

**Extinction Studies:
Imagining a World without Bees**

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October 2020

Abstract:

The increasing precariousness of life on Earth has firmly established that we are now living through the sixth mass extinction. What distinguishes this mass extinction event from previous mass extinction events is that it is being primarily driven by anthropogenic behaviours. In direct response to the biocultural nature of current extinction events, there has emerged a body of literature calling for stories which address the social, cultural, and ecological dimensions of extinction processes. This thesis directly responds to this call for stories, constructing an extinction story which examines the decline of bee populations. The story told through this thesis begins with an examination of human interactions with bees throughout history, as well as the central known reasons for their current decline. This thesis proceeds to concentrate on how the decline of bees has been narrated and challenged throughout the creative arts. To examine this, this thesis pays specific attention to the stories of creative practitioners who have been inspired to creatively respond to the decline of bees. By focusing on the stories of this community of creative practitioners - a focus which is inspired by the rich influx of bee-inspired creative projects in recent years - this thesis considers how the lives of threatened nonhuman species are imbued with value, how ecological action is directed and inspired, and the role that the creative arts might play in shaping extinction events. Drawing on this research, this thesis fundamentally demonstrates that current extinction events are as much matters of society and culture as they are of biology and ecology. This thesis further contributes to the ongoing calls for extinction stories, suggesting that narrative-based engagements with extinction processes open up critical questions about our role in, and responsibility for, the lives of lost or dying nonhuman species.

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Acknowledgements:

This work was supported by the University of York through the White Rose College of the Arts & Humanities.

I would like to extend my deepest thanks to my PhD supervisor, Dr Debbie Maxwell, for providing me with her valuable support, guidance, and feedback throughout this PhD process. I would further like to thank all those who supported me in my academic studies, including Dr Richard Friend, Dr Jill Atkins, and all the members of the Imagining and Representing Species Extinction Network.

I am sincerely indebted to all those who gave me their time and stories. Without your generosity I could not have written this thesis.

I am profoundly grateful for the love and support that my partner and family have shown me during my PhD. Your collective kindness and patience means the world to me. I would also like to thank my wonderful friends, who have constantly encouraged and inspired me.

Finally, I would like to give a special thanks to Joy, who inspired me to pay attention to bees.

Author's Declaration:

I declare that this thesis is a presentation of original work and I am the sole author. This work has not previously been presented for an award at this, or any other, University. All sources are acknowledged as References.

1 Introduction

Above all, send the bees love. Every little thing wants to be loved.

Sue Monk Kidd, 2001, p. 114

We owe them our grief. And we owe them our action.

Ashlee Cunsolo and Karen Landman, 2017, pp. 22-23

1.1 An Extinction Story of Bees

The world without bees is hard to imagine. Yet, like many others, I have spent the previous decade or so being compelled to consider this imaginary world as future reality. Since the mid-2000s the media has been inundated with headlines concerning the various threats plaguing bee species (Moore and Kosut, 2013). Indeed, even during the writing of this introduction my attention was caught by an influx of news articles reporting on a study which observes a link between rising global temperatures and the decline of bumblebee populations (see: Briggs, 2020; Main, 2020). There is little doubt that in the modern-day bee species are battling against stressors that are putting their lives at risk (Goulson et al., 2015). Across the United Kingdom [UK] these pressures are occurring through various avenues, driven by factors such as habitat loss, adverse weather, chemical pollution of habitats, the global spread of parasites and diseases, and more.

The predicament facing bees is irrefutably indicative of the wider mass extinction event underway today, which is seeing many of Earth's living creatures disappear or diminish to the last of their numbers (Kolbert, 2014). As has been made abundantly clear by researchers from across the natural sciences and beyond, we have now entered into a period of time that might be defined by the loss of nonhuman species life (Dawson, 2016; Ceballos et al., 2015; Barnosky et al., 2011). What is unique about this mass extinction event is that it is being predominantly caused by humans, driven by processes such as, but not limited to, our destroying and polluting of habitats, hunting of animals, culling of species, and climate change. At the same time, Rose, van Dooren, and Chrulew (2017) point to how people are involved in current extinction processes in diverse and varied ways:

conservation groups work tirelessly to protect individual species, scientists spend hours searching for biological clues to extinction processes, and people are increasingly questioning their lifestyles and consumption habits. Thus, each process of extinction that is underway today is complex and messy, shaped and directed by many, sometimes conflicting, biocultural factors.

In direct response to the complex, biocultural nature of extinction processes, there has recently emerged a body of knowledge from writers across the environmental humanities which suggests that the current extinction crisis requires us to tell stories of loss: stories which examine the ecological, social, and cultural dimensions of extinction processes (Rose, van Dooren, and Chrulew, 2017; van Dooren, 2014). This storied approach to studying extinction has been informally defined by Rose, van Dooren, and Chrulew (2017) as extinction studies. Literature produced under the extinction studies genre is distinctly interdisciplinary, bringing work from across the social and natural sciences into conversation with the humanities so as to produce fuller and more considered accounts of extinction events (ibid). As van Dooren (2014, p. 10) tells us:

these kinds of stories are not an attempt to obscure the truth of the situation, but to insist on a truth that is not reducible to populations and data: a fleshier, more lively, truth that in its telling might draw us all into a greater sense of accountability.

It is the demand for these stories that this thesis responds to. To be specific, this thesis embraces an extinction studies approach to write an extinction story centred around bees. As such, this work draws on multidisciplinary literature and empirical research to examine the biocultural factors which have come to shape the realities of bees. In exploring this extinction story, my work explicitly considers why and how, over a decade after the decline of bees started being widely reported on, this process of loss has been actively and imaginatively responded to. My work therefore comes at a pivotal period in the entwined story of bees and humans; I capture a moment of time in which enough time has passed that we might start to think about the responses that the potential loss of bees has garnered, while yet still coping with the uncertainty of their futures.

The story told in this thesis somewhat follows in the footsteps of Swan (2017) who, in her book *Where Honeybees Thrive: Stories from the Field*, embarks on a quest to find and speak with individuals who are fervently working to address threats facing honeybees. In her work Swan (ibid) documents stories of individuals who are working with honeybees in a variety of roles: her pursuit led her to meet with and write about entomologists, ecologists, farmers, beekeepers, and artists. I began my own research in a similar way, having begun with the aim of exploring how the plight of bee species has caught the attention and imagination of people working across a variety of professions. For that reason, in the early stages of my research I met with and interviewed

entomologists, beekeepers, and creative practitioners alike. However, for reasons I will proceed to explain, I came to narrow my attention on to those individuals using creative art forms to respond to the decline of bees. As a result, I engage most closely with the stories of creative practitioners that have, for various reasons, been motivated to take on the subject of the bee decline in their work.

My decision to focus on the experiences of creative practitioners who have interacted with the story of the bee decline is predominantly due to my witnessing of a rich body of creative work being produced in response to the loss of bees. In the early stages of my research I was fascinated to observe that the loss of bees had become a catalyst for varied creative projects: the topic was being tackled in plays, novels, musical compositions, works of fine art, and more. Indeed, one need not look far to stumble across people using their creative skills to narrate and respond to the decline of bees. From the installation of *The Hive*¹ at Kew Gardens, to York's 2019 Bloom Flower Festival², to novels such as *The History of Bees* (Lunde, 2017) and *The Bees* (Paull, 2014), to the placing of bee-themed installations throughout a shopping district in London's Covent Garden³, to the sculpture of a giant bee nestled amongst the flowerbeds of the Eden Project⁴, creative responses to bees have become a visible fixture of the cultural landscape. My own observations of the presence of bees throughout the creative landscape are echoed through recent literature: Moore and Kosut (2014) explore honeybees' representation in artworks following the outbreak of a syndrome called colony collapse disorder [CCD], Burnside (2015) writes of how artists and writers have become aware of bees' plight and thus begun to retell their story, Swan (2017) introduces her readers to a diversity of honeybee-inspired artistic works, and Rigby (2019, p. 282) comments upon the connection between the current precariousness of bees' lives and a growing number of both fictional and non-fictional bee books. My interest was captured by this movement of creative exploration, and I was intrigued to explore what the stories behind these creative projects might reveal about how people have imagined, experienced, and invested in the loss of bees. The well-established recognition that creative projects speak to the culture, society, and time within which they are produced (see: Rothenberg, 2014; Kaplan, 1990; Wolff, 1984) led me to realise that studying the stories behind these creative outputs would provide rich insight into how the decline of bees has been culturally

¹ *The Hive* is a permanent installation located at Kew Gardens, London. *The Hive* was designed and created by Wolfgang Buttress.

² On the 22nd and 23rd June 2019 the Bloom Flower Festival located in Dean's Park, York, included a workshop run by artist and illustrator Florence Boyd. The workshop entailed getting visitors to decorate a paper hexagon with pictures related to bees, that would be glued together to create a single piece of bee-inspired artwork. Florence Boyd has previously attended a Bee Time artist residency.

³ In 2020 The Yards, which is a shopping and dining destination located in the heart of Covent Garden, London, commissioned four artists to make bee-themed installations that celebrate urban bees (Wright, 2020).

⁴ This sculpture of a giant bee was created by Robert Bradford, and can be found at the Eden Project, in Cornwall.

imagined and interacted with. My core interest therefore lies in capturing how and why the threats facing bee species have inspired people's creative imagination, as well as how these creative projects have come to intertwine with the extinction story of bees. Through my research into creative responses to the decline of bees, I more broadly consider how human histories, cultures, and values come to bear influence upon processes of nonhuman loss.

My decision to focus on the stories of creative practitioners also responds to the knowledge that, in recent years, creative projects inspired by various environmental issues have seen an influx of interest from both creators and their audiences (Brown, 2014). This, in turn, has prompted debate regarding the role that creative exploration might play in shaping the direction of environmental crises (see: Neal, 2015; Gevers, 2013). However, notwithstanding some key literature in this area (see: Barr, 2017; Nowlan, 2015), less meaningful attention has been paid to what role creative exploration might play in relation to crises of extinction. Yet, and as others before me have illustrated, creative expression - from story, to performance, to song, to painting - has become a key avenue through which people are confronting and challenging nonhuman loss (Behrmann, 2019; Cunsolo, 2017). Thus, through exploring how creative practitioners interact with the particular crisis of the bee decline, my thesis contributes to discussions regarding the role of the creative arts in shaping stories of nonhuman loss. Ultimately, however, this thesis is primarily concerned with the social and cultural dimensions of the loss of bee species, adopting an extinction studies approach to specifically examine how this process of loss has been invested in, narrated, imbued with meaning, and challenged through the creative arts.

This brings me to my central research question, which asks:

Why and how has the ongoing decline of bee populations prompted creative projects, and to what extent might these creative projects help shape bees' futures?

To guide my investigation, I divide this main question into sub-questions, and further sub-questions:

1. What reasons do creative practitioners give for their choice to produce bee-inspired creative projects?
 - 1.1 How has knowledge about the bee decline been learnt by creative practitioners?
 - 1.2 How are the creative responses examined through my work influenced by broader cultural values and knowledge?
 - 1.3 What do the creative responses examined through my work reveal about how the creators might value bees' lives, and do these creative works perpetuate existing narratives?
2. What do creative practitioners reveal about the intended outcomes of their creative projects?

- 2.1 What knowledges, emotions, and actions are the creative projects examined through my work intended to generate?
- 2.2 Is the loss of bees perceived as a topic through which people can enter into conversations around wider themes of environmental harm?
- 2.3 What, if any, are the practical implications of the creative responses examined through my work? i.e are these creative interventions intended to have a direct or material influence upon the lives of bees?
- 2.4 What does my research with creative practitioners reveal about the potential value of creativity as an avenue of response to extinction?

By positioning my work within the extinction studies genre I am further provided with the chance to consider the value of this recently established mode of researching and writing. Although the tenets of this approach have been observed in writings prior to 2017 (see: van Dooren, Kirksey, and Münster, 2016; van Dooren, 2014), this was only defined as a *distinct* approach in 2017 (see: Rose, van Dooren, and Chrulew, 2017). Consequently, as a specific genre of writing, it remains relatively unexplored and underdeveloped. In acknowledgement of the young nature of the extinction studies approach, I use the opportunity of this thesis to critically assess the value of embracing this approach in my own work, as well as the potential significance of this approach for guiding future studies of extinction. Thus, as well as contributing to knowledge regarding the entangled social, cultural, and creative dimensions of the decline of bees, this thesis contributes to ongoing discussions regarding the use and development of an extinction studies approach.

1.2 Scope and Methods of Research

To explore my research questions I turn my attention to stories. This begins with my telling of an extinction story inspired by bees. This story, which broadly examines how the loss of bees has been creatively responded to, is threaded throughout the body of this work. Yet this central extinction narrative is constructed through a multitude of voices and experiences. It is a story which has come to fruition through my gathering together of many individual stories, collected and curated through both empirical and secondary modes of research. My focus on exploring stories naturally led me to employ qualitative data collection methods in the answering of my research questions.

The key method I used to investigate my research questions was interviewing individuals that have used creative practices to respond to the decline of bee species. However, as previously mentioned, in the early stages of my research I also met with individuals responding to the decline of bees

through a variety of professions. More particularly, I began my journey into the world of bees by meeting with beekeepers and entomologists, as well as with creative practitioners. Although I came to focus specific attention on creative practitioners, speaking with these beekeepers and entomologists helped shape my personal understanding of the biocultural and multifaceted reasons for the decline of bee species. Furthermore, these meetings offered me personal insight into the debates and conflicts which the decline of bee species has instigated. Thus, I make some limited references to these early interviews throughout the body of my thesis.

The principal dataset which guides this work, however, was generated through meetings with creative practitioners. In total I interviewed 24 individuals who were, in a variety of ways, using creative methods to engage with the topic of the bee decline. A brief description of each of the creative practitioners that were interviewed in connection with this research can be found in appendix 1. Whilst I met with individuals who would label themselves as artists, I also met with individuals who might consider themselves as belonging within a different term: writer, poet, actor, composer, or perhaps producer. I therefore refer to this diverse, distinctly heterogeneous group as creative practitioners, as opposed to artists. Taking direction from research conducted by Arts Council England⁵ (2018) I recognise that, whilst all these individuals work in the creative arts, the term artist does not account for the diversity of ways that they are using creative methods to produce bee-inspired projects. The term creative practitioner, however, “covers all those who are involved in creating culture, from artists and makers through to curators and producers” (ibid, p. 2).

The creative practitioners who I interviewed were all currently living and producing creative work within the physical borders of the UK⁶. This is because, although the loss of bees represents a global problem, my thesis primarily concerns itself with how the decline of bee species has come to be known and responded to across British culture. This focus on a UK context is mostly necessary for reasons of feasibility. How the potential loss of bee species has come to be driven, known, and responded to will undoubtedly vary across different geographical regions or cultural contexts. The particular historical, social, and cultural context of the UK will therefore influence how bees are responded to, interacted with, and managed in light of their ongoing decline. Consequently, extending my focus beyond UK-based creative practitioners would have resulted in it proving far more difficult to legitimately contextualise the findings of my research. It therefore became clear in the early stages of my research that it was essential to conduct a place-based study which

⁵ Arts Council England is a public body that champions and develops art and culture across England.

⁶ This is not to imply that everyone I met with would consider themselves as British; I interviewed people from a range of nationalities, cultural backgrounds, and ethnicities. Rather, this refers to how the individuals I met with were all currently based in the UK.

concentrates on a UK context. Practically speaking, focusing on creative practitioners based in the UK provided a necessary limitation to my data collection and research. Although there are many creative practitioners working with the topic of bees outside of the UK, without this boundary of UK-based creative practitioners the volume of data I would have produced would have likely been unmanageable, even for a thesis length project. It also meant that, as a researcher based in the UK, I was more likely to be able to conduct my interviews in person and, in some cases, experience the creative projects I studied first-hand. Having introduced my focus on UK-based creative practitioners, it is necessary to acknowledge that a portion of my research data was produced during an artist residency programme which took place in Spain. However, the specific residency I partook in was funded by the Manchester School of Art and was therefore solely attended by UK-based creative practitioners. Moreover, the broader residency programme is run in close connection with a beekeeping community based in Sussex.

My investigation also led me to partake in a number of activities that were relevant to my research interests. For example, I joined a creative writing weekend that was centred around explorations with bees. Another time, I joined the aforementioned artist residency programme inspired by honeybees. Rather than rely solely on interviews with individuals I met in these spaces, I was further inspired to practice participant observation within these environments. Thus, although interviews provide the bulk of my research data, I also draw conclusions from my participant observation field notes. This means that the voices and stories that shape this work are not purely obtained from external sources, but are also drawn from personally experienced stories.

Whilst honeybees are only one of thousands of bee species, over the course of my PhD I observed that it was relatively common for people - whether they be fellow academics, friends, or colleagues - to assume my research was generally focused on honeybees. The assumption that I was focusing my attention on honeybees was not necessarily surprising. Due to their willingness to live in human designed hives, coupled with their ability to make substances we find enticing, honeybees are the species of bee with which humans have had the most intimate and active relationship with. This, in turn, has meant that honeybee plights have received an arguably disproportionate amount of attention in writings on the plight of bees (see: Swan, 2017; Moore and Kosut, 2014, 2013; Nordhaus, 2011; Benjamin and McCallum, 2009). Thus, I consider it important to clarify why my research and writing does *not* focus exclusively on the world of honeybees, but considers the more general decline of bee species.

