future directions for thready geographies

This research, like a lot of research on craft and making skills, was based in the Global North and Australia, in my case the UK. Thread based craft practices have long histories the world over, they tell stories, pass on culture, they involve the nurturing and care of nonhumans, for example sheep, goats, cotton and flax in complex historical and material geographies far richer than those which I have engaged with here (for example, Haraway's work on Navajo weaving practices, 2016: p 89 - 97). Communities in the Global South will have other ways of making, engaging with and communicating cultures and transformations to local environments. There is a need for understanding a diversity of practices and knowledges beyond the narrow provision of those that are regularly practiced in the global north.

Finally, this research has resonated with other research concerning the transformation of materials and geographies of repair and reappropriation, for

example ships (Gregson et al., 2010), homesteads (DeSilvey, 2006) and repair shops (DeSilvey and Ryan, 2018). A focus on the lifespan of materials, their production, use and afterlife is particularly pertinent in the Anthropocene because of the ways in which the entanglements of environments, bodies and materials change and transform over time, and how they are each affected by the other (for example, Alaimo's, 2010 work on toxicity and transcorporeality). If, as Carr and Gibson (2015) argue, there is a need to understand making as an Anthropocene concern, then there is also a need to understand repair, reuse and reappropriation practices as they relate to thready geographies in this context too as materials become scarcer and repair becomes increasingly important.

This thesis has developed the idea of thready geographies as a way to engage with the concept and challenges of the Anthropocene. The Anthropocene is full of uncertainty; with complicated entangled histories and futures. There is a pressing need to understand how we relate to things, to other life on earth, to the stuff that we make, unmake and remake – and importantly *how* we make it (Carr and Gibson, 2015). As researchers, we need methods that enable us to unravel and get to grips with some of these complexities and entanglements (Johnson and Morehouse, 2016). Thready geographies can help us to make the kinds of entanglements that are important for the Anthropocene; they can slow us down, enable different kinds of material considerations and help develop sensitivities and ethical relations between humans and nonhumans. Through the processes of making, and reflecting on the making processes of others, they can also help researchers to trace, unravel and understand the myriad small entanglements we make in our everyday activities. I hope, therefore, to have offered a glimpse into the potential of thready geographies to engage with some of these challenges.

References

- Adamson, G. 2007. *Thinking through Craft*, London, Bloomsbury.
- Adamson, G. 2013. *The Invention of Craft*, London, Bloomsbury.
- Adler, P.A. & Adler, P., 2007. The demedicalization of self-injury: From psychopathology to sociological deviance. *Journal of Contemporary Ethnography*, 36(5), pp.537-570.
- Agar, M. H. 1980. *The professional stranger: An informal introduction to ethnography*. New York, Academic Press.
- Alaimo, S. 2010. *Bodily Natures: Science, Environment and the Material Self*, Indiana, Indiana University Press.
- Alaimo, S. 2016. *Exposed: Environmental politics and pleasures in posthuman times*, Minneapolis, University of Minnesota Press.
- Alaimo, S. & Heckman, S. 2008. *Material Feminisms*, Bloomington, Indiana University Press.
- Allen, J. S., Park, J. & Watt, S. L. 1994. The Chimpanzee tea party: Anthropomorphism, orientalism and colonialism *Visual Anthropology Review*, 10, 45 - 54.
- Anderson, B. 2016. *Taking-Place: Non-representational theories and geography*, London, Routledge.
- Anderson, B. 2017. Hope and micropolitics. *Environment and Planning D: Society and Space*, 35, 593 - 595.
- Asdal, K. & Marres, N. 2014. Performing environmental change: The politics of social science methods. *Environment and Planning A*, 46, 2055 – 2064.
- Askins, K. 2008. In and beyond the classroom: Research ethics and participatory pedagogies. *Area*, 40, 500 - 509.
- Askins, K. 2014. A quiet politics of being together: Miriam and Rose. *Area*, 47, 65 - 72.
- Askins, K. 2015. Being together: everyday geographies and the quiet politics of belonging. *ACME: An International E-Journal for Critical Geographies*, 14.
- Askins, K. & Pain, R. 2011. Contact zones: participation, materiality and the messiness of interaction. *Environment and Planning D: Society and Space*, 29, 803 - 821.

- Bachelard, G. 2000. *The Dialectics of Duration*, Manchester, Clinamen Press.
- Bai, X., van der Leeuw, S., O'Brien, K., Berkhout, F., Biermann, F., Brondizio, E., Cudennec, C., Dearing, J., Duraiappah, A., Glaser, M., Revkin, A., Steffen, W., Syvitski, J. 2016. Plausible and desirable futures in the Anthropocene: A new research agenda. *Global Environmental Change* 39, 351–362
- Baines, P. 1985. *Flax and Linen*, Dyfed, Shire Album.
- Baker, S. 2003. Sloughing the human. In: WOLFE, C. (ed.) *Zoontologies: The question of the animal*. Minneapolis, MN: University of Minnesota Press.
- Ballard, S. 2017. Stretching out: Species extinction and planetary aesthetics in contemporary art. *Australian and New Zealand Journal of Art*, 17, 2 - 16.
- Barad, K. 2007a. *Meeting the universe halfway: Quantum mechanics and the entanglement of matter and meaning*, Durham, Duk University Press.
- Barad, K. 2007b. *Meeting the Universe Halfway: Quantum physics and the entanglement of matter and meaning*, Durham and London, Duke University Press.
- Barad, K. 2012. On Touching. *Differences: a Journal of Feminist Cultural Studies*, 23, 206 - 233.
- Baraitser, L. 2009. *Maternal Encounters: the Ethics of Interruption*, Oxon, Routledge.
- Barnett, P. 1999. Folds, fragments, surfaces: towards a poetics of cloth. *Textures of Memory: the poetics of cloth*. Nottingham: Angel Row Gallery.
- Barua, M, Bhagwat, A, Jadhav, S. 2013. The hidden dimensions of human–wildlife conflict: Health impacts, opportunity and transaction costs. *Biological Conservation* 157, 309 – 316
- Barua M. 2014. Volatile ecologies: Towards a material politics of human–animal relations. *Environment and Planning A* 46(6): 1462–1478.
- Bastian, M., O. Jones, N. Moore, Roe, E. 2017. Introduction: More than human research: contexts, challenges, possibilities. In BASTIAN, M., O. JONES, N. MOORE, E. ROE EDS. *Participatory Research in More than human Worlds*. London: Routledge 1 - 16.
- Bastian, M. 2017. Towards a more-than-human participatory research. In BASTIAN, M., O. JONES, N. MOORE, E. ROE EDS. *Participatory Research in More than human Worlds*. London: Routledge 19 – 37.

- Bear C. 2011. Being Angelica? Exploring individual animal geographies. *Area* 43: 297–304.
- Bear C. & Eden S. 2011. Thinking like a fish? Engaging with nonhuman difference through recreational angling. *Environment and Planning D Society & Space* 29(2): 336–352.
- Benjamin, W. 1989. N: Re the theory of knowledge, theory of progress. In: SMITH, G. (ed.) *Benjamin: Philosophy, aesthetics, history*. Chicago: University of Chicago Press.
- Benjamin, W. 1999a. *The Arcades Project*, Cambridge, MA, Harvard University Press.
- Benjamin, W. 1999b. Theses on the philosophy of history. In: ARENDT, H. (ed.) *Illuminations*. London: Pimlico.
- Bennett, J. 2009. *Vibrant matter: A political ecology of things*, Duke University Press.
- Berger, J. 1979. *Pig Earth*, New York, Vintage.
- Berger, J. 2007. *Berger on Drawing*. Edited by Jim Savage. London: Occasional Press.
- Beuys, J. 1974. I Love America and America Loves Me. New York, Rene Block Gallery
- Bishop, C. 2004. Antagonism and Relational Aesthetics. *October*, 110, 51 - 79.
- Bishop, C., 2012. Artificial hells: Participatory art and the politics of spectatorship. London: Verso Books.
- Bissell, D. 2008. Comfortable bodies: sedentary affects. *Environment and Planning A*, 40, 1697 - 1712.
- Bissell, D. 2013. Habit displaced: The disruption of skilful performance. *Geographical Research*, 51, 120 - 129.
- Black, S. 2012. *Knitting: fashion, industry, craft*, London, V&A Publishing.
- Bohm, D., Hiley, B. J. & Kaloyerou, P. N. 1987. An ontological basis for the quantum theory. *Physics Reports*, 144, 321 - 375.
- Born, G., & Barry, A., 2010. Art – science: From public understanding to public experiment. *Journal of Cultural Economy*, 3 (1) 103 – 119.
- Bourriaud, N. 2002. *Relational Aesthetics*, Paris, Les Presse du Réel.