My reason for expanding my research beyond honeybees is twofold. The primary reason for this emphasis responds to the truth that, whilst significant attention is paid to honeybees across the

creative projects I study, there is an equally rich body of creative projects inspired by the loss of wild bee species⁷. Thus, if I had limited my attention to work inspired by honeybees I would have also provided a narrow representation of how creativity has come to intermingle with the threats facing bees. The other reason I considered it necessary to not solely focus on honeybees is because, whilst honeybees certainly face a number of new stressors in the modern age, wild bee species are under equal - if not greater - threat (Benjamin and McCallum, 2019; Graham, 2018; Manley, Boots, and Wilfert, 2015; Goulson et al., 2015). As such, excluding wild bee species from the narrative would detract attention from those species of bee which I believe are equally deserving of, and indeed perhaps more urgently in need of, our recognition and attention.

In light of my reluctance to focus on responses to any single type of bee species, I draw this section to a close by offering a brief overview into the world of bees. Fascinatingly, bees are one of approximately one million known and named insect species⁸ (Stork, 2018). Longing and Discua (2016) describe how bees' bodies, like all adult insects, are protected by a hardened exoskeleton and divided into three-parts: the head, the thorax, and the abdomen. Bee species will also have two antennae and either short or long tongues, which are used for tasting and sucking the nectar of plants. However, outside of these shared biological distinctions, the thousands of bee species alive today means that there are significant variations in the colours, sizes, and habits of different bee species. Indeed, the world today is home to over 20,000 different species of bee, living in every continent except Antarctica (Winston, 2014). Britain and Ireland are home to approximately 270 of these bee species (Falk, 2015). Globally, bees can be divided into seven separate families (Longing and Discua, 2016). *Apidae* is the largest of these families, and is home to many of the bees that can be commonly found in the UK, such as bumblebees, digger bees, cuckoo bees, and honeybees. Whilst some bee species - including honeybees and bumblebees - live in socially organised communal colonies, other bee species - including cuckoo bees, digger bees, and mason bees - live more solitary existences. The rich variety of species which therefore fall under this single heading of 'bee', and which are generally in decline, speaks to my choice to expand my research focus beyond simply creative responses to honeybees, and rather consider how the general loss of bees has been creatively engaged with.

⁷ There is some dispute regarding the degree to which honeybees can be domesticated, and thus not considered 'wild' (see: Jukes, 2018). However, it is generally recognised that honeybees are less wild, or perhaps more domesticated, than other bee species. As such, for clarity, I will proceed to describe all bee species that are not honeybees as wild bee species.

⁸ It is believed that there are millions of undiscovered and unnamed insect species (Stork, 2018).

1.3 Thesis Structure

My aim in this introductory chapter has been to establish the focus and context of my thesis. I introduced the way in which my study of the bee decline led me to examine how and why people have actively and creatively responded to the ongoing loss of bees. In doing this, my work contributes to studies concerning the entangled relationship between nonhuman species and humans in a time of rapid extinction. Moreover, this chapter clarified how my writing employs the genre of extinction studies. Thus, this introductory chapter positioned this thesis as both a narrative-based study which explores connections between the creative arts and the decline of bees, and an examination of extinction studies.

In chapter two I examine the literature which has influenced my research, identifying how my work expands on current knowledge. I devote some space to examining how the discipline of environmental humanities came into existence. To do so, I trace the key social and environmental developments which have fed into the multitude of global environmental crises we are now grappling with. I connect these social and environmental developments with shifts in academic environmental thinking. This in turn provides insight into the roots of the environmental humanities discipline. Moving forward, I consider how the topic of the sixth mass extinction has been examined by researchers working across the environmental humanities. This leads me to introduce how and why the extinction studies genre was established as a specific approach to studying extinction. This section also outlines the key tenets of the extinction studies genre, making clear how it has inspired my own research. Finally, this chapter provides insight into current literature on creativity and ecology. I consider the history of environmental arts movements, and show how environmental issues have come to take a central role in the contemporary creative arts sector (see: Brown, 2014). This section establishes a link between the increasing popularity of environmental arts projects and current literary debates regarding the role of the creative arts in responding to environmental crises. Primarily, therefore, this chapter simultaneously evidences the literature which has shaped my thinking, and identifies how my work builds on current academic debate.

Chapter three is dedicated to outlining my methodology and methods. Consequently, this chapter offers a detailed account of the steps I took in both choosing my methodology and gathering my data. In detailing these steps this chapter seeks to offer an honest and considered account of the problems I encountered and research decisions I made. Finally, this chapter clarifies both the steps I took towards analysing my data, as well as how I followed ethical guidelines during my research.

Chapter four begins my extinction story of bees, drawing on a mix of empirical and secondary research to trace our relationship with bees from the earliest years of human existence right through to the present day. I commence this chapter with an exploration of the human and bee relationship throughout history. This opening section establishes how bees have long held a distinct position in human culture, aided by factors such as their aesthetic qualities and connection to our diets. Moving forward, I consider how, despite the general admiration of bees throughout human history, recent years have exposed bees to increasing and predominantly human-driven stressors. My second section therefore outlines the various cultural, biological, and environmental factors feeding into the decline of bee populations. To clarify, whilst this work is grounded in the science surrounding the decline of bees, my main focus is on interrogating the social and cultural circumstances connected with the decline of bees. By examining the bee decline as a distinctly biocultural event, this section adds insight to the argument that the scientific knowledge surrounding extinction processes, should not - indeed, cannot - be considered in isolation from human histories, cultures, and values (see: Rose, van Dooren, and Chrulew, 2017; Heise, 2016). Furthermore, this section makes clear how the scientific narratives surrounding the topic of the bee decline are peppered with debate and conflict. Overall, this chapter establishes the context of the loss of bees, considering how our historical and contemporary relationship with bees has resulted in them being simultaneously revered and threatened by humans.

Chapter five delves into the stories of creative practitioners who have created work motivated by the decline of bees. In particular, this chapter considers why people have considered the lives of bees to be worthy of their energy, investment, and concern. To do so, this work investigates the individual stories, experiences, and creative outputs of the creative practitioners who participated in my research. Through examining these individual stories, I contend that the circumstances surrounding the decline of bees, coupled with the cultural representation of bees both prior to and after knowledge of their decline, has framed bees' lives as grievable (see: Butler, 2009, 2004). The establishment of bees' lives as grievable has in turn inspired widespread public advocacy on behalf of bees: an advocacy which is further made evident through the rich body of creative work being produced in response to their loss.

Chapter six departs from the style of my other chapters; rather than collectively exploring the stories of *all* the creative practitioners who contributed to my research, this chapter takes readers into the world of the artist residency programme Bee Time. This chapter presents a case study of this artist residency, detailing its history and aims. Drawing on both my own personal experiences of joining a Bee Time residency, as well as interviews with individuals I met through Bee Time, I offer insight into how honeybees are at the heart of the creative and ecological explorations of this residency. I

further illustrate how the leaders of Bee Time actively suggest that our conversations about and creative explorations of honeybees' experiences should be considered as a starting point for conversations around wider socio-ecological topics. I therefore suggest that this case study is revealing of the value of facilitating socio-ecological debate through a topic that typically or more commonly inspires engagement.

Chapter seven returns to my more general focus on creative practitioners who have been inspired by bees' lives, specifically exploring how creative practitioners are seeking to use creative methods to interact with the stories of bees and, potentially, their futures. Drawing on my research conducted with creative practitioners, this chapter asserts that there are three fundamental ways that people are seeking to positively impact upon bees' lives through creative methods. First, I examine how creative practitioners are seeking to bear witness to bees' extinction story through creative methods. I evidence how creative practitioners are seeking to urge care, empathy, and resistance through engaging their audiences with stories of the plights facing bees. Second, I illustrate how people are drawing on creative tools to break down boundaries to environmental conversations. In doing so, creative practitioners are both encouraging wider engagement with the topic of the bee decline and using creativity to amplify a diversity of voices in environmental debates. Finally, I consider how creative practitioners are seeking to have direct impacts on bees' lives, illustrating how people are either connecting their creative work to tangible ecological actions or embedding their creative actions within sustainable practices. Through examining these three pathways of influence, this chapter suggests that creative projects have a unique role to play in confronting and challenging nonhuman losses.

My concluding chapter brings this extinction story to a close. This chapter threads together the narratives woven throughout my thesis, outlining the key findings drawn from my research, examining how my thesis contributes to current knowledge, and offering suggestions for how this research might be continued or expanded. This chapter emphasises how my research speaks to the social and cultural nature of extinction events. This chapter further reflects on my rooting of this thesis in the extinction studies genre, contending that it is crucial to keep producing work which embraces the principles of an extinction studies approach. I end this chapter with a final reflection on the stories, experiences, and understandings which collectively result in this thesis.

2 The Age of Loneliness:

Environmental Humanities, Extinction Studies, and Creativity

What will survive of us is love.

Philip Larkin, 1964, p. 46

Wrong. What will survive of us is plastic - and lead-207, the stable isotope at the end of the uranium-235 decay chain.

Robert Macfarlane, 2016

2.1 Introduction

The primary intention of this chapter is to trace the texts and narratives which have both preceded and influenced my work. As such, this chapter situates my research within existing academic discussions regarding the environmental humanities, extinction, and the creative arts. This chapter is ambitious in its scope, simultaneously introducing a variety of literary contexts within which this work is situated. Hence, for clarity, I have divided this chapter into three distinct sections. The first section is dedicated to examining the historical roots of environmentalism within academic thinking. I show how knowledge regarding the relationship between humans, society, and the Earth's environments has shifted over time and in reflection of wider social and cultural developments. I emphasise how academic attention to environmental concerns has, on the whole, grown at a particularly rapid rate in recent decades. In the process, I make clear how the environmental humanities came to be established as a *distinct* discipline⁹.

⁹ To be clear, literature that might be understood as taking an environmental humanities perspective was being produced far before the environmental humanities was established as a specific discipline. Furthermore, it is pertinent to stress that there is not a single date which marks the beginning of the environmental humanities being recognised as a distinct discipline. However, I would suggest that the establishment of the journal *Environmental Humanities*, which first published articles in 2012, helped establish the environmental humanities as a relatively specific - albeit inherently interdisciplinary - discipline.

The following section introduces the subject of the sixth mass extinction, examining the broad social, cultural, and environmental factors which have collectively resulted in the extensive loss of nonhuman lives. I further consider how this mass process of loss has been responded to and considered in literature which aligns with an environmental humanities perspective. In doing so, I specifically consider how and why the extinction studies approach was formed as a sub-genre of the environmental humanities discipline. I take this opportunity to provide a detailed explanation of the extinction studies approach.

The third section of this chapter shifts its attention to current discussions surrounding creativity and ecology, clarifying why this area of study inspired my attention. This section is loosely chronological, tracing the artistic and creative movements which have paved the way for the contemporary environmental art we see today. I further illustrate how the recent surge in environmentally-inspired creative projects has given rise to discussions and debates regarding the role of creativity in responding to and potentially challenging environmental issues. In doing so, I make clear how my work is responding to current, lively discussion regarding the relationship between the creative arts and the urgent environmental problems we face in the present day.

Principally, this chapter traces the literature which has inspired my own research. It is pertinent to examine this literature for two central reasons. First, it clarifies the approach I have taken to my research. For instance, as a piece of work that situates itself within a relatively new academic approach - extinction studies - it is vital to provide context to the assumptions and aims of my research. Second, this chapter identifies how my own work will build and expand on existing literature. Thus, this chapter helps establish how my research contributes to current academic debates.

2.2 The Environmental Humanities: A Study of Historical and Contemporary Environmental Discourses

2.2.1 A Transforming World: Tracing the Roots of Environmentalism

To live in the modern world is to live in a period of great technological and scientific advancement, in which humans are constantly transcending the limits of known possibility. However, it is also to live in a time of profound instability, loss, and uncertainty; it is to live through a time of great ecological catastrophe. As geographer Lesley Head (2016, p. 1) expresses, “It feels as though we are hurtling down a hill without any brakes, through an unfamiliar landscape, to an uncertain destination”. This

sense of hurtling is driven by the knowledge that the world is now witnessing the effects of widespread environmental harm: swathes of natural environments are being destroyed, the air is becoming polluted, plastic is choking the oceans, and extinction rates have reached critical levels (Eriksen et al., 2014; Kolbert, 2014; Benton Short and Short, 2008; Wilson, 2003; Plumwood, 2002, 1993). Although these appear to be uniquely modern concerns, literature on the long-term impacts of the troubled relationship between humans and their environments first began to appear in academic thought as early as the 1860s (see: Marsh, 1864). However, it was not until the mid-twentieth century that environmental-based studies truly began to gain momentum. This section opens by examining these historical roots of modern environmental thinking. Moving forward, I demonstrate how, in reflection of the increasing urgency of current environmental crises, the last few decades have seen an abundance of new lexis and writing that seeks to engage with increasingly complex environmental issues. I will show how this explosion of environmental narratives across a variety of disciplines helped establish the environmental humanities as a distinct mode of study. In doing so, I outline both the core foundations and tenets of environmental humanities thinking, which is the discipline that this thesis is rooted in.

Nature has long been both the principal resource that aided human survival and one of the greatest threats to human life and health (Heise, 2016, p. 6). Nature simultaneously offered humans the basic tools needed to survive, whilst also putting people in constant situations of risk or danger. As human expertise developed we became increasingly knowledgeable about which plants might offer us sustenance, intoxication, or even poison, or which animals would be easy to hunt or which would provide the best meat. Yet, natural disasters such as earthquakes, floods, droughts, the contamination of resources, or plagues are not so easily overcome; natural disasters - including volcanic eruptions, floods, and diseases - have plagued humans since the earliest days of human life (see: Torrence and Grattan, 2002). Therefore, although the roots of current academic environmental thinking can be loosely traced back to the mid-nineteenth century, for as long as humans have been around to produce them, stories have been told that address the complex and sometimes self-destructive relationship between humans and the Earth. We can, for example, find stories pertaining to the fraught relationship between humans and the Earth in the biblical stories that, although potentially declining in influence, have long permeated British culture (see: Field, 2014). For instance, a famous biblical story which explores the destructive potential of nature is the story of Noah's Ark. In the story of Noah's Ark it is written that God is regretful of the creation of humankind, who have succumbed to sin and wickedness, and decides to wipe humans from the face of the Earth. God therefore instructs a man named Noah to build an ark on which to house Noah's family alongside two of every creature. The intent being to repopulate after the floods have passed. It is

told that God vowed to never again eradicate human and animal life through a flood, producing a rainbow as a sign that he would keep his promise. The story of Noah's Ark relies on the rhetoric that the Earth will become uninhabitable only if it is God's will. Not surprisingly, the perception that we can attribute the present state to the will or guidance of God is not an idea that is typically reproduced in considered modern academic thought. Indeed, it is an idea which is actively argued against; writing on both contemporary and near-future environmental conditions the biologist E. O. Wilson (2006, p. 91) firmly states that we "have done it all on our own, and conscious of what was happening. God's will is not to blame".

In a reflection on the more historical relationship between human society and environmental damage E. O. Wilson (2003, p. 22) suggests that if "Earth's ability to support our growth is finite - and it is - we were mostly too busy to notice". This argument is undoubtedly true; many of the technological and scientific advances in recent history have happened alongside the widespread destruction and transformation of the world's ecosystems, environments, and resources. Moreover, although we have become increasingly conscious of global environmental problems, we are still very much in the process of uncovering the true extent of the damage that many humans have caused. However, although there is abundant evidence which suggests that we have been relatively blind to the damaging impacts of our behaviour, the need to protect the Earth against the assault of humankind is not a novel idea, let alone an unexplored one. Indeed, specific narratives suggesting that humans were causing more harm than good to their environments first began to gain popularity with the first wave of industrialisation in the eighteenth century (Heise, 2016). As we began to steadily push into an age of industrialisation, which saw the invasion of urban into the rural alongside rapid advances in technology, there grew a rumble of fears that nature as it was once known was beginning to deteriorate (Williams, 1973).

The growth of industrialism provided the catalyst for people - particularly writers and artists - to begin exploring humans' ruinous effect on nature. For instance, it was during this era that the socialist, author, and artist William Morris began to advocate for new and relatively innovative visions of ecological sustainability (Macdonald, 2004). Musings on the destruction of natural environments also started to appear in popular works of the time. Charles Dickens is perhaps one of the most famous storytellers that encapsulates the changes occurring in countries such as Britain during this period of industrial turmoil. One of Dickens's most vivid depictions of Britain in the 1800s is in the novel *Hard Times*, where he describes the grimness of a place called Coketown - a town which, whilst fictional, was partly inspired by Preston in Lancashire (Vickery, 1988). Dickens (1854, pp. 26-27) writes of his imagined Coketown that:

It was a town of red brick, or of brick that would have been red if the smoke and ashes had allowed it; but as matters stood, it was a town of unnatural red and black like the painted face of a savage. It was a town of machinery and tall chimneys, out of which interminable serpents of smoke trailed themselves for ever and ever, and never got uncoiled. It had a black canal in it, and a river that ran purple with ill-smelling dye, and vast piles of building full of windows where there was a rattling and a trembling all day long, and where the piston of the steam-engine worked monotonously up and down, like the head of an elephant in a state of melancholy madness.