- Bowlby, S. 2011. Friendship, co-presence and care: Neglected spaces. *Social and Cultural Geography*, 12, 605 - 622.
- Brace, C. & Geoghegan, H. 2010. Human Geographies of climate change: landscape, temporality and lay knowledges. *Progress in Human Geography*, 35, 284 - 302.
- Bratich, Z. J. & Brush, M. H. 2011. Fabricating activism: craft-work, popular culture, gender. *Utopian Studies*, 22, 234 - 260.
- Braun, B. 2008. Environmental issues: inventive life. *Progress in Human Geography*, 32, 667 - 679.
- Braun, B. 2013. The 2013 Antipode RGS-IBG lecture: New materialisms and neoliberal natures. *Antipode*, 0, 1 - 14.
- Braun, B. & Whatmore, S. (eds.) 2010a. *Political Matter: Technoscience, Democracy and Public Life*, London: University of Minnesota Press.
- Braun, B. & Whatmore, S. 2010b. The stuff of politics: An introduction. In: BRAUN, B. & WHATMORE, S. (eds.) *Political Matter: Technoscience, democracy and public life*. Minneapolis, Minnesota: University of Minnesota Press.
- Brickell, K., 2015. Participatory video drama research in transisitional Vietnam: Post-production narratives on marriage, parenting and domestic evils. *Gender, Place and Culture*. 22 (4) 510 – 535.
- Brooks, N. 2012. Beyond collapse: climate change and causality during the Middle Holocene Climatic Transition, 6400 - 5000 years before present. *Geografisk Tidsskrift - Danish Journal of Geography*, 112, 93 - 104.
- Brown, K., Eernstman, N., Huke, A. & Reding, N. 2017. The drama of resilience: learning, doing and sharing for sustainability. *Ecology and Society*, 22.
- Browne, A. 2016. Can people talk together about their practices? Focus groups, humour and the sensitive dynamics of everyday life. *Area*, 48 (2) 198–205.
- Bull J. (ed.) 2011. *Animal Movements, Moving Animals*. Uppsala: Uppsala University Press.
- Buller, H. 2014. Animal geographies I. *Progress in Human Geography*, 38, 308 - 318.

- Buller, H. 2015. Animal geographies II: Methods. *Progress in Human Geography*, 39, 374 - 384.
- Bunnell, T., Yea, S., Peake, L., Skelton, T. & Smith, M. 2012. Geographies of friendships. *Progress in Human Geography*, 36, 490 - 507.
- Burke, M., Ockwell, D. & Whitmarsh, L. 2018. Participatory arts and affective engagement with climate change: The missing link in achieving climate compatible behaviour change? *Global Environmental Change*, 49, 95 - 105.
- Butler, J. 2004. *Precarious Life: The powers of mourning and violence*, London, Verso.
- Cahill, C. 2007. The personal is political: Developing new subjectivities through participatory action research. *Gender, Place and Culture*. 14, 267 - 292.
- Callon, M. & Rabeharisoa, V. 2003. Research 'in the wild' and the shaping of new social identities. *Technology in Society*, 25, 193 - 204.
- Cambridge English Dictionary, 2018. 'Entanglement'
<https://dictionary.cambridge.org/dictionary/english/entanglement>
 accessed 10th September 2018.
- Cameron, J. and Gibson, K. 2005. Participatory action research in a post structuralist vein. *Geoforum* 36 (3) 315 - 331.
- Candea, M. 2010. "I fell in love with Carlos the meerkat": Engagement and detachment in human-animal relations. *American Ethnologist*, 37, 241 - 258.
- Cape Farewell, 2001. Cape Farewell official website, accessed 22.02.2014 <www.capefarewell.com/latest.html>
- Cape Farewell, 2017. Cape Farewell official website, accessed 05.10.2017 <www.capefarewell.com/seachange/about>
- Carlsen, M. 1996. *Performance: A critical introduction*, London, Routledge.
- Carr, C. & Gibson, C. 2015. Geographies of making: Rethinking materials and skills for volatile futures. *Progress in Human Geography*, 40, 279 - 315.
- Carr, C. & Gibson, C. 2017. Animating geographies of making: Embodied slow scholarship for participant-researchers of maker cultures and material work *Geography Compass* 11(6) e12317

- Carr, C., Gibson, C., Stanes, E. & Warren, A. 2018. Work, value and space: Three key questions of making for the Anthropocene. *In: PRICE, L. & HAWKINS, H. (eds.) Geographies of Making, Craft and Creativity*. Oxford: Routledge.
- Carrington, D. 2016. *The Anthropocene epoch: Scientists declare dawn of human-influenced age* [Online].
<https://www.theguardian.com/environment/2016/aug/29/declare-anthropocene-epoch-experts-urge-geological-congress-human-impact-earth>: The Guardian. [Accessed 30.06.2018].
- Cassell, J. (1998) The relationship of observer to observed when studying up. *Studies in Qualitative Methodology* 1, 89 -108
- Castree, N. 2014. . The Anthropocene and geography I: The back story. *Geography Compass*, 8 (7) 436-449.
- Castree, N. & Braun, B. 2001. *Social Nature: Theory, practice, and politics*, Malden, MA, Blackwell.
- Chakrabarty, D. 2009. The climate of history: Four theses. *Critical Inquiry*, 35, 197 - 222.
- Chakraborty, A. & Robinson-Tillett, S. 2014. The truth about gentrification: regeneration or con trick. *The Guardian*, 18th May 2014.
- Chambers, R., 1998. Beyond 'whose reality counts?' New methods we now need. *In BORDA, O. F. (ed.) People's participation: Challenges ahead*. London: Intermediate Technology Publications 105 – 127.
- Chan, A. 2012. Anthopomorphism as a conservation tool. *Biodiversity and Conservation*, 21, 2889 - 1892.
- Chertkovskaya, E., and A. Paulsson. 2016. The growthocene. *ENTITLE blog*, February, 19.
- Clark, N. 2011. *Inhuman Nature: Sociable Life on a Dynamic Planet*, London, Sage.
- Clark, N. 2014. Geo-politics and the disaster of the anthropocene. *The Sociological Review*, 62, 19 - 37.
- Clark, N. 2017a. The city as medium: myth migrathion and mid-holocene climate change. *Mediating Climate Change*. Leeds.
- Clark, N. 2017b. Strangers on a strange planet: on hospitality and holocene climage change. *In: BALDWIN, A. & BETTINI, G. (eds.) Moving lives: critical*

- reflections on climate change and migration*. London: Roman and Littlefield.
- Clark, N. & Yusoff, K. 2017. Geosocial formations and the Anthropocene. *Theory, Culture and Society*, 0, 1 - 12.
- Cloke, P. & Jones, O. 2001. Dwelling, place and landscape: an orchard in Somerset. *Environment and Planning A*, 33, 649 - 666.
- Colebrook, C. 2011. Earth felt the wound: The affective divide. *Journal for Politics, Gender and Culture*, 8, 45 - 58.
- Collard, R.-C. 2012. Cougar - human entanglements and the biopolitical un/making of safe space. *Environment and Planning D: Society and Space*, 30, 23 - 42.
- Collins, Z. 2018. Unpicking the material politics of sewing for development: Sex, religion and women's rights. In PRICE, L and HAWKINS, H (eds.) *Geographies of Making, Craft and Creativity*. Routledge: London
- Cooke, B. & Kothari, U. eds. 2001. *Participation: The new tyranny?* London, Zed Books.
- Cook, I., Griffiths, H., Morris, R. & Wrathmell, S. 2007. 'It's more than just what it is': Defetishising commodities, expanding fields, mobilising change. *Geoforum*, 38, 1113 - 1126.
- Cox, R., 2016. Materials, skills and gender identities: men, women and home improvement practices in New Zealand. *Gender, Place & Culture*, 23 (4) 572-588.
- Crang, M. 2003. Qualitative methods: touchy feely look-see? *Progress in Human Geography*, 27, 292 - 504.
- Crang, M. and Cook, I. 1995. *Doing Ethnographies*. Norwich, Geobooks.
- Crang, M., Gregson, N., Ahamed, F., Ferdous, R. & Akhter, N. 2012. Death, the pheonix and Pandora: transforming things and values in Bangladesh. In: ALEXANDER, C. & RENO, J. (eds.) *Economies of Recycling: The Global Transformation of Materials, Vaules and Social Relations*. London: Zed Books.
- Crapanzo, V., 1986. Hermes' dilemma: The masking of subversion in ethnographic description p. 51 – 76 in CLIFFORD, J. AND MARCUS G. E. (eds.) *Writing*