Problematic metaphors aside, Dickens provides a snapshot of a town defined by the industrial revolution. This is the same period of time which historian Jonsson (2012) proposes as the start date of the social and ecological developments which have resulted in our contemporary environmental concerns. Although Jonsson's claim is naturally open to debate, this era of industrial revolution, that was particularly intense in Britain, can certainly be linked to current ecological issues. The mass construction of industrial environments visibly served to radically change large parts of the British landscape, choking the surrounding areas with smoke and pollution (Reynolds, 2016). However, perhaps more profoundly, the industrial revolution restructured how we consume and produce, laying the foundations for a modern capitalist society that would come to have widespread and detrimental environmental consequences (Steinberg, 1986). Thus, although Charles Dickens was a writer of fiction his narratives speak to a rapidly changing reality.

Specific academic interest in the notion that human activities might cause potentially irreversible environmental damage started to appear around the 1860s. Whilst these studies might have initially been limited in their readership, they are the building blocks which led to the diversity of research being conducted on the relationship between culture, society, and environment today. Zalasiewicz et al. (2011) suggest that one of the first and most influential examples of an academic examination of humans' irreversible impact on the Earth is George Marsh's (1864) book *Man and Nature*. Although Marsh was writing alongside some of the most admired and historically influential nature writers in history such as John Muir and Henry David Thoreau, Marsh's work is considered to be one of the first books that truly considered the *long-term* influence of humans upon the Earth (Lowenthal, 2000). Marsh (1864, p. 10) proposed the idea that "human action has been or may be most injurious or most beneficial in its influence upon the physical conditions of the earth we inhabit". Similar to the work of John Muir and Henry David Thoreau, Marsh's work, published over 150 years ago, has transcended the barriers of time by proving itself still useful and relevant. Indeed, the influence of Marsh's arguments can still be felt today. Lowenthal (2000, pp. 3-4) writes that "More than Marsh had dreamed, *Man and Nature* ushered in a revolution in how people conceived

their relations with the earth. His insights bred public awareness of how much, and at what cost, human action transforms the globe". Whilst others had discussed the impact of human action upon the Earth before the arrival of Marsh's book, most of these works assumed that this impact would remain relatively benign and inconsequential (ibid).

The years following Marsh's (1864) publication began to see increasing reference to the growing climate and ecological crises we face today. For instance, although knowledge of climate change is loosely traced back to the mid to late twentieth century, research regarding the rising temperature of the Earth was actually already being produced at the beginning of the twentieth century. On August 14th, in the year 1912, a newspaper titled *Rodney and Otamatea Times, Waitemata and Kaipara Gazette* (1912, p. 7) printed a statement that read:

The furnaces of the world are now burning about 2,000,000,000 tons of coal a year. When this is burned, uniting with oxygen, it adds about 7,000,000,000 tons of carbon dioxide to the atmosphere yearly. This tends to make the air a more effective blanket for the earth and to raise its temperature. The effect may be considerable in a few centuries.

However, despite these early instances of environmental narratives, academic study of the irrevocable environmental impacts of human behaviour did not truly gain momentum until the latter half of the twentieth century. An early example is Henry Osborn's (1948) book *Our Plundered Planet*, which contends that our 'war' on nature would eventually result in self-destruction. Another example is the renowned book *A Sand County Almanac and Sketches Here and There* authored by the land ethicist Aldo Leopold (1949). Leopold argued that we must direct our efforts into restoring and conserving environments. It was suggested that humans can no longer afford to attempt to conquer the Earth, but must see themselves as part of a global community. Leopold's work emphasised the importance of fostering an ethical relationship with the Earth, and his work remains one of the core texts for the study of environmental ethics.

One of the most influential books of the mid-twentieth century was Rachel Carson's (1962) work *Silent Spring*, which first appeared as a three-part series in the *New Yorker* and was later published as a full monograph. Carson's aim was to expose the deadly nature of a widely used chemical pesticide called dichloro-diphenyl-trichloro-ethane [DDT], which she revealed had been killing habitats, wildlife, and even people for years. Carson begins her work with a fictional story about a town where everyone lived in harmony with nature and the future was filled with hope. Then, one day, a strange sickness began to creep over the community: no longer could the birds fly, the cattle, sheep, and chickens began dying or became infertile, and the townspeople began to suffer unexplained illnesses. As the people and animals suffered, nature began to die. Carson (ibid, pp. 2-3)

writes that “The apple trees were coming into bloom but no bees droned among the blossoms, so there was no pollination and there would be no fruit”. When the book was first published Carson’s work became the subject of significant controversy and debate, receiving a wealth of criticism from many individuals and corporations that benefited from pesticide use (Murphy, 2005). Yet, despite both this partial condemnation of her work at the time, as well as her regrettable early passing, Carson (1962) succeeded in opening and driving forward discussions regarding the relationship between environmental disasters and human behaviour.

Carson’s (1962) work was rapidly followed by a series of articles and books by subsequent authors suggesting that humans were perpetrators of ecological harm (see: Meadows et al., 1972; Ehrlich, 1968; Mellanby, 1967; Butler, 1966; Nader, 1965). One such example is an essay by Garrett Hardin (1968) which argued that a world with finite resources can only support a finite population, meaning that populations cannot afford to keep increasing indefinitely. Reflecting on this era of environmental thinking, Brennan (2009) asserts that the growing sense of crisis pervading in the late 1960s, fuelled by concerns over the Cold War and nuclear weaponry, resulted in a rapid interest in the discipline of environmental philosophy. Brennan (ibid, p. 374) explains how in 1971 the first ever environmental philosophy programme was taught, and during the 1970s there was a remarkable increase in the number of studies, seminars, and conferences dedicated to examining this topic. These academic developments were mirrored in the public sector. For instance, the organisations Greenpeace¹⁰ and Friends of the Earth International¹¹ were both established in 1971 (Doherty, 2006; Hunter, 2004). Following on from this trend, the 1980s saw the emergence of subjects such as environmental history, in which historians began to explore historical environmental problems so as to help tackle present and future environmental concerns (Worster, 1988). The 1990s continued to see a rise in environmental and ecocritical thinking, supported by an increase in ecofeminist and deep ecology writers (Heise, 2016). Indeed, the 1990s was a particularly prominent time for the rise of environmental literature; much of the literature published during that era still shapes environmental approaches and studies in the present day (see: Wilson, 1998; Cronon, 1996; Plumwood 1993; Callicott, 1992). The explosion in environmental literature during this decade both reflected and fuelled a growing attention to environmental matters in public and political discourses: it was during the 1990s that studies of environmental change rapidly expanded and started to become a discussion point on the world stage. For example, in 1992 the Earth Summit was held in Rio, which brought together world leaders to address the growing concerns around global warming.

¹⁰ Greenpeace is a global environmental organisation that works to promote a greener, healthier, and more peaceful world.

¹¹ Friends of the Earth International is a grassroots environmental network that leads campaigns regarding environmental and social issues.

This is not to say that environmental change was taken as seriously as it should have been, nor that it was adequately addressed by world leaders at the time. Rather, this merely marks the period of time in which environmental discourses *began* to be pushed into serious political debate.

Perhaps one of the most significant developments for environmental literature during the early-2000s centred around the proposal of the Anthropocene, a term used to describe a new geological epoch that is defined almost solely by human life. The concept of the Anthropocene was first introduced during a conference in 2000 by the Nobel prize winner and chemist Paul Crutzen, who was seeking for a word that defined the extent of human impact on the Earth's geology and ecology. In collaboration with Eugene Stoermer, Paul Crutzen went on to expand this idea. Crutzen and Stoermer (2000, p. 17) write that, considering the:

growing impacts of human activities on earth and atmosphere, and at all, including global, scales, it seems to us more than appropriate to emphasize the central role of mankind in geology and ecology by proposing to use the term “anthropocene” for the current geological epoch.

What is particularly notable about the Anthropocene is how the concept has stimulated a new generation of thought, becoming the catalyst for hundreds of new literary works, journals, mixed media projects and, as Crist (2013) tells us, more than a quarter of a million hits on search engines such as Google. Since the time of Crist's publication this number has risen significantly: data available via Google trends (2020) evidences how searches for the term Anthropocene via Google have continued to steadily rise since 2013. As Heise (2016, p. 204) writes, “the Anthropocene has developed a cultural life of its own”. The popularity of the term Anthropocene stems from the way the term appears to successfully encapsulate the seemingly infinite number of human-driven environmental problems that we face in the present day. The concept of the Anthropocene thus proves useful for an intellectual climate searching for the language to define the extensive loss and ecological instability currently occurring. Moreover, as a concept it is undoubtedly stimulating, suggesting that humans have gone so far as to reshape geological history. As such, there is little doubt that the Anthropocene has been one of the most provocative ideas of recent years, activating “weighty discussions between people who might otherwise not communicate often or at all—for instance, CEOs and deep ecologists, nature poets and environmental lawyers, ethicists and celebrity environmentalists” (Castree, 2014, p. 235).

Despite its role in popularising environmental discussions, the Anthropocene is a deeply flawed concept (Jamieson, 2017; Castree, 2014). Eileen Crist (2013) is particularly vocal in her criticisms of it, writing that the Anthropocene is an anthropocentric conception that evokes the same human-

centredness that is to blame for the current ecological situation. Crist (ibid, p. 129) contends that the Anthropocene “refuses to challenge human dominion, proposing instead technological and managerial approaches that would make human dominion sustainable”. The Anthropocene therefore perpetrates the idea that humans are justified in their controlling of the Earth’s environments. Crist (ibid, p. 142) further suggests that, if we are to conceive of a new name for the current geological era we must discuss and debate it, rather than accept the first one proposed. Donna Haraway (2015), a writer with a reputation for her novel ideas, takes on this challenge. Haraway argues that the Anthropocene does not fully encapsulate the complexity of the era we are now living through, suggesting that the term ‘Chthulucene’ might be more appropriate. Chthulucene refers to the blending and intimate contact of human and nonhuman lives that are forced together in the aftermath of environmental destruction, so as to build a new and sustainable world. However, Haraway’s proposed term is distinctly less catchy and easily accessible than that of the Anthropocene. This, coupled with the fact that it is not the first name proposed for the current geological era, means that the impact of Haraway’s theory is unlikely to parallel that of the Anthropocene. As such, despite its crucial flaws as a theory, the Anthropocene retains its grip over current environmental discourses.

In her criticism of the Anthropocene concept Crist (2013) shows that the idea of the Anthropocene suggests that humans have essentially become the driving force on Earth, thereby feeding the narrative that nature has ended and human society has taken over. As Macfarlane (2016) contends, the Anthropocene conceptually asks us to contemplate if modernity is fully complete and nature has been destroyed. This idea of humans as the destroyers of nature did not, however, only form with the conception of the Anthropocene. Heise (2016, p. 7) suggests this rhetoric has long pervaded environmental thought, writing that, particularly since the first wave of industrialisation, the dominant environmental narrative has relied on the rhetoric that “modern society has degraded a natural world that used to be beautiful, harmonious, and self-sustaining and that might disappear completely if modern humans do not change their way of life”. This is because, in expressing their sorrow for current environmental situations, many environmental thinkers emphasise their nostalgia for a past world that had yet to be destroyed by modern society. Inspired by the visible ways in which humans have altered or depleted environments, there has emerged a rhetoric that humans have ended nature (see: McKibben, 2006).

However, whilst humans are indeed responsible for the disruption of many ecosystems and environments, the rhetoric that nature has been lost forever paints a one-dimensional picture of our relationship with the world. It lacks an understanding of the complex and varied ways in which humans not only interact with their environments, but are also fundamentally part of nature

themselves. As Heise (2016) makes clear, the perception that humans have the power to ‘end’ nature implies our separation from it. Therefore, although it is important to acknowledge our role in bringing into existence a world that is under increasing environmental stress, we must simultaneously refrain from the rhetoric that humans are complete destroyers of nature. Rather, we might consider how certain human behaviours and actions have had detrimental consequences for the world’s environments, whilst also recognising that not only can humans - as living, breathing creatures - not survive without particular aspects of the natural world, but that precisely how humans have impacted upon nature varies greatly across time, cultures, and social communities. Thus, Heise (ibid) suggests that writings on environmental issues must be conscientious of the varied and complex factors which serve to both foster and challenge crises of environmental harm. Heise (ibid) highlights the continued need for more nuanced and careful accounts of the multifaceted ways in which humans are entangled with environmental crises. Fortunately, it is precisely this need that literature across the environmental humanities addresses.

2.2.2 The Development of the Environmental Humanities: Fostering Interdisciplinary Scholarship to Address Environmental Crises

Recent years have seen an increased shift towards recognising the value of arts and humanities perspectives for addressing environmental crises (Tyszczuk and Smith, 2017). The concept of the environmental humanities has emerged in response to this recognition, bringing perspectives from across the arts and humanities into greater conversation with the natural and social sciences to address current environmental crises; as a discipline it is, therefore, inherently interdisciplinary. In the opening article of the journal *Environmental Humanities*, which was established in 2012, environmental humanities is described as emerging from the eagerness of scholars across the humanities, arts, and social sciences to participate in collaborative environmental conversations. This opening article is clear in stating that the aim of the environmental humanities is not to translate natural sciences into qualitative literature, but to fully engage with and critique the environmental issues that have traditionally been predominantly explored in scientific disciplines. It is specified by Rose et al. (2012, p. 1) that by drawing “on humanities and social science disciplines that have brought qualitative analysis to bear on environmental issues, the environmental humanities engages with fundamental questions of meaning, value, responsibility and purpose in a time of rapid, and escalating, change”. Furthermore, work produced under the environmental humanities framework rejects one-dimensional understandings of human society and instead recognises that humans are “participants in lively ecologies of meaning and value, entangled within

rich patterns of cultural and historical diversity that shape who we are and the ways in which we are able to ‘become with’ others” (Rose et al., 2012, p. 2). Fundamentally, therefore, research conducted across the environmental humanities seeks to provide rich, storied, and considerate accounts of how nature and culture are meshing and unfolding in a time of rapid and overwhelming environmental change.

The need for the environmental humanities to have emerged as a specific route of thought is evidenced by the rapid growth in support for it over the previous decade: the environmental humanities is now an internationally recognised discipline with a dedicated academic journal, a large body of projects rooted in the discipline’s aims, and leading universities running specific environmental humanities programmes and modules¹². As a discipline its importance lies in its emphasis on supporting and fostering environmental conversations between researchers from across the arts, humanities, social sciences, natural sciences, and beyond. These interdisciplinary dialogues pave the way for environmental actions that are not just scientifically and empirically grounded, but which are conscientious of the social and cultural factors that are both entangled with and influenced by environmental crises.

2.3 Developing Extinction Studies: Creative, Lively, and Storied Responses to Extinction

2.3.1 The Sixth Mass Extinction: The Origins and Drivers of Nonhuman Loss

A prevalent factor feeding into current environmental concerns is the loss of biodiversity across the globe, which has pushed us into the sixth mass extinction on Earth (Kolbert, 2014). A recent landmark report by the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services ([IPBES], 2019, p. 3) writes that the biosphere “is being altered to an unparalleled degree across all spatial scales. Biodiversity - the diversity within species, between species and of ecosystems - is declining faster than at any time in human history”. Needless to say, human choice and action has played a central role in the emergence of the current mass extinction (Kolbert, 2014). As Rose, van Dooren, and Chrulew (2017, pp. 1-2) describe, “[humans] eat animals, log their forests for housing, cull their numbers for convenience, destroy and transform their homes and lives through unyielding systems of development and security”. Thus, although we may not be able to

¹² Universities such as Bath Spa University, the University of Plymouth, and the University of New South Wales offer dedicated Environmental Humanities programmes.

‘end’ nature (Heise, 2016), we have certainly brought an end to the existence of many species. As such, studies of human entanglements with nonhuman lost or dying species have taken a central role in environmental humanities literature¹³ (see: Wrigley, 2020; Rose, van Dooren, and Chrulaw, 2017; Ballard, 2017; van Dooren, 2014; Smith, 2013; Rose, 2011; De Vos, 2007). Accordingly, this section begins to unpack how and why humans are fundamentally responsible for bringing into being a world of loss, suffering, and extinction¹⁴.