- culture: the poetics and politics of ethnography*. Los Angeles, University of California Press
- Cronin, A. M. 2014. Between friends: Making emotions intersubjectively. *Emotion, Space and Society*, 10, 71 - 78.
- Crouch, D. 2003. Spacing, performing, and becoming: Tangles in the mundane. *Environment and Planning A*, 35, 1945 - 1960.
- Crutzen, P. J. 2006. The anthropocene. In *Earth System Science in the Anthropocene* (pp. 13-18). Berlin: Springer
- Dalby, S. 2013. The Geopolitics of Climate Change. *Political Geography*, 37, 38 - 47.
- Dalby, S. 2016. Framing the Anthropocene: The good, the bad and the ugly. *The Anthropocene Review*. 3 (1) 33 – 52
- Dalton, P. 1987. Housewives, leisure craft and ideology: De-skilling in consumer craft In: AL., G. E. E. (ed.) *Woman and Craft*. London: Virago Press.
- Davies, G. 2010. Where do experiments end? *Geoforum*. 41 (5) 667 – 670.
- Davies, G. 2011. Molecular life. In: DEL CASINO, V., JR, THOMAS, M., CLOKE, P. and PANELLI, R. (eds) *A companion to social geography*. Oxford: Wiley-Blackwell, pp. 257–274.
- Davies, R. S. 2012. Flax, from seed to linen yarn. *Journal for Weavers, Spinners and Dyers*, 242, 7 - 10.
- Davis, H. & Turpin, E. (eds.) 2015. *Art in the Anthropocene: Encounters Among Aesthetics, Politics, Environments and Epistemologies*, London: Open Humanities Press.
- Davis, K. 2012. Shining a new light on Shetland lace. *Shetland Magazine*. Shetland.
- De Leeuw, S., and Hawkins, H.. 2017. Critical Feminist Geographies and Creative Re/Turns: Poetics and Practices for New Disciplinary Spaces. *Gender, Place and Culture* 24 (3): 303–324.
- Deleuze, G. & Guattari, F. 1987. *A Thousand Plateaus: Capitalism and schizophrenia*, Minneapolis, MN, University of Minnesota Press.
- DeLyser, D. 2001. 'Do you really live here?' Thoughts on insider research. *The Geographical Review*, 91, 441–453.

- DeLyster, D. and Greenstein, P. 2017. The devotions of restoration: Materiality, enthusiasm and making three “Indian Motorcycles” like new. *Annals of the Association of American Geographers* 107 (6) 1461 – 1478.
- DeSilvey, C. 2006. Observed decay: Telling stories with mutable things. *Journal of Material Culture*, 11, 318 - 338.
- DeSilvey, C. 2007. Salvage memory: Constellating material histories on a hardscrabble homestead. *Cultural Geographies*, 14, 401 - 424.
- DeSilvey, C. 2012. Making sense of transience: An anticipatory history. *Cultural Geographies*, 19, 31 - 54.
- DeSilvey, C. & Ryan, J. 2018. Everyday kintsukuroi: Mending as making. In: PRICE, L. & HAWKINS, H. (eds.) *Geographies of making, craft and creativity*. London: Routledge.
- Dixon, D., Hawkins, H. & Straughan, E. 2012. Of human birds and living rocks: remaking aesthetics for post-human worlds. *Dialogues in Human Geography*, 2, 249 - 270.
- Doody, B., Perkins, H., Sullivan, J., Meurk, C. & Stewart, G. 2014. Performing weeds: Gardening, plant agencies and urban plant conservation. *Geoforum*, 56, 124 - 136.
- Dowling, R., Lloyd, K. & Suchet-Pearson, S. 2016. Qualitative methods I: Enriching the interview. *Progress in Human Geography* 2016, Vol. 40(5) 679–686
- Dowling, R., Lloyd, K. & Suchet-Pearson, S. 2017. Qualitative methods II: More-than-human methodologies and/in praxis. *Progress in Human Geography*, 41, 823 - 831.
- Duxbury, L. 2010. A change in the climate: New interpretations and perceptions of climate change through artistic interventions and representations. *Weather, Climate and Society*, 2, 294 - 299.
- Dwyer, K. 1997. On the dialogic of field work. *Dialectical Anthropology* 2, 143 - 151
- E, H. & Ingold, T. 2007. *Creativity and cultural improvisation*, London, Berg.
- Edensor, T. 2005. *Industrial Ruins: Aesthetics, materiality and memory*, Oxford, Berg.

- Edensor, T. 2011. Entangled agencies, material networks and repair in a building assemblage: The mutable stone of St. Ann's church, Manchester. *Transactions of the Institute of British Geographers*, 36, 238 - 252.
- Edensor, T., Leslie, D., Millington, S. & Rantisi, N. (eds.) 2009. *Spaces of Vernacular Activity: Rethinking the cultural economy*, London: Routledge.
- Edwards, C. 2004. The importance of earthworms as key representatives of the soil fauna. In: EDWARDS, C. (ed.) *Earthwork Ecology*. New York: CRC.
- El Khoury, T., and Pearson, D. 2015. Two Live Artists in the Theatre. *Performance Research* 20 (4): 122–126.
- Engelmann, S. 2015. Towards a poetics of air: Sequencing and surfacing breath. *Transactions of the Institute of British Geographers*, 40, 430 - 444.
- Engelmann, S. 2016. Social spiders and hybrid webs at studio Tomás Saraceno. *Cultural Geographies*, 24, 161 - 169.
- Facebook 2006. Facebook official website, accessed 16.02.2014
<www.facebook.com>
- Faiers, J. 2011. From Rei Kawakubo to Mark Fast: The void in knitting, or how formlessness shaped up. In: DIRIX, E. (ed.) *Unravel: Knitwear in Fashion*. Tielt, Belgium: Lanoo.
- Faiers, J. 2014. Knitting and Catastrophe. *TEXTILE: Journal of Cloth and Culture*, 12, 100 - 109.
- Fletcher, K. 2016. *The Craft of Use: Post growth fashion*, Oxon, Routledge.
- Food and Agriculture Organization of the United Nations and International Cotton Advisory Committee, 2013. World Apparel Fibre Consumption Survey <https://www.icac.org/cotton_info/publications/statistics/world-apparel-survey/FAO-ICACSurvey-2013-Update-and-2011-Text.pdf>. [accessed 11th October, 2018]
- Foster, H. 2003. Arty Party. *London Review of Books*, 25, 21 - 22.
- Foucault, M. 1990. *The History of Sexuality, Volume 1: An introduction*, New York, Vintage Books.
- Gabrys, J., Hawkins, G. & Michael, M. 2013. Introduction. In: GABRYS, J., HAWKINS, G. & MICHAEL, M. (eds.) *Accumulation: The material politics of plastic*. London: Routledge.

- Gauntlett, D. 2011. *Making is Connecting: the social meaning of creativity from DIY and knitting to YouTube and Web 2.0*, London, Polity Press.
- Geoghegan, H. 2013. Emotional geographies of enthusiasm: Belonging to the telecommunications heritage group. *Area*, 45, 40 - 46.
- Gibson, C. and Warren, A. 2016. Resource-sensitive global production networks: Reconfigured geographies of timber and acoustic guitar manufacturing. *Economic Geography*. 92, 430 – 454.
- Gibson, D. 2018. Towards plant-centred methodologies in anthropology. *Anthropology Southern Africa*, 41, 92 - 103.
- Gibson-Graham, J. K. 2011. A Feminist project of belonging for the anthropocene. *Gender, Place and Culture*, 18, 1 - 21.
- Gibson-Graham, J. K. & Roelvink, G. 2010. An economic ethics for the Anthropocene. *Antipode*, 41, 320 - 346.
- Ginn, F. 2013. Sticky lives: Slugs, detachment and more-than-human ethics in the garden. *Transactions of the Institute of British Geographers*, 39, 532 - 544.
- Giordano, J. 2016. The art of interdependence: autonomy, heteronomy and social support in Shannon Jackson's criticism of contemporary art social practices. *Penumbra*, 3, 12 - 27.
- Graham, S. & Thrift, N. 2007. Out of order: Understanding repair and maintenance. *Theory, Culture and Society*, 24, 1 - 25.
- Greene, B. 2000. *The Elegant Universe: Superstrings, Hidden Dimensions, and the Quest for the Ultimate Theory*, London, Vintage.
- Gregson, N., Crang, M., Ahmed, F., Akhter, N. & Ferdous, R. 2010. Following the things of rubbish value: End of life ships, 'chocky chock' furniture and the Bangladeshi middle class consumer. *Geoforum*, 41, 846 - 854.
- Gregson, N. & Crewe, L. 2003. *Second-hand Cultures*, London, Berg.
- Gregson, N., Metcalf, A. & Crewe, L. 2009. Practices of object maintenance and repair: How consumers attend to consumer objects within the home. *Journal of Consumer Culture*, 9, 248 - 272.
- Grosz, E. 1999. Thinking the new: Of futures yet unthought. *Becomings: Explorations in time, memories and futures*. Ithaca, NY: Cornell University Press.

- Grosz, E. 2008. *Chaos, Territory, Art: Deleuze and the Framing of the Earth*, New York, Columbia University Press.
- Grusin, R. 2017. Introduction. Anthropocene feminism: An experiment in collaborative theorizing. In: GRUSIN, R. (ed.) *Anthropocene Feminism*. Minneapolis: University of Minneapolis Press.
- Hackney Council, 2016. 'Woodberry Down Redevelopment'. Hackney Council official website, accessed 30.01.2017
<<http://hackney.gov.uk/woodberry-down/>>
- Hackney, F. 2013. Quiet activism and the new amateur: The power of home and hobby crafts. *Design and Culture*, 5, 169 - 193.
- Hall, M. 2011a. *Plants as Persons. A philosophical botany*, Albany, NY, State University of New York Press.
- Hall, S. M. 2011b. Exploring the 'ethical everyday': An ethnography of the ethics of family consumption. *Geoforum*, 42, 627 - 637.
- Hall, S. M. & Jayne, M. 2015. Make, mend and befriend: geographies of austerity, crafting and friendship in contemporary cultures of dressmaking in the UK. *Gender, Place and Culture*, 23, 216 - 234.
- Halberstam, J. 2011. *The Queer Art of Failure*. Durham, NC., Duke University Press.
- Haraway, D. 1988. Situated knowledges: the science question in feminism and the privilege of partial perspective. *Feminist Studies*, 14, 575 - 599.
- Haraway, D. 2003. *The companion species manifesto: Dogs, people, and significant otherness* (Vol. 1). Chicago: Prickly Paradigm Press.
- Haraway, D. 2008. *When Species Meet*, Minneapolis, MN, University of Minnesota Press.
- Haraway, D. 2013. *Distinguished Lecture*, D. <http://ihr.asu.edu/news-events/news/2013-distinguished-lecturer-donna-haraway-reading-group> [accessed 4th September 2018].
- Haraway, D., 2013. *Simians, cyborgs, and women: The reinvention of nature*. London and New York: Routledge.
- Haraway, D. 2015. Anthropocene, capitalocene, plantationocene, chthulucene: Making kin. *Environmental Humanities*. 6, 159 - 165.

- Haraway, D. 2016. *Staying with the Trouble: Making Kin in the Chthulucene*, London, Duke University Press.
- Harrison, P. 2007. How shall I say it...? Relating the nonrelational. *Environment and Planning A*, 39, 590 - 608.
- Harvey, D. 1996. *Justice, Nature and the Geography of Difference*, Cambridge, MA, Blackwell.
- Harvey, D.C., Hawkins, H. and Thomas, N. 2012. Thinking creative clusters beyond the city: People, places and networks. *Geoforum* 43 (3) 529 - 539
- Harvie, J. 2013. *Fair Play: Art, Performance and Neoliberalism*, Basingstoke, Palgrave Macmillan.
- Hawkins, G. 2001. Plastic bags: Living with rubbish. *International Journal of Cultural Studies*, 4, 5 - 23.
- Hawkins, G. 2006. *The Ethics of Waste: How we relate to rubbish*, Oxford, Rowman & Littlefield.
- Hawkins, G. 2013a. Made to be wasted: PET and topologies of disposability. In: GABRYS, J., HAWKINS, G. & MICHAEL, M. (eds.) *Accumulation: The material politics of plastic*. London: Routledge.
- Hawkins, H. 2010. Argument of the eye? The cultural geographies of installation art. *Cultural Geographies*, 17, 321 - 340.
- Hawkins, H. 2013b. *For Creative Geographies: Geography, Visual Arts and the Making of Worlds*, Abingdon, Routledge.
- Hawkins, H., 2015. Creative geographic methods: knowing, representing, intervening: On composing place and page. *Cultural Geographies*, 22 (2), 247-268.
- Hawkins, H. & Kanngieser, A. 2017. Artful climate change communication: overcoming abstractions, insensibilities and distances. *Wiley Interdisciplinary Reviews: Climate Change*, 8, 1 - 12.
- Hawkins, H., Marston, S., Ingram, M. & Straughan, E. 2015. The art of socioecological transformation. *Annals of the Institution of American Geographers*, 105, 331 - 341.
- Hawkins, H. & Price, L. 2018. Towards the geographies of making: An introduction. In: PRICE, L. & HAWKINS, H. (eds.) *Geographies of Making, Craft and Creativity*. Oxon: Routledge.

- Hawkins, H. & Straughan, E. 2014. Nano-art, dynamic matter and the sight/sound of touch. *Geoforum*, 51, 130 - 139.
- Hawkins, H., 2019. Doing gender and the geohumanities – celebrations and intoxications. *Gender, Place and Culture*. 26 (11) 1503 – 1518.
- Hayes Conroy, A. & Hayes Conroy, J. 2010. Visceral geographies: Mattering, relating and defying. *Geography Compass*, 4, 1273 - 1278.
- Head, L., Atchison, J. & Gates, A. 2012. *Ingrained: A Human Bio-Geography of Wheat*, London, Routledge.
- Head, L., Atchison, J. & Phillips, C. 2015. The distinctive capacities of plants: Re-thinking difference via invasive species. *Transactions of the Institute of British Geographers*, 40, 399 - 413.
- Hebrok, M., Klepp, I. & Turney, J. 2016. Wool you wear it? Woollen garments in Norway and the United Kingdom. *Clothing Cult.*, 3, 67 - 84.
- Hebrok, M. & Klepp, I. G. 2014. Wool is a knitted fabric that itches, isn't it? . *Critical Studies in Fashion and Beauty*, 5, 67 - 93.
- Herman, T. & Mattingly, D. J. 1999. Community, justice and the ethics of research: Negotiating reciprocal research relations in PROCTOR, J. & MARSHALL SMITH, D. (eds.) *Geography and Ethics: Journeys in a moral terrain*. Abingdon, Routledge, 209 – 222.
- Herbert, S. (2000). For ethnography. *Progress in Human Geography*. 24 (4), p.550 - 568.
- Hickey, S. & Mohan, G. 2004. Participation – from tyranny to transformation? Exploring new approaches to participation in development. London, Zed Books.
- Hillman, J. 1988. Going bugs. *Spring: A Journal of Archetype and Culture*, 1988, 40 - 71.
- Hinchliffe, S. 2007. *Geographies of Nature: Societies, environments, ecologies*, London, Sage.
- Hinchliffe, S., Kearnes, M., Degen, M. & Whatmore, S. 2005. Urban wild things: a cosmopolitical experiment. *Environment and Planning D*, 23, 643 - 658.
- Hinton, H. E. 1956. The larvae of the speices of Tineidae of economic importance. *Bulletin of Entomological Research*, 47, 251 - 346.