Extinction is not a new or radical concept. Extinction has and always will be an inevitable part of life on Earth; wherever there is life, there is also death. Indeed, 99.9% of all species that have ever lived are now extinct (Wolfe, 2017). To the best of our knowledge there have been five previous instances where there was an extinction of life on Earth so rapid it wiped out most of the creatures living at the time (Barnosky et al., 2011). Indeed, without the plague of extinction we as humans, as *Homo sapiens*, might never exist. If a meteorite had not hit Earth and dinosaurs continued to roam the globe, or perhaps if woolly mammoths had managed to survive, the Earth might be an entirely different place, potentially even distinct from human life as we know it. Charles Darwin (1859) famously embraced this idea, arguing that the extinction of some animals is necessary for the flourishing of others (Kolbert, 2009). Considering the number of species that have gone extinct it would not, as Wolfe (2017) points out, be preposterous to argue that extinction can be considered the most natural thing in the world. However, despite the inevitability of the extinction of life, over the last few centuries the rate of nonhuman species extinctions has been exceptionally and unnaturally accelerated (Ceballos et al., 2015). In the current era Earth is losing, on average, 100 species each day, resulting in the first mass extinction event in 65 million years (Dawson, 2016; Scranton, 2015). The complexity and variety of life that has evolved over time is being rapidly and brutally wiped out. Thus, the sixth mass extinction cannot, indeed must not, be framed as a naturally occurring process (Wolfe, 2017). To frame it as such would alleviate blame from those that are fundamentally responsible for the sixth mass extinction.

In her seminal book *The Sixth Mass Extinction: An Unnatural History* Elizabeth Kolbert traces the root of this sixth mass extinction. Kolbert (2014, pp. 1-2) opens by recounting the birth of a new species over 200,000 thousand years ago, describing how:

¹³ In using the term environmental humanities literature I refer to all literature that writes from an environmental humanities standpoint, both explicitly and non-explicitly.

¹⁴ I write the word fundamentally because, whilst this section will proceed to untangle how humans are deeply implicated in current extinction processes, it is important to stress that humans are not only entangled with extinction in an entirely one-dimensional way: as perpetrators of violence and little else.

The members of the species are not particularly swift or strong or fertile. They are, however, singularly resourceful. Gradually they push into regions with different climates, different predators, and different prey. None of the usual constraints of habitat or geography seem to check them. They cross rivers, plateaus, mountain ranges. In coastal regions, they gather shellfish; farther inland, they hunt mammals. Everywhere they settle, they adapt and innovate. On reaching Europe, they encounter creatures very much like themselves, but stockier and probably brawnier, who have been living on the continent far longer. They interbreed with these creatures and then, by one means or another, kill them off.

The new species that Kolbert (2014) describes are, of course, *Homo sapiens*. Kolbert (ibid) goes on to describe that as numbers of *Homo sapiens* increased they spread throughout the globe, meeting and killing countless other species on the way. For thousands of years this process of spreading into, and subsequently transforming, new lands continued. Then, when *Homo sapiens* were no longer a young species, numerous developments in their technologies and physical abilities started to occur, which allowed for them to start reproducing at unprecedented rates. As a result of this mass increase in population, which led to an increased need for resources and energy, *Homo sapiens* - or modern humans - began to impact upon and transform the Earth's biosphere and atmospheric properties as never before. These widespread changes to the planet led to an increase in the suffering and loss of species around the globe. Kolbert (ibid) describes how rates of extinction began to soar, and life was forever changed. Thus, although humans are not necessarily the physically strongest of the world's species they are certainly one of the most dangerous.

Despite our long history of wiping out other species, the explicit recognition of human responsibility in processes of extinction is fairly recent in the history of humanity. One of the earliest narratives which truly emphasised humans' role in extinction developed with the loss of the dodo (van Dooren, 2014). This is a flightless bird which is thought to have been hunted to extinction by both sailors and the invasive species they brought the dodo into contact with in the 1600s (Hume, 2012). However, even with visible processes of loss occurring, for many years there remained a perception that extinct animals could not have truly vanished, but had perhaps moved to inhabit a remote, undiscovered continent¹⁵ (Heise, 2016, pp. 19-20). Heise describes that, whilst many of us today take the concept of extinction for granted, it took the combined discovery of geologic time scales, the finding of prehistoric fossils, and Darwinian theory for it to become culturally accepted that extinction was a process that could legitimately occur, let alone still be occurring. Moreover, Heise

¹⁵ Interestingly, research from the World Wide Fund for Nature suggests that one in four Britons still believe that dodos exist today (Butterly, 2015).

(ibid) explains how, whilst concerns about conserving specific environments began to gain legal and political traction in the nineteenth century, evidenced by the creation of national parks and protected nature reserves, concerns for the disappearance of other species took longer to manifest in cultural, legal, political, and institutional spaces. It took the visible extinction of species such as the passenger pigeon, whose loss was famously witnessed through the dying of the last passenger pigeon in 1914, to establish that extinction was not necessarily a process confined to history. Furthermore, although it has become widely accepted that we are now in the sixth mass extinction, the genuine recognition that humans might be responsible for generating a mass extinction event only became recognised relatively recently¹⁶. Early works on the subject were written by scholars such as Ehrlich (1986), Simberloff, (1986), and Wilson (2003, 1992).

If we consider that humans, by which I mean *Homo sapiens*, have been causing extinctions since the earliest days of their evolution (Kolbert, 2014), the length of time it took for us to explicitly recognise our role in extinction is revealing of the extent to which we have turned a blind eye to the impacts we have on nonhuman species. The reluctance to take the loss of nonhuman species seriously is connected with the historically pervasive philosophical perception that humans were somehow exceptional to nature, and therefore had the right to treat the natural world - including nonhuman species - in any way they saw fit. Whilst you would be hard-pressed to find any academic scholar who currently or explicitly argues that humans are separate from the realm of nature, for many years it was widely agreed across Western academic thought that nature existed as a resource for human pleasure, and humans were thus exceptional to it (Plumwood, 2002; Callicott, 1992). As the scholar Chaplain Richard Bentley (1693, p. 24) stated “All things were at first created [...] principally for the Benefit and Pleasure of Man”. Even in his particularly forward-thinking book *Man and Nature*, Marsh (1864) claims an intention of his work is to illustrate that humans are of a higher power than any other form of sentient being.

Plumwood (2002, p. 4) writes that the notion that humans were somehow exceptional to nature, which not only existed in Western culture but also defined it, detracted from “non-human claims to the earth and to elements of mind, reason and ethical consideration”. Indeed, the representation of nonhuman species as ‘other’ to the definitive *we* of humanity is a delineation which served to justify human domination (Gross, 2012; Derrida and Wills, 2002; Noske, 1993). We can trace the roots of the culturally imagined dichotomy between humans and nonhuman species - particularly animals - from the texts of historical, influential Western thinkers. Aristotle, for example, argued that humans

¹⁶ Please note that I use the word recently with caution. Whilst these works are published fairly recently within the history of writings on extinction, they would likely not be considered recent publications amongst contemporary environmental scholars.

alone possess the ability for complex language, an ability which is proof of their exceptionalism. René Descartes took this separation further, contending that animals were non-sentient automata and therefore most closely resembled a machine (Harrison, 1992); Descartes went so far as to conclude that the sound omitted when he inflicted pain on a dog was instinctual rather than emotional. It was not until the eighteenth century that Bentham (1789) began to explicitly assert that if an animal can clearly suffer its moral rights must be considered. Bentham's assertion paved the way for the early recognition of animal rights. The following two centuries witnessed significant shifts in how we understand animal suffering, as well as some, albeit limited, progress in understanding animal rights. Nearly 200 years after Bentham was writing, the controversial scholar Peter Singer (1974) made the claim that animals are victimised via 'speciesism'. Singer argues that speciesism is a form of discrimination comparable to racism or sexism, and that it will be the next great discriminatory barrier that society will break down¹⁷. One should be careful to note, however, that the philosophical distinction between humans and nonhuman animals which pervaded in academic thought, and which *broadly* shaped relations between humans and nonhuman animals, was not necessarily observed within all realms of human society. For instance, in their study of animals as performers Raber and Mattfield (2017) indicate that, when reflecting on historical perspectives of animals, we must be careful not to overlook the day-to-day experiences of people who did not actively participate in philosophical debates around animals, but whose perspective of animals might disagree with the anthropocentric viewpoint broadly advocated by historical philosophical thinking.

In recent years there has been notable progress made across academic thinking to break down the boundaries between humans and animals, bringing nonhuman voices into greater focus in academic research (Bastian et al., 2017; Kirksey and Helmreich, 2010; Martin, 1995). This academic development mirrors an increased interest in protecting animal lives in wider society, evidenced by changes such as the trend towards plant-based lifestyles (Pendergrast, 2016). Yet, despite these progressions, the perception that animals are somehow inferior or lesser to humans can still be witnessed across much of human culture and society. Take, for example, contemporary pedigree dog breeding practices. In a documentary titled *Pedigree Dogs Exposed* (2008), it is shown how the rights afforded to humans are not extended to pedigree dogs, some of whom are encouraged to partake in incestuous relations: an act which is, arguably, universally taboo amongst humans. Although, to the best of our knowledge, dogs do not have a similar understanding of incest, they are not free from the biological implications of incestuous acts. For example, pedigree pugs often suffer

¹⁷ This statement perhaps rests on the frankly untrue contention that racism and sexism are problems that have been 'broken down'.

from respiratory breathing problems directly related to inbreeding (ibid). Indeed, Bradshaw (2012) suggests that many pedigree dogs suffer from debilitating conditions, noting common problems as being dermatitis and painful bone fracturing. Thus, in spite of our extensive knowledge of the complex ways in which animals feel, experience, and live in the world, many people continue to group nonhuman animals as other, or inherently inferior, to humans (Haraway, 2008).

Naturally, the suffering that humans inflict on many animals is not necessarily direct or even visible to those aiding it (Fraser and MacRae, 2011). For example, converting a wildflower meadow into a field crop or lawn might not necessarily be the most obvious act of harm towards nonhuman species. However, this act will take away the nesting sites of many species, or deprive pollinating insects of the flowers they need to feed on (Goulson, 2013; vanEngelsdorp, 2008). Thus, the destruction caused by humans is not always spectacular and shocking, but can occur through seemingly mundane acts of harm that collectively accumulate in extensive suffering. Nonhuman harm can also occur indirectly: the heating of the Earth, resulting in the melting of ice caps and the displacement or endangerment of Arctic species, has developed from factors that appear far-removed from the Arctic, such as the cutting down of rainforests or extraction of fossil fuels. Thus, the links between our behaviour and the endangerment of species are not always necessarily clear or even easily traceable. Yet, whether or not it is intentionally caused, animal suffering is a deeply present factor in the workings of human society. The varied avenues through which this suffering has been - and is - inflicted on other species has acted as a catalyst for the mass extinction known to be occurring today.

2.3.2 Responding to Loss: The Emergence of Extinction Studies

Examining the current rates of nonhuman extinction today, one might be forgiven for believing that few people show care towards lost or dying species. Mercifully, this would be a belief that is far from the truth. Whilst human action plays a central role in the current mass extinction, there is also evidence of substantial resistance to nonhuman suffering. As Rose, van Dooren, and Chrulew (2017, p. 2) reflect:

Scientists count creatures, tag them, relocate them to safer ground. Committed groups of all sorts, moved by the plight of a fellow being, work to protect the living and to slow the course of extinction. Many people query their own ethics and seek to live with less dire impact.

Thus, the world is alive with stories of individuals who have dedicated their lives to protecting the worlds of particular nonhuman species, and who have advocated for others to do the same (Heise, 2016). These stories of resistance are rooted not only in people's capacity to value nonhuman lives, but also to feel genuine care and sorrow for them. As recent literature shows, as we enter further into what E. O. Wilson (2003, p. 77) famously terms the "age of loneliness" there is a growing sense that people are beginning to grapple with experiences of ecological grief. The growing attention being paid to this phenomenon of ecological grief - a grief which is rooted in the pain of witnessing ecological catastrophes and losses - speaks to the trauma that can accompany knowledge of the ecological harm being inflicted on the world (see: Vince, 2020; Pihkala, 2020; Cunsolo and Landman, 2017; Kevorkian, 2004). Simultaneously, and perhaps more hopefully, the attention proffered to increasing experiences of ecological grief also speaks to the care and sympathy that the witnessing of ecological pain inspires in people. Thus, it speaks to a part of human nature and experience that is distinct from our role as perpetrators of ecological harm. Whilst humans - in a broad sense - may be implicated in extinction as drivers of loss, we also have the capacity to grieve, to care, and, fundamentally, to engage in acts of protection for nonhuman lives.

A story which speaks to the multifaceted way that humans are involved in both the driving and resisting of nonhuman species loss was written by the renowned ecofeminist Val Plumwood (2002, pp. 13-14). In the 1990s Plumwood was living in a cabin along the Bass Strait coast of Tasmania. Each day she used to walk along the shoreline, and each day she would come across the bodies of dead Fairy Penguins. When she was young these penguins could be seen in abundance, but by the 1990s their numbers had started to significantly reduce. She recalls how many of the deaths were due to dogs - wild and domestic - that roamed the beaches at night. However, she would soon come to learn that there was also a less visible but perhaps even more grave reason for the deaths of these penguins. Plumwood evokes the memory of witnessing a penguin wash up on the shore in front of her, perfectly intact but apparently lifeless. She describes weeping, knowing that this penguin could not have been killed by dogs.

Grieving for the seemingly wasted life, Plumwood (2002) carried the penguin home and, once she had tried unsuccessfully to resuscitate the penguin, decided to get a vet to conduct an autopsy. Through her investigation, Plumwood discovered that the cause of death was actually starvation. After some time and further investigation she discovered that the starvation of these penguins was being caused by the depletion of their food source through fishing. This knowledge evoked grief in Plumwood, who mourned for the era during her childhood when these Fairy Penguins were a common sight. However, Plumwood's sorrow was not only induced by this raw and direct experience of loss, but also by the implicit knowledge that similar losses were being reproduced

worldwide. Following this incident with the penguin Plumwood rang the relevant governmental body to try and address the issue, a strategy which was sadly soon discontinued by her serious illness. Plumwood (ibid, pp. 13-14) tells her readers that even years after this incident occurred her grief is still triggered by the memory of that time, and she mourns “not only for those lost penguins but for the other accelerating losses in the larger narrative of human rule of the earth”.

Val Plumwood’s (2002, pp. 13-14) journey to try and save these penguins was sadly brought to a close by her personal circumstances. However, Plumwood’s attempt to both save that individual penguin and protect other penguins from a similar fate is only one example of an act of resistance to loss. Indeed, it is an act which has, time and time again, been replicated by others. As we enter into the sixth global mass extinction, humans are inserting themselves into processes of loss in myriad and varied ways: volunteering for conservation groups, tracking population numbers in scientific fieldwork, and marching in extinction protests. Thus, in a world where the scale of loss can be overwhelming - enough to leave one “doubled up in pain” (Confino, 2014) - there remains an astonishing amount of hope, care, and resistance to loss. As Rose, van Dooren, and Chrulew (2017, p. 2) point out, the devastating and crushing reality of extinction means that it is all the more astounding that “along with sadness there is hope, along with seeming inevitability there is resistance”. Humans are therefore implicated in extinction processes in rich and varied ways, and are as likely to assume the role of resistor as they are of perpetrator.

The knowledge that humans are involved with extinction events in complex and multifaceted ways points to the further understanding that extinction events are never generic or standardised procedures of loss. Rather, extinction events are messy, complex, and inherently biocultural: entangled with innumerable social, cultural, and ecological factors. This, in turn, means that each process of nonhuman species loss will have a unique relationship with the wider cultural, ecological, and biological landscape. It is from this knowledge that the extinction studies approach was born. More precisely, extinction studies emerges from the shared conviction¹⁸ that there is “no singular phenomenon of extinction; rather, extinction is experienced, resisted, measured, enunciated, performed, and narrated in a variety of ways to which we must attend” (Rose, van Dooren, and Chrulew, 2017, pp. 2-3). The extinction studies approach, which is most clearly outlined in the introductory chapter to the volume *Extinction Studies: Stories of Time, Death and Generations*, thus proposes the need to produce detailed studies which explore specific processes of loss (Rose, van Dooren, and Chrulew, 2017). As detailed in section 1.1, it is therefore suggested that we might seek

¹⁸ This shared conviction was established during the collaborative discussions of the Extinction Studies Working Group, which brings together scholars from across the environmental humanities who study extinction processes.

to tell extinction stories which draw on literature from across the humanities and beyond to provide narrative-based studies which explore the lives and losses of nonhuman species. Specifically, these stories seek to develop rich and lively studies of extinction processes: asking what a particular extinction means, why it matters, and to whom. Thus, work produced under an extinction studies lens does not seek to study an abstract concept of extinction. Rather, each extinction story is committed to investigating a particular extinction case.

It is explicitly acknowledged by Rose, van Dooren, and Chrulew (2017) that extinction studies stories are never neutral accounts; along with offering rich descriptions of processes of loss, extinction stories are necessarily involved with ethical and political questions. Indeed, an engagement with stories of nonhuman loss inevitably leads to entanglement with circumstances, practices, and spaces causing the diminishment or suffering of nonhuman species. Thus, extinction stories must necessarily navigate complex questions regarding the grave challenges and responsibilities which extinction forces us to confront. Ultimately, therefore, through bearing witness to the lives and deaths of nonhuman species, extinction stories open up questions regarding our place in and our responsibility for a world defined by loss. In doing so, extinction stories contribute to a body of work which seeks to configure how we might actively and maturely respond to extinction crises.