- Hird, M. 2009. *The Origins of Sociable Life: Evolution after science studies*, London, Springer.
- Hird, M. 2012. Animal, all too animal: Toward an ethic of vulnerability. In: GROSS, A. & VALLELY, A. (eds.) *Animal Others and the Human Imagination*. New York: Columbia University Press.
- Hird, M. and Zahara, A. 2018. The Arctic wastes. In GRUSIN, R (ed) *Anthropocene Feminism*. University of Minnesota Press: Minneapolis
- Hitchings, R. 2003. People, plants and performance: On actor network theory and the material pleasures of the private garden. *Social and Cultural Geography*, 4, 99 - 114.
- Hitchings, R. & Jones, V. 2004. Living with plants and the exploration of botanical encounter within human geographic research practice. *Ethics, Place and Environment*, 7, 18.
- Hoban, R. 2012. *Riddley Walker*, London, Bloomsbury.
- Hodgetts, T. & Lorimer, J. 2015. Methodologies for animals' geographies: Cultures, communication and genomics. *Cultural Geographies*, 22, 285 - 295.
- Holm, N. 2012. Consider the squirrel: Freaks, vermin and value in the ruin(s) of nature. *Cultural Critique*, 80, 56 - 95.
- Holm, N. 2015. Consider the possum: Foes, anti-animals and colonists in paradise. *Animal Studies Journal*, 4, 32 - 56.
- Holmes, H. 2015. Transient craft: reclaiming the contemporary craft worker. *Work, Employment & Society*. 29 (3), p.479-495.
- Holmes, H. 2018. Transcient productions; enduring encounters: The crafting of bodies and friendships in the hair salon in PRICE, L. and HAWKINS, H. (eds.) *Geographies of Making, Crafting and Creativity*.
- Hovorka A. 2015. The Gender, Place and Culture Jan Monk Distinguished Annual Lecture: Feminism and animals: Exploring interspecies relations through intersectionality, performativity and standpoint. *Gender, Place & Culture* 22(1): 1-19.
- Hovorka, A. 2017. Animal geographies I: Globalizing and decolonizing. *Progress in Human Geography* 41(3) 382-394

- Hudson, R. 2012. Critical political economy and material transformation. *New Political Economy*, 17, 373 - 397.
- Hulme, M. 2011. Meet the Humanities. *Nature Climate Change*, 1, 177 - 179.
- Ikeda, T., Asasno, M., Matoba, Y. & Abe, G. 2004. Present status of invasive alien raccoon and its impact in Japan *Global Environmental Research*, 8, 125 - 131.
- Ingold, T. 1993. The temporality of landscape. *World Archaeology* 25, 152 - 174.
- Ingold, T. 1995. Building, dwelling, living: how people and animals make themselves at home in the world. In: STRATHERN, M. (ed.) *Shifting Contexts: Transformations in anthropological knowledge*. London: Routledge.
- Ingold, T. 2000. *The Perception of the Environment: Essays on Livelihood, Dwelling and Skill*, Oxon, Routledge.
- Ingold, T. 2001. Beyond art and technology: The anthropology of skill. In: SCHIFFER, M. B. (ed.) *Anthopological Perspectives on Technology*. Albuquerque: University of New Mexico Press.
- Ingold, T. 2008. Anthropology is not ethnography. *Proceedings of the British Academy* 154, 69 - 92.
- Ingold, T. 2010. The textility of making. *Cambridge Journal of Economics*, 34, 91 - 102.
- Ingold, T. 2011. *The Perception of the Environment: Essays on Livelihood, Dwelling and Skill*, Oxford, Routledge.
- Ingold, T. 2013. *Making: Anthropology, Archaeology, Art and Achitecture*, London, Routledge.
- Ingold, T. 2015. *The Life of Lines*, Oxford, Routledge.
- Ingram, M. 2013. Washing urban water: diplomacy in environmental art in the Bronx, New York City. *Gender, Place and Culture*, 21, 105 - 122.
- Instone, L. 2014. Unruly grasses: Affective attunements in the ecological restoration of urban native grasslands in Australia. *Emotion, Space and Society*, 10, 79 - 86.
- Instone, L. 2015. Risking attachment in the Anthropocene. In: GIBSON, K., ROSE, D. B. & FINCHER, R. (eds.) *An Ethics for the Anthropocene*. New York: Punctum Books.

- Irigaray, L. 1993. *An ethics of sexual difference*, Ithaca, Cornell University Press.
- Irigaray, L. & Marder, M. 2016. *Through Vegetal Being: Two philosophical perspectives*, New York, Columbia University Press.
- Jackson, S. 2011. *Social Works: performing art, supporting publics*, Abingdon, Routledge.
- Johns-Putra, A. 2016. Climate change in literature and literary studies: From cli-fi, climate change theatre and ecopoetry to ecocriticism and climate change criticism. *Wiley Interdisciplinary Reviews: Climate Change*, 7, 266 - 282.
- Johnson, E., Morehouse, H., Dalby, S., Lehman, J., Nelson, S., Rowan, R., Wakefield, S. & Yusoff, K. 2014. After the Anthropocene: Politics and geographic inquiry for a new epoch. *Progress in Human Geography*, 38, 439 - 456.
- Jones, O. 2000. (Un)ethical geographies of human - nonhuman relations: Encounters, collectives and spaces. In: PHILO, C. & WILBERT, C. (eds.) *Animal Spaces, Beastly Places: New geographies of human - animal relations*. London: Routledge.
- Jupp, E. 2007. Participation, local knowledge and empowerment: researching public space with young people. *Environment and Planning A*, 39, 2832 - 2844.
- Kaika, M. 2004. Interrogating the geographies of the familiar: Domesticating nature and constructing the autonomy of the modern home. *International Journal of Urban and Regional Research*, 28, 265 - 286.
- Kanngieser, A. 2015. Geopolitics and the Anthropocene: Five propositions for sound. *GeoHumanities*, 1, 80 - 85.
- Katz, C. 2001. Vagabond capitalism and the necessity of social reproduction. *Antipode*, 33, 709 - 728.
- Kenning, D. 2009. Art relations and the presence of absence. *Third Text*, 23, 435 - 446.
- Keul A. 2013. Performing the swamp, producing the wetland: Social spatialization in the Atchafalaya Basin. *Geoforum* 45: 315-324.
- Kirksey, E. (ed.) 2014. *The Multispecies Salon*. Durham, North Carolina, Duke University Press

- Kirksey, E. & Heimreich, S. 2010. The emergence of multispecies ethnography. *Cultural Anthropology*, 25, 545 - 576.
- Klein, N. 2014. *This Changes Everything: Capitalism vs. the Climate*, London, Penguin Books.
- Knorr – Cetina, K. 1995. Laboratory studies: the cultural approach to the study of science in JASANOFF, S., MARKLE, G. E., PETERSEN J. C., PINCH, T., eds. *Handbook of science and technology studies* London, Sage. 140 – 166.
- Knott, S. 2015. *Amateur Craft: History and theory*, London, Bloomsbury.
- Kohn, Eduardo, 2007. How dogs dream: Amazonian natures and the politics of transspecies engagement. *American Ethologist* 34 (1) 3 – 24.
- Kopytoff, I. 1986. The cultural biography of things: commoditization as process. *In: APPADURAI, A. (ed.) The Social Life of Things: Commodities in cultural perspective*. Cambridge: Cambridge University Press.
- Krzywoszynska, A. 2016. What Farmers Know: Experiential Knowledge and Care in Vine Growing. *Sociologia Ruralis*. 56 (2)
- Küchler, S. 1999. The place of memory. *In: FORTY, A. & KÜCHLER, S. (eds.) The Art of Forgetting*. Oxford: Berg.
- Küchler, S. 2015. Materials: The story of use. *In: DRAZIN, A. & KÜCHLER, S. (eds.) The Social Life of Materials: Studies in materials and society*. London: Bloomsbury.
- Kvavadze, E., Bar-Yosef, O., Belfer-Cohen, A., Boaretto, E., Jakeli, N., Matskevich, Z. and Meshveliani, T., 2009. 30,000-year-old wild flax fibers. *Science*, 325 (5946) 1359-1359.
- Last, A. 2012. Experimental geographies. *Geography Compass*. 6, 706 – 724.
- Latour, B. & Woolgar, S. 1979. *Laboratory life: The social construction of scientific facts*. Beverly Hills, CA, Sage.
- Latour, B. 1993. *We Have Never Been Modern*, Cambridge, MA, Harvard University Press.
- Latour, B. 2004. How to talk about the body? The normative dimension of science studies. *Body and Society*, 10, 205 - 229.
- Latour, B. 2005a. What is the style of matters of concern? *Spinoza Lectures*. The Department of Philosophy of the University of Amsterdam.