In line with an environmental humanities perspective, the stories presented through an extinction studies framework are distinctly interdisciplinary. Rose, van Dooren, and Chrulew (2017, p. 3) emphasise that extinction stories will draw on “fieldwork, historical research, and/or cultural analysis, in combination with an engagement with biological and ecological literatures, to explore a particular species and its relationships with a larger, multispecies world”. Extinction studies embraces the coalescence of different knowledges and perspectives to create a singular narrative. In a similar vein of thinking, it is stressed by Rose, van Dooren, and Chrulew (2017, p. 4) that extinction stories also draw on less formalised, non-academic knowledge. These more individual or personal knowledges are “evaluated not only for what they teach us, but also for the particular political and technical architectures of framing within which they are produced” (ibid). Thus, extinction stories might stitch together a rich tapestry of experience and voice to produce narratives which attest to the intricacies - and struggles - of other worlds. In light of this emphasis on bringing together varied experiences and events into one narrative, the extinction studies genre insists on a broad notion of what a story could entail. Stories are not simply about relating a series of events in chronological order. Rather, extinction stories focus on considering how different events and experiences might be rendered meaningful in relation to one another (van Dooren and Rose, 2012).

The extinction studies approach is not unique in its quest to tell considered and meaningful stories of nonhuman lives. In the introduction to the volume *Extinction Studies: Stories of Time, Death, and Generations* it is recognised by Rose, van Dooren, and Chrulew (2017) that the extinction studies genre has grown alongside an increased focus on nonhuman species from across the social sciences and humanities (see: van Dooren and Rose, 2016; van Dooren, Kirksey, and Münster, 2016; Lorimer and Driessen, 2014; Kirksey and Helmreich, 2010; Kohn, 2007). These emerging conversations are collectively seeking to push nonhuman species life into the foreground of academic thought. For instance, there has recently emerged an ethnographic approach termed multispecies ethnography, in which the animals, plants, fungi, and microbes that were “once confined in anthropological accounts to the realm of *zoe* or “bare life”—that which is killable—have [sic] started to appear alongside humans in the realm of *bios*, with legibly biographical and political lives [italics in original]” (Kirksey and Helmreich, 2010, p. 545). Extinction studies is certainly a related field of research, working to foreground the experiences of nonhuman lives in academic thought. However, it is stressed by Rose, van Dooren, and Chrulew (2017) that extinction studies differentiates from these other modes of multispecies study by its explicit focus on narrating and responding to processes of loss: the stories produced under this framework specifically study the dead or dying, considering how both individual lives and entire ways of life are threatened.

As I make clear in my introductory chapter, the extinction studies approach is still a new and relatively unexplored genre of researching and writing. As such, the approach is only fully developed and outlined in the aforementioned volume *Extinction Studies: Stories of Time, Death and Generations* (see: Rose, van Dooren, and Chrulew, 2017). This volume is made up of a collection of extinction studies stories which follow the line of thinking proposed by the extinction studies approach. Accordingly, and at this time, there has been little adaptation, if any, of an extinction studies text into a full-length thesis. Thus, in adopting an extinction studies mode of thinking, I found it useful to somewhat adapt the original aims of extinction studies to accommodate for the breadth and length of a PhD thesis. For instance, it is suggested that extinction studies stories might begin with a specific case of extinction, either focusing on a single species or a single case of loss. Yet, my extinction studies story - in its study of the decline of all bee species - veers away from the specificity of focusing on a single case of loss or particular species. This choice is primarily grounded in the fact that the extinction story I tell considers how the loss of bees - as a collective group of species - has become narrated and shaped through the voices of creative practitioners; as I detail in chapter one, creative responses to the loss of bees do not necessarily differentiate between bee species or seek to only respond to the loss of one particular species of bee. As such, I reflect this non-distinction within my own work. This choice also responds to the understanding that the depth which is

possible to achieve in a thesis length project allows for a multitude of different case studies to be combined into a single extinction studies story. Hence, whilst I embrace this innovative approach in my thesis, I also adapt it to suit the requirements of a PhD length project.

2.4 Culture, Creativity, and Ecology: The Environmental Arts

During the initial stages of my investigation into responses to the decline of bees my attention was caught by the rich variety of creative projects they inspired (see: Rigby, 2019; Swan, 2017; Burnside, 2015; Moore and Kosut, 2014). These bee-inspired creative projects led me to interweave the extinction story I tell with a specific examination of the experiences, intentions, and impacts of creative practitioners. Subsequently, the extinction story told through this thesis not only studies bees' lives and, indeed, deaths, but also speaks to wider debates regarding the role of creativity in responding to and shaping extinction crises. The following section therefore contextualises this focus, providing insight into both the history of environmental arts movements and contemporary environmental arts.

In December 2018 the artist Olafur Eliasson, in collaboration with geologist Minik Rosing, transported 30 blocks of glacial ice from near Greenland to a square of land outside the Tate Modern¹⁹ in London. His message:

It is clear that we have only a short period of time to limit the extreme effects of climate change. By enabling people to experience and actually touch the blocks of ice in this project, I hope we will connect people to their surroundings in a deeper way and inspire radical change. We must recognise that together we have the power to take individual actions and to push for systemic change. Let's transform climate knowledge into climate action (Eliasson, 2018 cited in Julie's Bicycle, 2019).

Olafur Eliasson's work, whilst no doubt innovative, is indicative of the growing trend for making art with an environmental message. Olafur Eliasson is now one of many environmental artists seeking to use their practices to narrate and challenge current ecological disasters. As Andrew Brown (2014, p. 6) summarises:

Once an area of interest for a relatively small group of people, art that addresses environmental issues has in the last five years become part of the artistic mainstream.

¹⁹ The Tate Modern is a gallery in London that showcases contemporary art.

International exhibitions, conferences and festivals on ecological themes are announced on a more and more frequent basis; artists of all kinds are being commissioned in ever greater numbers to explore humankind's impact on the planet; and the volume of articles and papers devoted to the subject - in both the popular and specialist press - is growing rapidly. From being a peripheral activity, art that seeks to ask searching questions about the environment is now firmly centre stage, at once responding to and shaping debates in broader society.

Thus, creative projects which seek to respond to environmental concerns no longer deviate from the mainstream, having been pushed to the forefront of recent artistic trends. This current era is a time in which the environmental artist does not operate through a lone voice, but is joined and supported by a rich landscape of environmentally-focused creative projects. As such, not only is the environmental arts scene growing and diversifying, but the role that creative projects might play in transforming ecological issues is under increasing debate (Brown, 2014; Curtis, Reid, and Reeve, 2014; Gevers, 2013). Consequently, the creative arts scene is increasingly being reckoned with as a sphere through which environmental issues are not only narrated, but potentially transformed.

Environmentally-inspired creative projects are not, however, an entirely contemporary phenomenon. The work of creative practitioners such as Olafur Eliasson, whilst both responding to contemporary environmental problems and indicative of the growing popularity of environmentally-focused projects, is built on a rich history of people using their artistic and creative skills to reflect upon matters of environmental concern. In tracing this history, one might begin with an examination of the late 1700s and 1800s, a time which corresponds with the rapid growth of industrialisation. It was during these two centuries that artistic interest in the depiction of landscape and natural environments grew. For instance, a notable trend that gained significant prominence in the British art scene during this era centred around picturesque scenes of natural landscapes. This artistic trend - famously dubbed the picturesque movement by both writer-cum-artist William Gilpin and writer Uvedale Price - has since been linked to developments in British conservation movements. For instance, Fiona Reynolds (2016) examples how the writings and artworks of John Ruskin, a leading art critic, watercolourist, and philanthropist of the Victorian era, were a key influence on those individuals that first established the National Trust²⁰. Furthermore, a fundamental reason for the establishment of national parks in the UK is that British landscapes and environments were considered as culturally valuable, a value that was in part derived from the concurrent artistic trend for picturesque scenes of natural landscapes (Reynolds, 2016; Callicott, 2008). Indeed, Carlson (2010) suggests that the influence of aesthetic depictions of the British countryside on both early

²⁰ The National Trust is a UK-based organisation that protects places of environmental or cultural significance.

and contemporary environmental movements cannot be overestimated. Whilst this artistic movement was fundamentally focused on the preservation of typically British environments, as opposed to challenging global environmental changes, it represents how artistic exploration of environmental ideology has been present from the earliest conception of popular environmental thought.

Despite the long tradition of artists finding inspiration in nature, it is typically suggested that the modern environmental arts movement began to truly gain traction during the latter half of the twentieth century, specifically during the 1960s. It was during this era that there began to emerge a genre of art which focused specifically on drawing attention to humans' relationship with the Earth (Brady, 2007). This early phase of environmental art, which is sometimes referred to as land art, was influenced by wider trends in eco-consciousness at this time, which were being inspired by figures such as Rachel Carson (Brown, 2014). Brady (2007) details how this emerging genre was primarily marked by the artist Robert Smithson's show *Earthworks* at New York's Dwan Gallery, as well as the first solo shows of the artists Richard Long and Giuseppe Penone in Europe. Brady's (ibid) identification of the 1960s as the time when environmental art began to actively emerge as a distinct creative genre is also suggested by Tufnell (2006). Tufnell (ibid), who suggests that there are three distinct phases in the modern environmental arts movement, proposes that the late 1960s to the end of the 1970s identifies the first phase of this creative movement. Tufnell (ibid) contends that this first phase, which served to establish and popularise this creative genre, is characterised by innovative moves towards deeper artistic explorations of the relationship between the Earth, nature, and humans.

The late 1970s to the late 1980s is proposed to mark the second phase. Tufnell (2006, p. 122) argues that this is "when the social and political possibilities of this new mode of engagement with landscape and nature were revealed, and the emphasis shifted from the predominantly formal and conceptual concerns of the first generation to the articulation of environmental frameworks". Essentially, this was when environmental arts began to more broadly engage with social and political issues. A significant artist working in this era was Joseph Beuys, who is famed for grounding his extensively produced work in anthroposophical and philosophical concepts. Beuys used his work, which he labelled social sculpture, to spark debates regarding social, environmental, and political matters. Tufnell (ibid) cites Beuys *7,000 Oaks* project, which involved planting 7,000 oak trees in the city of Kassel, as emblematic of a phase in which environmental art came into conversation with wider social and political debates.

The third of Tufnell's (2006) phases is characterised by a shift towards the majority of environmental artists using their creative practices to directly engage with contemporary environmental and social issues. This phase, which is said to have begun in the 1990s, "has seen a more direct engagement with environmental issues and a re-examination of the relationships between art, society, and the environment" (Thornes, 2008, p. 404). Tufnell (2006, p. 94) suggests that within this particular phase of the environmental arts movement "it is perhaps possible to identify three principle creative strategies". First, artistic practice began to offer "a commentary upon environmental issues and 'creative solutions' to the problems perceived there", second, artists started to offer "symbolic warnings and poetic meditations on the present state of affairs", and, finally, people started to use their art as a way of "simply bearing witness" (ibid). Fundamentally, driven by growing knowledge regarding the changing climate and associated environmental problems, environmental art started to take on ethical positions in connection to the human relationship with nature. An artist whose work is emblematic of this third phase is the practitioner Andy Goldsworthy, who is well-known for creating sculptures out of the natural materials of landscapes and environments. Goldsworthy's practice explores themes of decay, destruction, and loss, with many of his works characterised by their temporal quality (Thornes, 2008). Another significant artist who began working in this third phase of environmental art is Olafur Eliasson, who is famed for questioning "the relationships between society and nature with open installations that awaken the audience to see themselves seeing everyday parts of nature and not take them for granted" (ibid, p. 404). Essentially, this third phase in environmental art is exemplified by the inherent association of environmental arts with questions of society, politics, and ecological instability.

In the mid-2000s, when Tufnell (2006) was writing, he suggested that this third phase was also the current phase in environmental art. At the time, this was no doubt true. However, I propose that the most recent decade has also taken on another phase in environmental art: a potential fourth phase. This is a phase which is characterised by similar creative strategies and goals, but which is also defined by the unprecedented surge of creative practitioners working with environmental topics: commenting on, warning of, and bearing witness to the global environmental crises of the contemporary era. As aforementioned, in recent years art which tackles environmental concerns, art which previously appeared only on the margins, is beginning to take centre stage (Shaw, 2016; Demos, 2016; Brown, 2014). Moreover, environmentally-focused creative projects have begun to take on a new sense of urgency, triggered through the growing public consciousness that we are living in an environmentally degraded age. Indeed, as figures such as Greta Thunberg²¹ and

²¹ Greta Thunberg is a young Swedish activist who, since 2018, has inspired global strikes in aid of climate change.

movements such as Extinction Rebellion²² help mainstream environmental narratives, there has emerged a new generation of thinkers and creative practitioners who are using their practices in environmentally-focused ways. The growing popularity of environmental art can be witnessed through the increase of environmentally-focused exhibitions in recent years. For example, from November 2019 to February 2020 the Royal Academy of Art presented an exhibition called *Eco-Visionaries*²³, and since 2018 Somerset House has celebrated Earth Day²⁴ by exhibiting the creations of artists and designers working with environmental topics. I therefore suggest that my proposed fourth and most recent phase of environmental art can ultimately be characterised by the mainstreaming of environmentally-focused creative projects.

In response to the recent influx of environmentally-focused creative projects, the role that creativity and arts-based practices might play in reshaping environmental crises is being questioned more than ever (see: Burke, Ockwell, and Whitmarsh, 2018; van Dooren, Kirksey, and Münster, 2016; Davis and Turpin, 2015). Broadly and fundamentally, current literature on this topic emphasises support for the arts in this time of ecological instability (see: Ballard, 2017; Barr, 2017; Rathwell and Armitage, 2016; Morton, 2016; Davis and Turpin, 2015; Milbrandt, 2010). The position of this body of work is summarised well by Alison Tickell (2018, p. 4) who, as part of a report for Arts Council England, writes that “arts and culture can intervene, disrupt, generate new knowledge and foster cultural practice that illuminates pathways through the complexities of climate and the environment”. Thus, the environmental arts, whilst no doubt subject to some criticism and controversy, has been broadly posited as an important avenue through which to communicate, understand, and challenge environmental crises. Yet, despite the growing and generally supportive attention shown towards environmental art, it has also been explicitly recognised that we need to keep expanding studies of what creativity can do for environmental challenges (Burke, Ockwell, and Whitmarsh, 2018; Hulme, 2011). This is because, in reflection of how environmental narratives are constantly and rapidly shifting across contemporary culture, the environmental arts is a continuously moving, dynamic area of the creative arts; environmentally-focused creative projects - novels, albums, paintings, and installations alike - have become a key area through which environmental concerns are grappled with and experienced (Inwood et al., 2017; Shaw, 2016; Neal, 2015). This is, of course, what makes this current era of environmental art so stimulating to study. It is a topic which is calling for greater

²² Extinction Rebellion is a community that leads non-violent protests against current extinction and environmental crises. Since its conception in 2018 the community has inspired a global following, and become one of the most famous environmental movements in recent years.

²³ *Eco-Visionaries* brought together artists working directly with environmental topics to produce an exhibition which explored humankind’s damaging impact on the planet.

²⁴ Earth Day, which first began in 1970, is celebrated annually on April 22nd. The primary purpose of Earth Day is to celebrate the planet and demonstrate support for global environmental action.

and continued investigation: investigations which might seek to play catch-up with this ever-changing and shifting area of environmental thought, examination, and, potentially, transformation.

This thesis thus takes up the call for greater and continued studies into the role of the creative arts in responding to environmental issues. Yet, it does so by focusing attention upon the role of the creative arts in responding to a specific category of environmental crisis: that of nonhuman loss. This is an area of environmental arts which has received less meaningful academic attention than, for example, creative work inspired by climate change. However, extinction-inspired creative projects have swelled in popularity in recent years. For example, in 2017 a children's book was published titled *The Lost Words*. This book, written and illustrated by Robert Macfarlane and Jackie Morris (2017), uses creative methods of fine art and acrostic poetry to keep the language of animals and plants alive. It is written in the opening to the book that one day the words of the natural world started to slip away, until they all but disappeared. It is further written that the book is therefore a spellbook, which can be used to conjure back these lost words. The poems and artwork created for the book are therefore intended to foster a love of the natural world in younger generations, thereby ensuring that knowledge of the natural world will continue to be reproduced, valued, and protected. The book does not explicitly comment upon the material extinction of nonhuman species, but rather the extinction of the language related to them. However, it is suggestive of the idea that, along with the extinction of the language of nonhuman species is also the potential for the extinction of the lives themselves. Although this is a book for children, its message and influence as both a literary and artistic response to loss has been remarkably powerful; there was, for example, an online campaign which led to every primary school in Scotland having a copy of the book (Barkham and Flood, 2018). This book is only one example of an extinction-inspired creative project. However, as an example it gives insight into the breadth and diversity of current creative projects which consider nonhuman species loss. Furthermore, it points to the absolute significance of these creative works for literally keeping alive the language of the nonhuman world in an age of extinction. The academic works which do consider extinction-inspired creative projects have, like broader literature on the topic of environmental arts, advocated for the arts potential as an avenue through which to engage with extinction crises. For instance, when considering creative works inspired by extinction, van Dooren, Kirksey, and Münster (2016, p. 1) suggest that:

Artists have [...] become core participants in scholarly projects that question conventional approaches to speaking for Nature, exploring opportunities for immersion in the lives of others. Rather than limiting themselves to producing the monograph or the essay, artists have long generated multimedia installations and performative interventions to bring attention to animals, plants, fungi, and others at the periphery of anthropocentric worlds.

It is therefore suggested that artists can provide an opportunity to bring their audiences into deeper connection with those nonhuman species whose lives have become ever more precarious in the sixth mass extinction. In a similar vein of thought, Barr (2017, p. 221) suggests that ecologically-inspired elegiac artworks might offer “a new and often horrible view - one that might make us feel in such a way that we cannot help but act to prevent the apocalyptic visions we are seeing”. Thus, Barr suggests that creativity is fundamental for inspiring action. My work therefore follows on from the claims of van Dooren, Kirksey, and Münster (2016) and Barr (2017) by explicitly considering this important, yet comparatively underexamined, area of environmental arts²⁵. Specifically, my investigation into the story of the bee decline further offers the opportunity to capture a moment in time in which creative practitioners are demonstrating how their creative skills and interests might play a role in transforming processes of extinction. Thus, through telling this extinction story, I am presented with the chance to comment and build on debates regarding the significance of the creative arts in an ecologically damaged world.

2.5 Conclusion

The primary purpose of this chapter was to contextualise my research, outlining the theories and studies which have inspired my own investigation. Thus, the chapter reflected back through time, tracing the academic developments which have given rise to both the environmental humanities perspective and its sub-genre of extinction studies. In light of my research focus on the work and stories of creative practitioners, this chapter also provided insight into both the history of the modern environmental arts movement, and the current debates associated with the works of environmentally-focused creative practitioners.

However, this chapter did not merely offer insight into the academic studies and theories which inspired my research. In examining the literature which proceeds this work, this chapter also offered insight into how the human relationship with the Earth - a fraught, complex, and extensively varied relationship - has shifted over time, and in such a direction that the contemporary era has become one which is characterised by environmental damage. Indeed, whilst studies rooted in both the

²⁵ Whilst I suggest that studies of extinction-inspired creative projects are currently comparatively underexamined, I would also suggest that this is an area of investigation that is beginning to see increasing attention. For instance, the Arts and Humanities Research Council is currently funding a project called ‘Thinking through Extinction’. This project brings together researchers and artists to investigate how people imagine and understand extinction, as well as the role of museums and galleries in shaping these engagements.

environmental humanities discipline and extinction studies genre are grounded within a particular academic style - one which is inherently qualitative, interdisciplinary, and accountable - they are also responding to a very tangible, corporeal world alongside a distinct set of experiences defined by environmental loss and degradation. Thus, whilst texts rooted in these two approaches have an academic purpose, they also have the dual purpose of narrating, grappling with, and accounting for genuine realities: a purpose which I remain conscientious of throughout my thesis. In a similar way, my examination of current debates around environmentally-inspired creative projects pays heed to how, as we enter further into an era of environmental loss, people are seeking to question and narrate environmental concerns in novel and diverse ways. As such, whilst works engaging with debates around the environmental arts are partly academic studies, they are equally narrations of people's genuine need to creatively and imaginatively engage with the fear-inducing environmental crises we face today. Fundamentally, therefore, whilst the central aim of this chapter was to outline how my work builds on current debates and theoretical perspectives, it was also my aim to show how this thesis - and the extinction story I tell throughout it - is very much borne in response to, and indeed situated within, a world where environmental matters are becoming more urgent, more felt, and more debated than ever before.

3 The Research Process: Methodology, Methods, Analysis, and Ethics

3.1 Introduction

In examining how creative practitioners are engaging with the ongoing loss of bees this thesis documents a story which is unfolding *here* and *now*. I therefore had the opportunity to conduct first-hand research with individuals that have, in myriad ways, shaped the story I tell through this work. In light of this, my thesis draws extensively on empirical data which I gathered over the course of my research. My extensive use of empirical data means that it is crucial to outline both my methodological approach and my methods, clarifying how they helped answer the research questions which this thesis investigates. This chapter therefore presents the methodological approach used to guide this thesis, as well as the methods I used and the factors I considered in the gathering of the empirical data associated with this work.

The first section of this chapter specifically studies my methodological approach. This section opens with an introduction of the specific methodology I use, which is called narrative methodology. I examine the principle features of narrative methodology, the debates associated with the use of the methodology, and my specific application of it. I link my use of narrative methodology with my decision to root my work within the extinction studies genre, outlining how both approaches complement the use of each other. The next section of this chapter outlines the methods used to generate my data, these being semi-structured interviews and participant observations. I illustrate how the chosen methods adhere to both the guidelines of narrative methodology and the writing of an extinction studies text. I dedicate another section to describing how I analysed the data I gathered through my various research methods. This chapter ends with a section on the ethics of my work, in which I outline how my work complies with all ethical guidelines.

3.2 Methodology

This PhD project is inherently interdisciplinary. Working with one supervisor in the University of York's department of Theatre, Film, Television and Interactive Media and another in the University of Sheffield's Business Management department, combined with my own anthropological background, meant that from the very beginning this PhD project was formed through interdisciplinary collaborations. Perhaps in reaction to this inherent interdisciplinarity, I quickly made the decision to ground my research in the discipline known as environmental humanities and, as a direct consequence of this, the sub-genre of extinction studies. This decision to ground my research within the environmental humanities, and subsequently to embrace an extinction studies approach, is what ultimately inspired me to pursue narrative methodology. My initial interest in adopting a narrative methodological approach stemmed from the clear emphasis placed on narrative forms across environmental humanities literature. As Little (2017, p. 4) writes, despite a wide diversity in their subjects, theories, and specific methods, the disciplines that make up the environmental humanities are "connected by their focus on analysing different forms of narrative, or story: it is the centrality of narrative and its critique which has perhaps the greatest potential to bring the environmental humanities together as a body of scholarship". However, my choice to embrace a narrative approach to research was firmly established by my decision to respond to calls across environmental humanities literature for the writing of extinction stories, and thus to embrace an extinction studies approach (see: Rose, van Dooren, and Chrulew, 2017; van Dooren, 2014). In determining the specific approach I would take to the telling of an extinction studies story, it became evident that the focus of my research - in which I intended to examine both the overarching story of the loss of bees and the stories of individuals who have actively become entangled with this process of loss - would be complemented by a narrative methodological approach. Hence, I began to fully investigate narrative methodology, and established that it indeed spoke to the aims and intentions I had for my research.

The narrative approach can be understood in its simplest definition as the study of stories. More expansively, this methodology is concerned with the capturing and telling of informants' stories through qualitative-based research methods (Mitchell and Egudo, 2003). Thus, narrative research is predominantly concerned with the experiences of individuals, which are expressed to the researcher either in lived or told stories (Creswell, 2013). Hinchman and Hinchman (1997, p. xvi) propose the following definition:

Narratives (stories) in the human sciences should be defined provisionally as discourses with a clear sequential order that connect events in a meaningful way for a definite audience and thus offer insights about the world and/or people's experiences of it.

Therefore, at the heart of narrative methodology is the understanding that stories help organise the complexity of human experience and real-world events into a meaningful pattern, which further allows for these experiences and events to be more easily examined and analysed (Moen, 2006).

The stories generated through narrative research are generally rich in detail, open-ended, and rooted in participants' personal narration of a particular experience or situation. It is therefore suggested that narrative research is most suitable for the researcher that is aiming to capture a "real picture of reality, of life as it exists in time and space" (Neisser, 1976, p. 2). Andrews, Squire, and Tamboukou (2013) likewise suggest that narrative inquiry proves especially useful for those that are seeking to meaningfully describe, comprehend, and explain specific, typically human experiences. As such, narrative does not necessarily offer definitive or irrefutable arguments, and is not suitable for those seeking to obtain highly structured, statistical, and firmly conclusive data (Watkins-Goffman, 2006). Rather, narrative research is best placed to meaningfully contribute to ongoing debates and conversations regarding real-world experiences. This is a quality that is commonly shared across qualitative research methodologies - as contended by Geertz (1973 cited in Buchanan, 1992, p. 133), "progress in qualitative research is [...] marked less by a perfection of consensus than by a refinement in the debate".

Narrative methodology contains a number of key features that the narrative researcher should bear in mind. Helpfully, Creswell (2013, pp. 71-72) offers a succinctly defined list of the key features of narrative research. Whilst Creswell (*ibid*) stresses that not all narrative research needs to follow all of these key defining aspects, it will likely incorporate most of them. Hence, these definitions were used as a guideline for the research conducted for this thesis. First, narrative researchers seek to collect stories from individual participants. These stories can emerge in several ways, but will normally be generated from interactions between the participant and the researcher. Second, narrative stories focus on either lived or told experiences in relation to a specific topic, experience, or situation. This project, for example, studies the stories of individuals that are using creative methods to interact with the story of the bee decline. Third, narrative data is collected through numerous qualitative-based research methods. These include, but are not limited to, interviews, participant observations, written experiences, or image analysis. Fourth, narrative stories tend to be organised by researchers into a chronological order. Either they are generated in such a way that they follow a chronological pattern, or in the analysis stage of the project the researcher will sort the stories they have gathered into a reasonably chronological order. Fifth, narrative stories are typically analysed in one of several core ways. As Riessman (2008 cited in Creswell, 2013, p. 72) tells us, analysis "can be made about what was said (thematically), the nature of the story (structural), or who the story is directed towards (dialogic/performance)". The specific aims of the research will

determine which approach the researcher pursues in analysing their data. For instance, in this work I adopt a thematic approach to analysis, focusing most closely on *what* was said. Sixth, narrative stories tend to include a focus on a particular tension or shared experience. Denzin (1989 cited in Creswell, 2013, p. 72) refers to this as a turning point. In this research, this turning point centres around my participants' shared experience of actively responding to the loss of bees through their work. Finally, narrative stories often consider experiences which are connected to specific places or situations. Accordingly, this thesis focuses on contemporary creative practitioners currently living and working in the UK, and who have chosen to creatively engage with the situation of bee decline.

In recent years, narrative research has become increasingly popular across social science, arts, and humanities disciplines. This popularity has partially arisen through the innate centrality of stories in much qualitative research, as well as the capacity of narrative to provide rich insight into lived experiences. As Andrews, Squire, and Tamboukou (2013) admit, it often appears that all social science and humanities researchers are conducting narrative research in one way or another. However, the wide use of narrative across different disciplines also means that the specific requirements of conducting narrative research can be deceptively difficult. The narrative researcher has a number of choices to make when employing this methodology, and how to go about successfully conducting narrative research is much debated. Outside of the key features outlined by Creswell (2013, pp. 71-72) there are few well-developed rules regarding how narrative researchers might, for example, obtain their data, input their own experiences into their research, or specifically analyse and use the data they have gathered (Andrews, Squire, and Tamboukou, 2013). Therefore, the exact way one might choose to pursue narrative enquiry will differ according to the requirements of the research project and the individual choices of the researcher. In light of these variations, it is important for any narrative researcher to outline the specifics of how they have chosen to use a narrative approach in their research. As Moen (2006, p. 64) writes, because "the language and criteria for narrative inquiry are still under development [...] each researcher must seek and defend the criteria that best apply to her or his work". As such, I will proceed to outline how I have utilised a narrative research approach.

McAlpine (2016) describes that there are three main methodological stances in narrative research: these are defined as a naturalist, sociocultural, and literary stance. Of these three different potential methodological stances, my work most closely follows a sociocultural methodological stance. The sociocultural approach to conducting narrative research can be understood as descending from ethnography, in which it is the aim of the researcher to self-reflexively and richly describe the social customs, traditions, and perspectives of particular cultural communities. To conduct ethnography researchers will typically immerse themselves in the worlds of those under scrutiny, learning of their

lives and stories through, for example, long-term participant observation or interview techniques (Hammersley and Atkinson, 2007). Similarly to ethnography, the sociocultural narrative approach seeks to gather individual stories as a way of ascertaining broader social and cultural knowledge. However, unlike a traditionally ethnographic approach, the sociocultural narrative approach aims to gather stories around a specific shared experience or situation, as opposed to a more general but rich description of the traditions and customs of a society and culture. A sociocultural narrative approach understands these stories as being a window into both individual experiences, and into the broader cultural and social circumstances which have fed into these experiences. Grbich (2015, p. 2) expands on this, explaining how the assumption in a sociocultural narrative approach is that stories reflect “not only culture, ideology and socialization; they also provide insights into the political and historical climates affecting the story teller’s and the story receiver’s lives - like stones dropped into water, the ripples reach out in ever-increasing circles”. Consequently, although Creswell (2013) suggests that narrative research generally relies on in-depth research with a few select individuals, a sociocultural narrative study would benefit from in-depth research being conducted with a larger number of individuals. Fortunately, on a practical level the breadth and scope of a PhD thesis allows for a wider number of stories to be explored, whilst still allowing the researcher to be attentive to each individual narrative. In this vein of thought, my research draws on what is, for narrative research, a relatively large number of creative practitioners’ stories as a way of obtaining insight into how the threat of the loss of bees has been broadly understood, experienced, and responded to; my participants’ stories not only speak to how individual creative practitioners are interacting with the decline of bees, but collectively provide a window into the wider historical, political, social, and cultural dimensions of the ongoing loss of bees.

Much narrative research focuses on stories which speak to either personal or wider social difficulties. As such, Andrews, Squire, and Tamboukou (2013, p. 5) suggest that many narrative researchers choose to “treat narratives as modes of resistance to existing structures of power”: narrative research is seen as a powerful way of reflecting upon and challenging social situations or personal experiences. In a similar vein of thought, Fraser (2004, p. 182) writes that narrative research “should not only reflect ‘reality’ but also challenge taken-for-granted beliefs, assertions and assumptions”. For example, narrative researchers might draw on written accounts or oral histories from individuals who live within a persecuted minority social group so as to challenge social inequality. This is perhaps even more prominent within sociocultural narrative research, which explicitly seeks to use individual narratives to shed light on to greater social and cultural situations. Indeed, my research is no exception to this rule. By exploring the stories of people who have been motivated to respond to and challenge the threats facing bees, my work simultaneously draws

attention to an ongoing social and ecological crisis, and reflects on how our interactions with threatened nonhuman species are shaped by particular cultural values and beliefs. Additionally, my exploration of the stories of creative practitioners sheds light into how people are seeking to engage with a situation of both ecological and social importance. In doing so, my work offers insight into how people might individually and effectively challenge processes associated with the sixth mass extinction: an event which is as much a matter of society and culture as it is of biology and ecology. Thus, fundamentally, the sociocultural narrative research I undertake examines stories as a way of both reflecting on and challenging wider social, cultural, and, in this case, ecological circumstances.

As previously mentioned, my decision to conduct sociocultural narrative research was heavily informed by my separate yet related decision to explore the recent genre of extinction studies through my work. The principle reason these two approaches complement the use of each other centres around how, as a genre of researching and writing, extinction studies emphasises the study of stories and narratives: stories and narratives which, when brought together, shed light into how specific extinction events are driven, experienced, narrated, and negotiated. As is written by Rose, van Dooren, and Chrulew (2017, p. 3), the aim of an extinction studies text is to provide “a narrative-based engagement that explores what an extinction means, why it matters, and to whom”. Moreover, it is emphasised by Rose, van Dooren, and Chrulew (*ibid*) that the extinction studies researcher might draw on the voices and experiences of individuals with relevant experiences to the broader extinction story they seek to tell. Accordingly, whilst my commitment is to tell an extinction story of the ongoing loss of bees, I tell this story mainly through the voices of those individuals who have creatively interacted with, responded to, and shaped this narrative. Correspondingly, a sociocultural narrative approach to conducting research relies on the researcher gathering together individual stories so as to provide insight into a wider social, cultural, and, in this case, ecological event or situation. Thus, by adopting a sociocultural narrative approach in my research, I pay heed to the extinction studies commitment to the telling and recounting of people’s stories as a way of exploring how crises of nonhuman loss are recognised, responded to, and shaped. Therefore, my decision to write an extinction studies text fed into my decision to pursue sociocultural narrative research.

3.3 Methods

3.3.1 Semi-structured Interviews

The main method I employed to collect data was semi-structured interviews. In a semi-structured interview the interviewer will prepare a range of topics to cover, as well as a guiding set of questions to follow. However, if they feel it is appropriate, the researcher can change the emphasis of the interview by straying from the guided questions. They might, for example, ask the informant to expand on a certain topic, ask them further questions according to their previous responses, or refrain from asking some of the pre-planned questions. Kvale (1983, p. 174) describes how the purpose of a semi-structured interview “is to gather descriptions of the life-world of the interviewee with respect to interpretation of the meaning of the described phenomena”. Accordingly, semi-structured interviews are widely used in the production of qualitative data, as they produce data which is both rich in detail and focused towards the specific topics being studied.