- Latour, B. 2005b. *Reassembling the social: An introduction to actor network theory*. Oxford, Oxford University Press
- Latour, B. 2013. *An Inquiry into Modes of Existence: An anthropology of the moderns*, Cambridge, MA, Harvard University Press.
- Law, J. 2004. *After method: Mess in social science research*, Routledge.
- Lea, J. 2009. Becoming skilled: The cultural and corporeal geographies of teaching and learning Thai yoga massage. *Geoforum*, 40 (3), 465 – 474.
- Lewis, G. 2015. *The Symbolism of Ancient Sweaters* in SLANEY, D. 2015. *Ten Poems about Knitting*. Candlestick Press: Nottingham.
- Lezaun, J., Marres, N., & Tironi, M. 2016. Experiments in participation. In FELT, U., FOUCHÉ, R., MILLER, C.A. & SMITH-DOERR, L., eds 2016. *The handbook of science and technology studies*. Boston, MIT Press.
- Longhurst, R., 2003. Semi-structured interviews and focus groups. In LONGHURST, R., CLIFFORD, N., FRENCH, S., and VALENTINE, G. (eds.) *Key methods in geography*. London: Sage 117-132.
- Lorimer, H. 2006. Herding memories of humans and animals. *Environment and Planning D: Society and Space*, 24, 297 - 518.
- Lorimer, H. 2008. Cultural geography: Non-representational conditions and concerns. *Progress in Human Geography*, 32, 551 - 559.
- Lorimer, H. 2010a. Forces of nature, forms of life: Calibrating ethology and phenomenology. In: ANDERSON, B. & HARRISON, P. (eds.) *Taking-Place: Non-representational theories and geography*. London: Ashgate.
- Lorimer, J. 2007. Nonhuman Charisma. *Environment and Planning D*, 25, 911 - 932.
- Lorimer, J. 2010b. Elephants as companion species: The lively biogeographies of Asian elephant conservation in Sri Lanka. *Transactions of the Institute of British Geographers*, 35, 491 - 506.
- Lorimer, J. 2010c. Moving image methodologies for more-than-human geographies. *Cultural Geographies*, 17, 237 - 258.
- Lorimer, J. 2012. Multi-natural geographies for the anthropocene. *Progress in Human Geography*, 36, 593 - 612.
- Lorimer, J. 2014. On awks and awkwardness. *Environmental Humanities*, 4, 195 - 205.

- Lorimer J. 2015. *Wildlife in the Anthropocene*. Minneapolis: University of Minnesota Press.
- Lorimer, J. and Driessen, C., 2013. Bovine biopolitics and the promise of monsters in the rewilding of Heck cattle. *Geoforum*, 48, 249-259.
- Lykke, N. 2009. Non-innocent intersections of feminism and environmentalism. *Kvinder, køn og forskning*. 18 (3 - 4), 36 - 44.
- Macgregor, S. 2006. *Beyond Mothering Earth: Ecological Citizenship and the Politics of Care*, Vancouver, UBC Press.
- MacGregor, S. 2009. A Stranger Silence Still: The Need for Feminist Social Research on Climate Change. *The Sociological Review* 57, 124-40.
- MacGregor, S. 2013. Only Resist: Feminist Ecological Citizenship and the Post-Politics of Climate Change. *Hypatia* 29 (3) 617-633.
- Mann, J. 2018. Knitting the archive: Shetland lace and ecologies of skilled practice. *Cultural Geographies*, 25, 91 - 106.
- Mansvelt, J. 2005. Working at leisure: critical geographies of ageing. *Area*, 29, 289 - 298.
- Margulies, J. & Karanth, K. 2018. The production of human-wildlife conflict: A political animal geography of encounter. *Geoforum*, 95, 153-164.
- Mason V. and Hope P. 2014. Echoes in the dark: Technological encounters with bats. *Journal of Rural Studies* 33: 107-118.
- Mauss, M. 2002. *The gift: The form and reason for exchange in archaic societies*, London, Routledge.
- McKiernan, S. & Instone, L. 2016. From pest to partner: Rethinking the Australian White Ibis in the more-than-human city. *Cultural Geographies*, 23, 475 - 494.
- McLean, H. 2017. Hos in the garden: Staging and resisting neoliberal creativity. *Environment and Planning D: Society and Space*, 35, 38 - 56.
- McMorran, C. 2012. Practising workplace geographies: Embodied labour as method in human geography. *Area*, 44, 489 - 495.
- McNally, D. 2017. I am Tower Hamlets: Enchanted encounters and the limit to art's connectivity. *Social and Cultural Geography*, DOI 10.1080/14649365.2017.1356361.

- McRobbie, A. 1998. *British Fashion Design: Rag trade or image industry* London, Routledge.
- Merchant, C. 2003. *Reinventing eden: The fate of nature in western culture*, New York, Routledge.
- Miles, M. 2010. Representing nature: art and climate change. *Cultural Geographies*, 17, 19 - 35.
- Milton, K. 2002. *Loving Nature: Towards an Ecology of Emotion*, London, Routledge.
- Mitchell, K., Marston, S. & Katz, C. 2004. *Life's Work: Geographies of Social Reproduction*, Wiley-Blackwell.
- Moore, J. 2017. The Capitalocene, Part I: On the nature and origins of our ecological crisis. *The Journal of Peasant Studies* 44.3 (2017): 594-630.
- Moore, J. 2018. The Capitalocene Part II: accumulation by appropriation and the centrality of unpaid work/energy. *The Journal of Peasant Studies*, 45(2), 237-279.
- Morrow, O. & Dombroski, K. 2015. Enacting a postcapitalist politics through the sites and practices of life's work. In: KENDRA, S. & MEEHAN, K. (eds.) *Precarious worlds: contested geographies of social reproduction*. Athens, Georgia: University of Georgia Press.
- Morton, T. 2010. *The Ecological Thought*, Cambridge, MA, Harvard University Press.
- Moser, S. 2007. More bad news: the risk of neglecting emotional responses to climate change information. In: DILLING, S. M. L. (ed.) *Creating a Climate for Change: Communicating Climate Change and Facilitating Social Change*. New York: Cambridge University Press.
- Moser, S. 2016. What more is there to say? Reflections on climate change communication research and practice in the second decade of the 21st century. *WIREs Climate Change*, 7, 345 - 369.
- Moser, S. C. & Dilling, L. 2011. Communicating climate change: closing the science - action gap. *The Oxford Handbook of Climate Change and Society*. Oxford: Oxford University Press.
- Mountz, A., Bonds, A., Mansfield, B., Loyd, J., Hyndman, J., Walton-Roberts, M., Basu, R., Whitson, R., Hawkins, R., Hamilton, T. & Curran, W. 2015. For

- slow scholarship: A feminist politics of resistance through collective action in the neoliberal university. *ACME: An International E-Journal for Critical Geographies*, 14.
- Muller, S., Power, E. R., Suchet-Pearson, S., Wright, S. & Lloyd, K. 2009. "Quarantine matters!" Quotidian relationships around quarantine in Australia's northern borderlands. *Environment and Planning A*, 41, 780 - 795.
- Nagar, R., 2013. Storytelling and co-authorship in Feminist Alliance Work: Reflections from a journey. *Gender, Place and Culture* 20 (1) 1 – 18.
- Napier, A. D. 2014. *Making Things Better: A workbook on ritual, cultural values and environmental behaviour*, Oxford Oxford University Press.
- Neimanis, A. & Walker, R. L. 2014. Weathering: climate change and the "thick time" of transcorporeality. *Hypatia*, 3, 558 - 575.
- Nelson, M. 2016. *The Argonauts*, Melville House.
- Norgaard, R. 2013. The Econocene and the Delta. *San Francisco Estuary and Watershed Science*, 11.
- Novoa, A. 2015. Mobile ethnography: emergence, techniques and its importance to geography. *Human geographies – Journal of studies and research in human geography* 9 (1) 97 - 107
- Nowak, K. L. & Rauh, C. 2008. Choose your "buddy icon" carefully: The influence of avatar androgyny, anthropomorphism and credibility in online interactions. *Computers and Human Behaviour*, 24, 1473 - 1493.
- Nurmis, J. 2016. Visual climate change art 2005 - 2015: discourse and practice. *Wiley Interdisciplinary Reviews: Climate Change*, 7, 501 - 516.
- O'Connor, E. 2007. Embodied knowledge in glassblowing: the experience of meaning and the struggle towards proficiency. *The Sociological Review*, 55 (1) 126-141.
- O'Neill, S. & Nicholson-Cole, S. 2009. "Fear won't do it" promoting positive engagement with climate change through visual and iconic representations. *Science Communication*, 30(3), 355-379.
- O'Neill, S. & Smith, N. 2014. Climate Change and Visual Imagery. *WIREs Clim Change*, 5, 73 - 87.
- O'Reilly, K. 2012. *Ethnographic methods [second edition]* Abingdon, Routledge