There were a number of reasons behind my choice to employ semi-structured interviews. First, the stories I was able to gather through this method would have been impossible to garner through other formats. Semi-structured interviews enable participants to express their experiences directly through their own voices, naturally offering stories about their lives. This method ensures that the narratives gathered in the research are reflective of the participants personal understandings of their own stories and experiences. Consequently, semi-structured interviews offer the researcher a unique perspective into the experiences of the individual they are studying. Second, conducting semi-structured interviews can expand the scope of the topic that the researcher originally intended to discuss: a semi-structured interview gives the freedom for the conversation to take unplanned directions. As such, semi-structured interviews offer the opportunity for the topic of the research to be partially determined by the interviewees, rather than just the researcher (Alshenqeeti, 2014). Finally, semi-structured interviews allow for the researcher to more naturally engage with the interview dialogue, making the interview setting feel more conversational. As Moen (2006) asserts, the narrative researcher best generates stories by fully participating in the dialogue between them and the individual they are studying. Indeed, the semi-structured interview format helps keep the interview relevant, whilst still allowing for the interview to feel more like a relaxed discussion between two equal participants, as opposed to a formal interrogation. Fundamentally, therefore, semi-structured interviews complement the narrative approach, allowing for personal and richly detailed stories to be generated from the interactions between researcher and participant.

I primarily identified relevant creative practitioners to interview through independent, often internet-based, research into creative practitioners that were exploring the topic of the bee decline through their work. I also identified suitable participants through more serendipitous means. For instance, I met a number of my participants at relevant arts-based events, or by being put in touch with participants through mutual contacts. Identifying suitable participants in such a selective and

conscious way necessarily required me to be mindful of selection bias, which can occur when the researcher has direct control over who will be included in a study (Sartori, 2011). To minimise any potential selection bias impact, I actively sought to reach out to *every* individual I identified that fit my criteria of being UK-based and either having worked on, or currently working on, a creative project inspired by the ongoing loss of bees. Fortunately, as my research studies a relatively specific group of individuals, my rule of contacting every suitable potential participant I came across was both feasible and appropriate. I identified entomologists and beekeepers to interview by reaching out to relevant individuals that I already had a relationship with, either professionally or personally. A number of these contacts were able to put me in touch with further suitable research participants. This allowed me to employ a snowball sampling method, in which initial participants are used to help identify further participants (Elliot et al., 2016).

I contacted each creative practitioner participant individually. This contact tended to be via email because, as a rule, I did not know the participant prior to interviewing them. Every single individual I contacted responded positively, and I conducted interviews with nearly all those I reached out to. The few exceptions tended to be related to issues of timing. I also interviewed a number of creative practitioners that I met through relevant events I was attending and, sometimes, observing for my research. In total I interviewed 24 creative practitioners, although it should be noted that four of these individuals worked on the same theatre project and only participated in a group interview. In some cases I interviewed the participant more than once. This allowed me to follow up on particular aspects of the previous interview, and gain insight into how these participants' creative interests and projects had developed over the course of my research. In addition to my interviews with creative practitioners, I conducted interviews with five entomologists and nine beekeepers. However, as detailed in my introductory chapter, these stories feature less heavily, if at all, in the thesis. Rather, they served to support my broader understanding and helped contextualise the research which followed.

To ensure that I could make detailed and correct transcriptions of the interviews, all of my interviews were audio recorded. I refrained from making video recordings as, first, I tended to meet my interviewees in a public space and, second, being interviewed can make one feel very conspicuous: I wanted my interviewees to feel as relaxed and at ease as possible. The bulk of the interviews I conducted were one-on-one interviews. These took place either in person or, if face to face contact was not possible, over Skype communication. When we met in person I tended to suggest that they choose somewhere to meet. I also normally suggested that they choose somewhere informal and public, such as a café. I wanted my participants to feel safe, comfortable, and at ease with me. In some cases I was invited to the participant's home, although I was careful to

make sure I never initiated this. In interests of my own safety, I would always alert someone as to where I was going and what I was doing. There were only a few meetings which were not conducted as one-on-one interviews. The first exception to this was two of my interviews being conducted as group interviews. The first group interview I conducted was with a married couple who kept bees. In this instance, the group format did not take anything away from the interview process because the interview was extremely in depth and took almost twice as long as the average interview I conducted, which tended to be around an hour long. The other group interview occurred when I interviewed a group of performers. As the interview was set up to take place after my seeing their show, it naturally led to a group interview being conducted. Although the stories that were told to me in the interview were both insightful and relevant, I felt that this interview lacked the in-depth quality of the other interviews I conducted. The second exception to the one-on-one method occurred when one of the creative practitioners I contacted requested that they be able to type out their interview answers via email. This is possibly due to the fact that this creative practitioner is relatively well-known and likely wanted to be fully in control of the information they were offering me. However, the individual in question was of considerable importance to my research and I was particularly eager to include their story in the work. I therefore agreed to this interview format, and did my utmost to write questions that were clear in their meaning and that would encourage detailed answers. However, despite these efforts this interview naturally lacks some of the key qualities of semi-structured interviews.

The key purpose of my interviews was to elicit knowledge about my participants' stories, particularly in connection to their relationship with the topic of the bee decline. I tended to open each interview by asking the participant to tell me about themselves and who they were. Once we had become better acquainted, I then started to ask them more specifically about their interest in bees. I hoped that giving my participants the space to introduce themselves and their stories would help them feel more relaxed, thus making them more willing to talk to me about their personal experiences and reflections. As was expected, the interviews varied in the directions they took, with some participants independently conveying richly detailed stories to me, and others having to be prompted with the set of questions I had prepared. However, generally, I found my participants were very willing to share not only their own life stories, but their thoughts, feelings, and knowledge. Moreover, I found that people tended to naturally convey their stories in a chronological order, allowing me to follow the narrative with relative ease. Thus, overall, I found semi-structured interviews to be a profoundly useful tool for generating rich and insightful qualitative data.

3.3.2 Participant Observations

Although the most commonly used method to conduct research within a narrative framework is through interviewing relevant individuals, it is certainly not the only mode suggested for gathering stories. Stories are all around us: they are built through our actions, decisions, responses, emotions, and conversations. As Connelly and Clandinin (1990, p. 2) write, “humans are storytelling organisms who, individually and collectively, lead storied lives”. Certainly, semi-structured interviews can provide reflective stories, told carefully through the words of those that have lived that story and in dialogue with the researcher. However, some researchers in the narrative field criticise the hegemony of obtaining data through individual interviews (Andrews, Squire, and Tamboukou, 2013). It is suggested that the interview method does not necessarily reflect a natural conversation that might happen outside the more formal environment of an interview setting (Alshenqeeti, 2014). Moreover, interview data relies solely on stories that have been *told* to the researcher, as opposed to stories that have been personally experienced by the researcher. Therefore, I decided to build on my interview research with data gathered through personal observations of experiences and settings relevant to my research questions. Thus, I supplemented my interview data with participant observations.

Traditionally, participant observation was a method associated with ethnography, the methodology that the sociocultural narrative approach most closely descends from. Dewalt and Dewalt (2002, p. 1) define participant observation as a “method in which a researcher takes part in the daily activities, rituals, interactions, and events of a group of people as one of the means of learning the explicit and tacit aspects of their life routines and their culture”. This definition of participant observation suggests it is a method specifically used to gain insights into the workings of a particular cultural group. My use of the participant observation method thus somewhat deviates from this more traditional definition. I employed participant observation to gain insight into particular yet temporary social situations which are connected to my research focus on the decline of bees. To be precise, I conducted participant observations of three distinct situations which centred around the topic of bees: an artist residency, a creative writing weekend, and a beekeeping course²⁶. I immersed myself in these social settings, engaging with the activities, interactions, and experiences that they entailed. My aim in doing so was not, of course, to learn of the workings of a specific cultural

²⁶ I also made observational notes when I was at events or in spaces that were relevant to my research, such as when I sat in on a meeting for a creative event inspired by bees, when I watched a performance inspired by the topic of the bee decline, or when I visited *The Hive* at Kew Gardens. However, these notes tended to be briefer and were predominantly informative. As such, I considered these notes as being solely data records, as opposed to being part of my participant observation data.

community, but to consider what these events revealed about the social, cultural, and - in those spaces with a creative element - creative dimensions of the bee decline. Therefore, whilst I did conduct participant observations, I recognise that I have adapted the method from its original definition.

When conducting participant observations researchers will typically make their written recordings whilst they are still in the setting which they are observing. Accordingly, I always made handwritten notes during the event or course I was observing. However, as I was typically observing spaces which required my full participation and attention to be there, I normally found it difficult to make richly detailed notes at the same time as I was immersing myself in said space. I therefore relied upon 'scratch' notes which I could use later to assist a lengthier write-up. I would create longer and more detailed observations directly after being in the setting or environment I was observing. For example, during my experience attending a two-week artist residency I sat and wrote up detailed and reflective observations at the end of each day, as opposed to during the days itself. Although I was still inhabiting the space I was observing, I was reflecting on events that were not necessarily occurring at the exact same time as I was writing about them. Example excerpts from my participant observation field notes can be viewed in appendix 2.

As is traditional when conducting participant observations, I sought to generate 'thick' description in my observational records. This refers to the process of taking into account "not only the immediate behaviors in which people are engaged but also the contextual and experiential understandings of those behaviors that render the event or action meaningful" (Dawson, 2010, p. 942). The practice of creating thick description is widely observed amongst researchers that are conducting observations as a way of seeking greater insight into a social and cultural phenomenon. As Clifford Geertz (1973, pp. 6-7) writes, to justify claims about the situation one has observed they must be prepared to go beyond merely the descriptive - 'thin' description - and instead be prepared to make inferences about the meaning of the settings, interactions, and actions under observation: 'thick' description. Therefore, my observations not only provided descriptive details about the situations I was observing, but also sought to consider what my observations revealed about the wider story I was telling. I was also careful to practice self-reflexivity, taking note of how my personal feelings and position played into the outcome of my observations.

I supplemented my observations with interviews of other people present or involved in the social setting I was observing. For example, during my time at the artist residency I interviewed all the other creative practitioners that attended the residency, as well as one of the creative practitioners that led the course. I also interviewed two of my fellow students attending the beekeeping course,

as well as the course organiser of the creative writing weekend I attended. I conducted these interviews as a way of gathering another perspective into the observations I had made, thus making the data more reliable.

3.4 Method and Content Analysis

This section outlines the steps I took to analysing and obtaining conclusions from the stories I gathered through my empirical investigations. Analysing one's data can be one of the most daunting tasks which faces the qualitative researcher, for how one might gather and represent the truths they have generated in qualitative data remains an open and debated question (Ellingson, 2009). This can prove particularly daunting for the narrative researcher for, unlike in other methodological approaches, such as grounded theory, narrative research does not offer a single or specific account of how to analyse one's data (Andrews, Squire, and Tamboukou, 2013). This is predominantly because people conduct narrative research in an extensive variety of ways. Fortunately, and as I describe in section 3.2, my own application of narrative methodology, which employs a sociocultural narrative approach, easily chimes best with a thematic approach to analysing data. This analytical approach entails identifying the key themes present in the stories gathered and analysing what these themes - and the data associated with them - reveal about both the individual story and its wider sociocultural context. However, whilst thematic analysis provides a clear pathway for obtaining conclusions from one's data, I believe it pertinent to stress that what one infers from their qualitative data is not - and can never be - a purely objective task²⁷. The role of the researcher is present in all stages of research; the conclusions one draws from their data analysis are no different. Therefore, whilst I accept that, and seek to be self-reflexive of how my own perspectives inevitably influence upon the thematic inferences I draw from my data, I also seek to counteract too heavy an emphasis on my own voice by giving significant space to the raw data within my thesis writing.

I began my analysis by focusing on the interviews with creative practitioners. I had begun partly analysing these interviews during the research stage. As soon as possible after conducting the interviews, I made reflections on the interview experience. These notes recorded details such as the context of the interviews, my relationship with the participant, and any key moments or aspects of the interview I felt were important to highlight. Recording these details gave me a chance to reflect

²⁷ How truly objective the inferences one can make from quantitative data is an equally debated and complex argument.

upon my experience of each interview, and begin to consider the significance of each interview for the wider story I was seeking to construct. Furthermore, as Fraser (2004, p. 186) advocates, writing “notes about the time, place and emotional climates of the interviews might prove useful because they are likely to affect the subsequent interpretations made”. Indeed, although the notes I made were relatively brief, they proved to be of some use in helping me recall the setting and mood of the interview when I came to analyse and interpret the data. The first major step I took to begin analysing this work was to start transcribing the interviews. Example excerpts from my transcripts can be viewed in appendix 3. The transcription process is particularly beneficial for the analysis stage, as it requires the researcher to spend a significant amount of time studying the interview material (ibid, p. 187). This process made me much more familiar with the stories communicated to me during the interviews. Indeed, as I worked through these transcripts I noted the key themes and patterns which were beginning to emerge from the data.

To achieve a thorough understanding of the themes and patterns present across my dataset produced through my interviews with creative practitioners I decided to undertake simple coding. Specifically, I analysed my interview data by undertaking open coding. Open coding refers to the process of identifying key themes - or codes - *during* the process of analysing my data. My other option would have been to take a closed coding approach, which refers to the process of identifying themes *before* the data analysis stage. My decision of whether to do closed or open coding was clear. Whilst I had tailored my interview questions to correspond with my research questions, and therefore had some idea of what themes might emerge from the data, the content of the stories contained within the transcripts was to determine the exact themes that would emerge from the data. As such, through taking an open coding approach I only began to specifically identify the key themes present across the dataset during the transcription process. During the transcription process I identified nine broad themes across the dataset. In my later analysis, in which I would read through the transcripts again and label the data which corresponded with each theme heading, I identified two more key themes, as well as multiple sub-themes.

To proceed with open coding I downloaded the computer programme NVivo. This is a software programme that assists researchers in the analysing of their data by providing a platform on which researchers can upload, sort, code, annotate, and link their data. NVivo does not make any contribution to the actual analysing process (Woolf and Silver, 2017). Rather, it simply provides qualitative researchers with the digital tools to more easily manage large data sets. It is suggested that this allows researchers to conduct a more intellectually rigorous analysis of the data. As described by Bazeley and Jackson (2007, p. 2) the “efficiencies afforded by software release some of the time used to simply ‘manage’ data and allow an increased focus on ways of examining the

meaning of what is recorded". Furthermore, NVivo offers features that allow you to visualise your research in charts and word-clouds, or search for factors such as word frequency in the data. Whilst I did not initially use NVivo for these added and token features, I did find them to be helpful for guiding the conclusions I made from this large dataset.

To use NVivo I began by uploading a list of 'nodes' to the NVivo platform. 'Nodes' are essentially NVivo's term for the virtual space where one gathers material around a specific theme. The list of nodes I created therefore corresponded with the themes I had identified in the data during the transcription process. A screenshot of my NVivo platform can be viewed in figure 1, and a full list of the themes I identified can be viewed in appendix 4. I then imported all my finished transcripts on to the programme as case files. As I read through the typed transcripts I could link sections of the data to specific nodes. This was a thorough process, in which I analysed the data line for line. NVivo was particularly useful for the process of open coding, for it allows you to freely adapt and add to nodes according to the trends that emerge during the analysis stage (Buchanan and Jones, 2010). Indeed, it was during this process that I noted a few more key themes and sub-themes which ran throughout the data. Once I had finished coding the data, I began the process of determining how the data answered my research questions. At this point, I turned to a more old-fashioned process of analysis by using pen and paper to sketch out how the themes identified in the data corresponded with my research questions and potential thesis structure. As I did, I also made handwritten notes which considered the key information, arguments, and stories contained within each individual collection of themed and coded data. In structuring, planning, and writing my final thesis, I drew significantly on both these handwritten notes and the coded datasets saved on NVivo.

Once I had finished my analysis of the creative practitioner interviews, my next step was to begin the analysis of my interviews with entomologists and beekeepers. As, after the completion of these preliminary interviews, I had shifted my research project to focus specifically on the experiences of creative practitioners, these interviews proved less relevant for answering my research questions. As such, I approached the analysis of them differently. As before, I began the process by transcribing the interview recordings. However, I refrained from making full transcripts, and mainly focused on transcribing chunks of the interview which I considered relevant to the thesis. In areas I did not fully transcribe the recording, I made summaries of the topics under discussion. My decision to create part-transcripts was because, although some of the data gathered with these individuals was insightful and useful for my work, much of the information bore little influence upon the arguments of my thesis. Therefore, it proved more helpful to specifically note and record when this data helped shed light into topics I was *already* examining in the thesis. Thus, whilst I proceeded to read through and link this transcript data with any relevant corresponding NVivo node(s) I, importantly, did not

create any new nodes based on this transcript data. For example, one beekeeper told me a story about how a particularly vicious predator of honeybees had been spotted in her hometown. Her recounting of this incident offered a personal perspective into the anxieties associated with the arrival of this particular predator in the UK. Thus, I linked this story as being relevant to the - already created - node titled 'Reasons for Decline'. I had already decided that work linked to this node would be useful for my chapter which details specific reasons for the loss of bee populations. Thus, analysing the transcripts in this way allowed me to easily see where any data contained within them might usefully fit within the overall thesis structure.