- Ocejo, R. 2014. Show the animal: Constructing and communicating new elite food tastes at upscale butcher shops. *Poetics*, 47, 106-121.
- Ocejo, R. 2018. The science and art of making: Bartenders, distillers, barbers and butchers. In: PRICE, L. & HAWKINS, H. (eds.) *Geographies of Making, Craft and Creativity*. Oxford: Routledge.
- Ogden, L., Hall, B and Tanita, K, 2013. Animals, plants, people and things: A review of multispecies ethnography. *Environment and Society* 4 (1) 5 – 24.
- Oppermann, Serpil. 2013. "Feminist Ecocriticism: A Posthumanist Direction in Ecocritical Trajectory." In GAARD, G., ESTOK, C. and OPPERMANN, S. (eds.) *International Perspectives in Feminist Ecocriticism*, London and New York: Routledge.
- Pacini-Ketchabaw, V. & Nxumalo, F. 2015. Unruly racoons and troubled educators: Nature/culture divides in a childcare centre. *Environmental Humanities*, 7, 151 - 168.
- Pacini-Ketchabaw, V., Taylor, A. & Blaise, M. 2016. Decentring the human in multispecies ethnographies. In *Posthuman research practices in education* (pp. 149-167). Palgrave Macmillan, London.
- Pahor, A.L., 1992. Ear, nose and throat in ancient Egypt. *The Journal of Laryngology & Otology*, 106(8), pp.677-687.
- Pain, R. 2004. Social geography: participatory research. *Progress in Human Geography* 28, 652 – 663.
- Pajczkowska, C. 2005. On stuff and nonsense: the complexity of cloth. *Textile*, 3, 220 - 249.
- Panelli, R. 2010. More-than-human social geographies: Posthuman and other possibilities. *Progress in Human Geography*, 34, 79 - 87.
- Parker, R. 1984. *The Subversive Stitch: Embroidery and the making of the feminine*. London, I B Tauris
- Parker, T. A. 1990. Clothes moths. In: MALLIS, A. (ed.) *Handbook of Pest Control*. Cleveland: Franzak and Foster Company.
- Parkins, W. 2004. Out of time: Fast subjects and slow living. *Time and Society*, 13, 363 - 382.
- Patchett, M. 2016. The Taxidermist's apprentice: Stitching together the past and present of a craft practice. *Cultural Geographies*, 23, 401 - 419.

- Patchett, M. 2017. Taxidermy workshops: Differently figuring the working of bodies and bodies at work in the past. *Transactions of the Institute of British Geographers*, 42, 390 - 404.
- Paterson, M. 2007. *The Senses of Touch: Haptics, affects and technologies*, Oxford, Berg.
- Paterson, M. 2009. Haptic geographies: Ethnography, haptic knowledge and sensuous dispositions. *Progress in Human Geography*, 33, 766 - 788.
- Paton, D. 2013. The quarry as sculpture: The place of making. *Environment and Planning A*, 45, 1070–1086.
- Philo, C. & Wilbert, C. (eds.) 2000. *Animal Spaces, Beastly Places: New Geographies of Human - Animal Relations*, London and new York: Routledge.
- Pink, S. 2007. Sensing Cittaslow: slow living and the constitution of the sensory city. *The Senses and Society*, 2, 59 - 77.
- Pink, S., 2007. Walking with Video. *Visual Studies*. 22(3), pp. 240-252
- Pink, S. 2009. *Doing Sensory Ethnography*. London, Sage
- Pink, S. & Morgan, J. 2013. Short-term ethnography: Intense routes to knowing. *Symbolic Interaction* 36 (3) 351 – 361.
- Pitt, H. 2014a. On showing and being shown plants: A guide to methods for more-than-human geography. *Area*, 47, 48 - 55.
- Pitt, H. 2014b. Therapeutic experiences of community gardens: Putting flow in its place. *Health & Place*, 27, 84 - 91.
- Pitt, H. 2017. Questioning care cultivated through connecting with more-than-human communities. *Social and Cultural Geography*, 1 - 22.
- Plarre, R. & Krüger-Carstensen 2011. An attempt to reconstruct the natural and cultural history of the webbing clothes moth *Tineola bisselliella* Hummel (Lepidoptera: Tineidae). *Journal of Entomological and Acarological Research* 43, 83 - 93.
- Plumwood, V. 1993. *Feminism and the Mastery of Nature*. London: Routledge.
- Plumwood, V. 1995. Human vulnerability and the experience of being prey. *Quadrant*, 39(3), 29.
- Plumwood, V. 2002. *Environmental Culture: The ecological crisis of reason*, London, Routledge.

- Plumwood, V. 2007. A review of Deborah Bird Rose's Reports from a Wild Country: ethics of decolonisation. *Australian Humanities Review*, 42, 1 - 4.
- Poland, K. 2014. 'Breaking, scutching, heckling and then lying down' [online] Cordwainers Grow official website, accessed 13.05.2018. <www.Cordwainersgrow.org/blog-2/>.
- Poland, K. 2015. 'Flax' [online] Cordwainers Grow official website, accessed 13.05.2018. <www.Cordwainersgrow.org/blog-2/>.
- Popke, J. 2006. Geography and ethics: Everyday mediations through care and consumption. *Progress in Human Geography*, 30, 504 - 512.
- Povinelli, E. 2016. *Geontologies: a requiem to late liberalism*, Durham and London, Duke University Press.
- Power, E. R. 2005. Human-nature relations in suburban gardens. *Australian Geographer*, 36, 39 - 53.
- Power, E. R. 2009. Border-processes and homemaking: Encounters with possums in suburban Australian homes. *Cultural Geographies*, 16, 29 - 54.
- Price, L. 2015. Knitting and the City. *Geography Compass*, 9, 81 - 95.
- Price, L. & Hawkins, H. (eds.) 2018a. *Geographies of Making, Craft and Creativity*, London: Routledge.
- Price, L. & Hawkins, H. 2018b. Geographies of making: Matter, transformation and care. In: PRICE, L. & HAWKINS, H. (eds.) *Geographies of Making, Craft and Creativity*. London: Routledge.
- Puig De La Bellacasa, M. 2017. *Matters of Care: Speculative ethics in more than human worlds*, Minneapolis, University of Minnesota Press.
- Pyne, S.J. 2015. The fire age. *Aeon*, May 15
- Raynor, R., 2017. Dramatising austerity: Holding a story together (and why it falls apart...) *Cultural Geographies*. 24 (2) 193 - 212.
- Robbins, P. 2007. *Lawn People: How grasses, weeds and chemicals make us who we are*, Philadelphia PA, Temple University Press.
- Roelvink, G. & Gibson-Graham, J. K. 2009. A postcapitalist politics of dwelling: Ecological humanities and community economies in conversation. *Australian Humanities Review*, 46, 145 - 158.
- Root-Bernstein, M., Douglas, L., Smith, A. & Veríssimo, D. 2013. Anthropomorphized speices as tools for conservation: utility beyond

- prosocial intelligent and suffering species. *Biodiversity and Conservation*, 22, 1577 - 1589.
- RSPB, 2018. Little Egret. <https://www.rspb.org.uk/birds-and-wildlife/wildlife-guides/bird-a-z/little-egret/> [Accessed 8th August, 2017]
- Ryan, J. C. 2012. Passive flora? Reconsidering nature's agency through human-plant studies (HPS). *Societies*, 2, 101 - 121.
- Ryan, J. C. 2013. Botanical memory: Exploring emotional recollections of native flora in the southwest of Western Australia. *Emotion, Space and Society*, 8, 27 - 38.
- Savage, J., 2000. Ethnography and health care. *British Medical Journal*, 321 (7273), p.1400-1402.
- Scalway, H. 2006. Patois of Pattern, *Cultural Geographies*, 13, 451–457.
- Sedgwick, E. 2003. *Touching feeling: Affect, pedagogy, performativity*, London, Duke University Press.
- Sennett, R. 2008. *The Craftsman*, London, Penguin.
- Sennett, R. 2012. *Together: the rituals, politics and pleasures of cooperation*, London, Penguin.
- Serpell, J. A. 2003. Anthropomorphism and anthropomorphic selection - beyond the 'cute response' *Society and Animals*, 11, 83 - 100.
- Sharp, J., Routledge, P., Philo, C. & Paddison, R. 2000. Entanglements of power: Geographies of domination/ resistance. In: SHARP, J., ROUTLEDGE, P., PHILO, C. & PADDISON, R. (eds.) *Entanglements of Power: Geographies of domination/ resistance*. London: Routledge.
- Shaw, I. (ed.) 2003. *The Oxford History of Ancient Egypt*. Oxford: Oxford University Press.
- Shildrick, M. 2001. Some speculations on matters of touch. *Journal of Medicine and Philosophy* 26, 387 - 404.
- Shove, E. 2010. Beyond the ABC: climate change policies and theories of social change. *Environment and Planning A*, 42, 262 - 264.
- Sjöholm, J. 2018. Making bodies, making space and making memory in artistic practice. In: PRICE, L. & HAWKINS, H. (eds.) *Geographies of Making, Craft and Creativity*. London: Routledge.

- Sloterdijk, P. 2014. *Spheres 2: globes - macrospherology*, South Pasadena, CA, Semiotext(e).
- Smith, J., Tyszczyk, R. & Butler, R. 2014. *Culture and climate change: narratives*, Cambridge, Shed.
- Smith, N. 1984. *Uneven Development: Nature, capital and the production of space*, New York, Blackwell.
- Smith, N. 1998. Nature at the millenium: Production and re-enchantment. In: BRAUN, B. & CASTREE, N. (eds.) *Remaking Reality: Nature at the Millenium*. London: Routledge.
- Smith, T. 2017. Of Makerspaces and Hacklabs: Emergence, experiment and ontological theatre at the Edinburgh Hacklab, Scotland. *Scottish Geographical Journal*, 133, 130 - 154.
- Spencer, J., 1989. Anthropology as a kind of writing. *Man: New Series* 24: 145 - 164
- Stanes, E. & Gibson, C. 2017. Materials that linger: An embodied geography of polyester clothes. *Geoforum*, 85, 27 - 36.
- Steffen, W., Crutzen, P. & McNeill, J. 2007. The Anthropocene: are humans now overwhelming the great forces of nature. *AMBIO: A Journal of the Human Environment*, 36(8), 614-621.
- Stengers, I. 2010a. *Cosmopolitics 1*, Minneapolis, University of Minnesota Press.
- Stengers, I. 2010b. Including nonhumans in political theory: opening pandora's box? In: BRAUN, B. & WHATMORE, S. (eds.) *Political Matter, Technoscience, Democracy and Public Life*. Minneapolis: University of Minnesota Press.
- Strasser, S. (2000). *Waste and want: A social history of trash*. London: Macmillan.
- Straughan, E. 2012. Touched by water: The body in scuba diving. *Emotion, Space and Society*, 5, 19 - 26.
- Straughan, E. 2015. Entangled corporeality: Taxidermy practice and the vibrancy of dead matter. *GeoHumanities*, 1, 363 - 377.
- Straughan, E. 2018. Entangled corporeality in the making of taxidermy. In: PRICE, L. & HAWKINS, H. (eds.) *Geographies of Making, Craft and Creativity*. Oxford: Routledge.

- Swyngedouw, E. 2013. The non-politics of climate change *ACME: An International E-Journal for Critical Geographies*, 12, 1 - 8.
- Taussig, M., 2009. What Do Drawings Want?, *Culture, Theory & Critique* 50:2-3, 263-274,
- Taussig, M., 2011. *I swear I saw this: Drawings in fieldwork notebooks, namely my own*. Chicago, University of Chicago Press.
- Tedlock, B. 1991. From participant observation to the observation of participation. *Journal of Anthropological Research* 47 (1): 69 – 94.
- Thrift, N. 2000. Afterwords. *Environment and Planning D: Society and Space*, 18, 213 - 255.
- Thrift, N. 2008. *Non-representational Theory: Space, politics, affect*, London, Routledge.
- Tipping Point, 2005. Tipping Point official website, accessed 22.02.2014 <www.tippingpoint.com>
- Time Out 2014. Time Out official website, accessed 22.02.2014 <www.tippingpoint.com>
- Thomas, N., Harvey, D. and Hawkins, H. 2012. Crafting the region: Creative industries and practices of regional space. *Regional Studies*. 47 (1) 75 – 88
- Tolia – Kelly, D. P. 2007. Participatory art: Capturing spatial vocabularies in a collaborative visual methodology with Melanie Carvalho and South Asian women in London, UK. *Participatory action research approaches and methods: Connecting people, participation and place* 132 – 140.
- Tolia-Kelly, D., Pratt, G. and Johnston, C. 2013. Staging Testimony in Nanay, *Geographical Review*, 103(2), 288–303.
- Tsing, A. 2013. More than human sociality: a call for critical description. In: HASTRUP, K. (ed.) *Anthropology and Nature*. New York: Routledge.
- Tsing, A. 2015. A feminist approach to the anthropocene. Public lecture, Barnard Center for Research on Women, Barnard College, November 10.
- Tsing, A. 2015. *The Mushroom at the End of the World: On the possibility of life in capitalist ruins*, Princeton, Princeton University Press.
- Tsing, A., Swanson, H., Gan, E. & Bubandt, N. (eds.) 2017. *Arts of Living on a Damaged Planet*, Minneapolis: University of Minnesota Press.

- Tuana, N., 2008. Viscous porosity: Witnessing Katrina. In ALAIMO, S., HEKMAN, S. and HEKMAN, S.J. eds., 2008. *Material feminisms*. Indiana University Press.
- Turney, J. 2004. Here's one I made earlier: Making and living with home craft in contemporary Britain. *Journal of Design History*, 17, 267 - 281.
- Turney, J. 2012. Making love with needles: Knitted objects as signs of love?. *Textile*, 10(3), pp.302-311.
- Twitter, 2006. Twitter official website, accessed 16.02.2014 <www.twitter.com>
- Van Dooren, T., Kirksey, E., Münster, U., 2016. Multispecies Studies Cultivating Arts of Attentiveness. *Environmental Humanities*. 8 (1) 1 - 23.
- Vergara, S. E. 2012. Worms. In: ZIMRING, C. & RATHJE, W. (eds.) *Encyclopedia of Consumption and Waste: The social science of garbage*. Thousand Oaks, CA: Sage.
- Warren, A. 2016. Crafting masculinities: Gender, culture and emotion at work. *Gender, Place & Culture*. 32, 36-54.
- Warren, A. & Gibson, C. 2014. Surfing places, surfboard-makers: Crafting, creativity and cultural heritage in Hawai'i, California and Australia. Honolulu: University of Hawai'i Press.
- Waters, C., Zalasiewicz, J., Summerhayes, C., Barnosky, A., Poirier, C., Gałuszka, A., Cearreta, A., Edgeworth, M., Ellis, E., Ellis, M., Jeandel, C., McNeill, L., Richter, D., Steffen, W., Syvitski, J., Vidas, D., Waples, M., Williams, M., Zhisheng, A., Grinevald, J., Odada, E., Oreskes, N., Wolfe, A. 2016. *The Anthropocene is functionally and stratigraphically distinct from the Holocene*. *Science* 351, 6269 aad2622.
- Weir, J. 2009. *Murray River Country: An ecological dialogue with traditional owners*, Canberra, Aboriginal Studies Press
- Whatmore, S. 2006. Materialist returns: Practising cultural geography in and for a more-than-human world. *Cultural Geographies*, 13, 600 - 609.
- Whitmarsh, L., O'Neill, S. & Lorenzoni, I. (eds.) 2011. *Engaging the Public with Climate Change: Behaviour Change and Communication*, Abingdon: Earthscan.
- Whyte, W. (ed.) 1991. Participatory action research. London, Sage.

- Wilkinson, S. 1999. How useful are focus groups in feminist research? In BARBOUR, R. and KITZINGER, J. (eds) *Developing Focus Group Research: Politics, Theory and Practice*. London: Sage
- Wilson, H. F. 2016. On geography and encounter: Bodies, borders, and difference. *Progress in Human Geography*, 41 (4) 451 – 471
- Woodward, S. & Miller, D. (2011). Unravelling Denim: Introduction. *Textile*. 9 (1), 6-10.
- Woodyer, T., 2008. The body as research tool: embodied practice and children's geographies. *Children's geographies*, 6(4), pp.349-362.
- Yusoff, K. 2010. Biopolitical economies and political aesthetics of climate change. *Theory, Culture and Society*, 27, 73 - 99.
- Yusoff, K. 2012. Aesthetics of loss: Biodiversity, banal violence and biotic subjects. *Transactions of the Institute of British Geographers*, 37, 578 - 592.
- Yusoff, K. 2013a. Geologic life: Prehistory, climate, futures in the anthropocene. *Environment and Planning D*, 31, 779 - 795.
- Yusoff, K. 2013b. Insensible worlds: post relational ethics, indeterminacy and the (k)nots of relating. *Society and Space*, 31, 208 - 226.
- Yusoff, K. 2015. Geologic subjects: Nonhuman origins, geomorphic aesthetics and the art of becoming inhuman. *Cultural Geographies*, 22, 383 - 407.
- Yusoff, K. & Gabrys, J. 2011. Climate change and the imagination. *Wiley Interdisciplinary Reviews: Climate Change*, 2.
- Yusoff, K., Grosz, E., Clark, N., Saldanha, A. & Nash, C. 2012. Geopower: a panel on Elizabeth Grosz's chaos, territory, art: Deleuze and the framing of the earth. *Environment and Planning D: Society and Space*, 30, 971 - 988.