I analysed my participant observation field notes in a relatively similar way to my interview data: identifying and noting when the key themes under consideration were present in the dataset. However, I was not required to go through a similarly lengthy transcription process, as I had already typed most of my observations and reflections digitally. I began this process by re-reading through the handwritten notes, making note of anything I considered of interest or significance. I then uploaded the digital, and more detailed, participant observation notes to NVivo, reading through them and linking different sets of the data to the relevant node(s). This allowed me to sort through and identify the key, valuable knowledge contained within the observational transcripts.

The screenshot displays the NVivo 12 Pro software interface. The main window shows a list of nodes with columns for Name, Files, References, Created On, Created By, Modified On, and Modified By. The nodes are listed as follows:

Name	Files	References	Created On	Created By	Modified On	Modified By
Role of creativity in ecology		20	10/06/2019 12:16	RP	21/10/2019 16:07	RP
Reasons for Decline		11	14/06/2019 11:01	RP	20/04/2020 15:44	RP
Personal relationship with bees		20	10/06/2019 12:14	RP	21/04/2020 10:32	RP
Others interest in bees		22	10/06/2019 12:15	RP	20/04/2020 15:44	RP
Motivations for creating work		19	10/06/2019 12:15	RP	20/04/2020 15:44	RP
Indirect, cultural, communicative, impacts		14	10/06/2019 12:15	RP	21/04/2020 10:28	RP
Hope		16	10/06/2019 12:15	RP	20/04/2020 15:42	RP
Feelings of grief and loss		17	10/06/2019 12:16	RP	20/04/2020 15:38	RP
Fears about the future		6	10/06/2019 12:15	RP	20/04/2020 15:37	RP
Direct or Tangible Impacts		10	10/06/2019 12:15	RP	21/04/2020 10:27	RP
Beetime Residency Experiences		6	10/06/2019 12:16	RP	21/04/2020 10:28	RP

Figure 1: Screenshot of NVivo Process (Author's Own Image, Screenshot, 2020).

3.5 Ethics

I gained full ethics approval from the University of York to conduct this research. As the research does not study sensitive or illegal topics, work with vulnerable individuals, require a Criminal Record Bureau [CRB] or Disclosure and Barring Service [DBS] check, or involve deception or invasiveness, it was approved under standard ethics clearance. The dataset produced through this PhD research has been stored in a secure archive in line with the University of York's research data management guidelines.

Each method required me to adhere to different ethical regulations. During my interviews I required every single interview participant to read and sign a consent form, which can be viewed in appendix 5. I also gave all my participants an information sheet, which outlined their rights as a participant. This information was updated throughout the PhD process to reflect the new General Data Protection Regulations that came into force in 2018. Whilst all my participants were given the consent form *before* the interview, there were a number of individuals who preferred to sign the consent form once the interview(s) had been conducted. This was likely due to me giving them the option to either be anonymised or named in the thesis. Traditionally interview participants tend to be automatically anonymised, but I explicitly wanted to give this choice to my participants. This is because I felt that automatically anonymising my participants was not suitable for this research. First, the issues we were discussing are not considered sensitive under ethical guidelines. Whilst the topics discussed were personal, and sometimes emotional, it was unlikely that the narratives gathered in the research would compromise the safety or security of those I was studying. Second, in return for people giving me their time, I wanted to offer them the chance to be represented in the work I produced from the data. This was particularly important for the creative practitioners I interviewed. Most of the creative practitioners I interviewed were not only pleased to represent their work, but voiced the opinion that the inclusion of their creative work and data in the thesis would be beneficial for their own professional profile. Moreover, it would prove difficult for me to speak about and showcase their work if they retained anonymity. Indeed, of all my participants only two individuals chose to be anonymous and many specifically stated that they would like to be named. In one case, a creative practitioner asked to see any work in which they are named or discussed before I submitted it for examination or publication, so as to allow them to understand how they are being represented. Whilst I was reluctant to offer this to all my participants - for reasons of both academic integrity and practicality - I was happy to make an exception if it would help said individual feel comfortable about being included and named. However, I did find this to be

a point of anxiety for me, and would be reluctant to offer this to any participants of future research I conduct.

For my observational data I contacted all individuals that are mentioned in the final thesis, allowing them to see what had been written about them. I also asked them to respond with any comments or queries. Some of the individuals I speak about in my observations were also interviewed by me, and signed consent forms stating whether or not they were happy to be named in the writing up of the interview data. However, I still contacted them regarding any observational data I used in my writing. In future research, I would prefer to obtain and record people's consent to be included in observational data before writing up the chapters, to minimise the risk of compromising one's academic integrity, as well as the anxiety associated with gaining said individuals approval post-write up.

3.6 Summary

This chapter had four distinct aims. First, I presented my use of narrative methodology and made clear how I apply it in my work. Second, I discussed the research methods I used to conduct my research, and justified my use of them. Third, I outlined the steps I took to analysing my data, illustrating how this process influenced the structure and argument of the thesis. Finally, I examined the ethical procedures I followed when conducting my research. However, whilst this chapter provided key factual insights regarding my methodological approach and research methods, it also had a fifth aim. This was to proffer an honest presentation of the experiences and, sometimes, the difficulties I faced when designing and conducting my empirical research. For example, this chapter reflected upon the decisions and processes which influenced my choice to root my work within a sociocultural narrative approach. It also, for example, highlighted the ethical concerns which can arise from conducting research with professional creative practitioners. My intention in providing this frank account of my research journey was to not only outline the myriad decisions which feed into the conduction of any research, but also to emphasise how the PhD is a process of learning and growing one's research capacity. Thus, this chapter simultaneously clarified how I conducted my research and offered insight into the quandaries I faced, and subsequently overcame, in the process of generating this data.

4 Buzzing about Bees:

A Study of Bees' Cultural Heritage and their Current Decline

No other group of insects has grown so close to us, none is more essential, and none is more revered.

Hanson, 2018, p. 10

The hedgerow is deteriorating, the birds are silent, the orchard is disappearing and the countryside is changed. Why? The hives are empty. Their once-buzzing occupants mysteriously vanished.

Rohrer, 2008

4.1 Introduction

This thesis investigates how and why people have chosen to respond to the decline of bees through creative practices. However, how the loss of a species is responded to cannot - indeed must not - be separated from how said species was considered and represented in human culture *before* they became threatened or extinct. As the artist and academic Steve Baker (1993, p. 4) tells us, “any understanding of the animal, and of what the animal means to us, will be informed by and inseparable from our knowledge of its cultural representation”. Baker was writing prior to the sixth mass extinction becoming a key focus of academic thinking around human animal relationships. His statement, however, remains entirely relevant today; we might only somewhat revise it to state that how the loss of a species is responded to by humans is inseparable from the cultural value afforded to said species prior to their potential or definite loss. It is therefore vital to provide some context to the dominant cultural narratives which surrounded bees prior to knowledge of their decline. As Thor Hanson (2018, p. 10) writes of bees, “to understand them, and ultimately to help them, we should appreciate not only where bees came from and how they work, but also why they’ve become one of the only insects to inspire more fondness than fear”. The first half of this chapter is thus dedicated to

exploring some of the major ways that humans have interacted with, represented, studied, and been inspired by bees throughout the ages.

I do not claim to be able to cover the story of humans' relationship with bees in its entirety; to do so would require a far longer piece of work than this. Indeed, there have been many scholars who have produced detailed and lengthy texts on this very topic (see: Preston, 2006; Wilson, 2004; Crane, 1999; Ransome, 1937). Rather, this section focuses on the key ways that, since the earliest days of humankind, bees have both materially shaped human culture and inspired our fascination. In investigating the central ways that bees have been interacted with, studied, and represented by humans, I further draw attention to when my participants specifically spoke of the human and bee relationship. As such, I interrupt this predominantly contextual work with some empirical data: providing insight into both the dominant cultural narratives surrounding bees, and highlighting how these narratives continue to influence our relationship with and perception of bees today.

The second half of this chapter follows the human and bee relationship into the current day by developing a comprehensive overview of why many bee species are now threatened or dying. Claire Preston (2006) once wrote of the human-bee relationship that both parties benefit from the certain behaviours and capabilities of the other. Yet, over the previous decade it has become abundantly clear that this is no longer entirely true. Whilst humans may continue to benefit from bees, bee species have certainly not benefited from their relationship with humans; many bee species are in decline primarily due to anthropogenic behaviours (see: King, 2019; Balfour et al., 2018; Atkins and Atkins, 2016; Goulson et al., 2015; Goulson, 2013; Greenpeace, 2013; Kosek, 2010; Potts et al., 2010a; Potts et al., 2010b; Cox-Foster and vanEngelsdorp, 2009). Indeed, the fact that bees are widely threatened is not commonly disputed. As Goulson et al. (2015, p. 1435) unequivocally state, the "species richness of wild bees and other pollinators has declined over the past 50 years, with some species undergoing major declines and a few going extinct". However, in tracing the story of the bee decline I am conscious of the fact that, whilst there is little doubt that bee species are threatened, the science behind why they are in decline is, as with most scientific issues, littered with uncertainty, debate, and contestation. As Heise (2016) makes clear, science is never straightforward, and much of the science around current extinction processes is still unknown, debated, or being directed by vested human interests. Therefore, in tracing the story of how bee species have come to be threatened I first make clear that scientific knowledge is always rooted in a specific cultural context, and second draw on my empirical research to demonstrate how knowledge around the decline of bees can be contested or debated. Thus, I provide an exploration of the decline of bees that is fully attentive to both the biological and cultural complexities of the issues under scrutiny.

4.2 A (brief) History of Humans and Bees

If the relationship between humans and animals is impeded by an unbridgeable gap (Haraway, 2008) than the relationship between humans and insects is impeded by a gaping chasm: the gap between the train and the platform edge versus that of the Grand Canyon. The world of insects is one that has long been confined to the periphery of human society. Although there are animals we pursue relationships with - inviting them into our homes as pets, relying on their labour for our farms, and spending huge amounts of money to catch glimpses of them in zoos - these tend to be mammals: dogs, cats, horses, monkeys, dolphins, and more (Moore and Kosut, 2013). Insects do not typically inspire the same intimacy and attraction. In fact, as Hanson (2018) writes, just the sight of an insect typically generates a measurable sense of fear in the brain. Thus, and as summarised by Farrier (2019, p. 99), in the “menagerie of unloved others, insects hold a special place”.

Moore and Kosut (2013, p. 86) suggest the tendency to be more repulsed by invertebrates - the category of animals which insects fall under - is due to their lack of human-like features, describing how a worm “doesn’t even have a discernible head”. Writing specifically on insects, Hanson (2018, p. 1) expresses a similar viewpoint, stating that “there is a deep sense of otherness about those brittle, segmented bodies: even from a safe distance, we know that such creatures would give a sickening *crunch* if stepped upon [*italics in original*]”. The lack of intimacy between humans and insects is also exacerbated by the degree to which insects are associated with unhygienic spaces or disease: they enter our homes uninvited, they carry parasitic diseases, and they contaminate the food we eat. To borrow a phrase from Mary Douglas (1966, p. 36) insects are seen as being “matter out of place”. Indeed, Douglas (*ibid*, p. 57) herself later references the apprehension associated with insects, writing that the animal “which creeps, crawls or swarms upon the earth [...] is explicitly contrary to holiness”.

However, there are exceptions to this rule. Perhaps needless to say, bees are one such exception. Despite their insect classification, bees have long commanded the attention and, often, the respect of humans. This is a fascination that began long before extinction became a word more commonly associated with modernity and protest than with a falling meteorite and colossal lizards. In his famous book *The Life of the Bee* Maeterlinck (1901, p. 8) writes of the honeybee that, for as long as we remember, this “strange little creature, that lived in a society under complicated laws and executed prodigious labours in the darkness, attracted the notice of men”. Hilda Ransome (1937), author of *The Sacred Bee in Ancient Times and Folklore*, echoes Maeterlinck’s contention,

commenting that when one looks back over the history of bees it is impossible to overestimate bees' influence on humans. The longevity of our relationship with bees was also widely recognised amongst my participants. Composer and artist Lily Hunter Green (2019a), for example, states how "there's been this relationship, ongoing relationship, with humans and bees forever". These are all claims that are evidenced by the overwhelming number of narratives, fictions, and studies that have been produced about this small creature. Indeed, I am certainly not unique in writing about bees; the world is rich with stories, whether these be fictional or non-fictional, of humans and bees throughout the ages (see: Benjamin and McCallum, 2019; Hanson, 2018; Jukes, 2018; Swan, 2017; Lunde, 2017; Raffles, 2010; Moore Ede, 2005; Wilson, 2004; Monk Kidd, 2001; von Frisch, 1950; Maeterlinck, 1901). Thus, as Preston (2006, p. 8) writes "the bee has been more carefully observed, more celebrated, more storied and mythologized, and latterly more feared than most other animals". The influence of bees is woven throughout the literature, mythologies, religions, and rituals that make up both human history and contemporary culture; bees have worked and lived alongside human culture since its conception, not only sustaining human lives, but also shaping our societies and cultures.

The extensive influence of bees upon human culture and society means that there are thousands of stories that one might tell of the human and bee relationship. Picking which stories are of most significance or interest can feel like a hopeless task: every interaction between human and bees, every political analogy derived from observation of a hive, every piece of artwork inspired by bees, and every spoonful of honey consumed contributes to this long-standing relationship. As such, in the following section I am only able to recount the relevant elements of this relationship. However, despite this unavoidable inadequacy in length and breadth, this section does provide a clear indication of some of the vital ways that humans have connected with bees. It is imperative to acknowledge that, although the world is home to thousands of bee species, the bee species that we have most closely interacted with is the honeybee. Honeybees, being the bee species that we are most tangibly connected with through our consumption of honey and interest in beekeeping, have greatly inspired our attention. As the entomologist Tom Timberlake (2018) mused during my interview with him, the "association with honeybees is so strong and ancient that we've developed this kind of real affection for them which we don't have [with wild bees]... I mean luckily a lot of the other bees have kind of piggy-backed on that, but they don't necessarily have that same place in our heart". As such, despite my concerted effort to *not* only study honeybees, reflecting upon the ways in which we have related to bees unavoidably leads me to produce a text which centres almost entirely around honeybees.

4.2.1 *A World Before Beekeeping: An Ancient Relationship*

Humans have never known the world without bees. Bee species were established long before humans first became bipedal or were discovering how to control fire: the first bees predate humans by millions of years (Atkins and Atkins, 2016). Cardinal and Danforth (2013) estimate that the common ancestor of all existing bees originated roughly 123 million years ago, and most definitely between 113-132 million years ago. The oldest documentation of a fossilised bee was discovered in a piece of Burmese amber which is thought to be approximately 100-110 million years old (ibid). This bee, although distinctly smaller than modern bees, possessed the same fluffy hairs which are used to pick up and distribute pollen (Benjamin and McCallum, 2009). The life of bees began after the first flowering plants developed sweetly intriguing reproductive organs and beautiful coloured patterns. The flowers encouraged some wasps to reject their more carnivorous diets and adapt gentler consumption regimes (Wilson-Rich, 2014). Thus, the first bees evolved, taking their energy from the nectar of plants in exchange for conducting pollinating services. As such, bees and flowers developed simultaneously, providing each other with the vital ingredients and services needed for both parties to thrive. As Mark Winston (2014, p. 5) explains:

Flowers secrete nectar/and or excess pollen as a food reward to interest the bees, the nectar providing carbohydrates and the pollen protein. This evolutionary innovation led to an explosion in the diversity and abundance of advanced plants, coinciding with that of bees, and eventually to the biosphere we know today.

Thus, the thousands of bee species alive today have grown and been sustained from this delicate interrelationship between flower and insect.

Bees have long been vital to our survival, and without them we could not have grown to consume, survive, or thrive as we have (Atkins and Atkins, 2016). Fundamentally, this is because the human diet has long been reliant on food sources pollinated by bees. Not only do bees help pollinate foods such as fruits and vegetables, it is thought that animal pollinated crops provide us with particularly high levels of the vitamins and minerals that we need (Eilers et al., 2011). Knowledge regarding the curious relationship between flowers, plants, and bees will have likely been noted and observed for some time. However, according to Hanson (2018, p. 9), specific scientific knowledge of the details of pollination remained surprisingly understudied until relatively recent history. Hanson tells us that an early documentation of the pollination process was made by the German botanist Rudolf Jakob Camerarius in 1694. Yet Hanson further writes that, unfortunately for Camerarius, much of the scientific community at the time deemed his observations of what was understood as 'plant sex' to be obscene. Indeed, despite the work of Camerarius, Martin and McGregor (1973) suggest that

credit for observing bees as pollinators is typically given to Joseph Gottlieb Kölreuter. However, despite some potential dispute over who first observed the pollination process, over time the relationship between bees and flowers evidently became a subject that was not just acknowledged, but widely studied: figures such as Darwin are famed for being fascinated by the process (Hanson, 2018; Martin and McGregor, 1973). As such, whilst bees are famed for their pollinating skills today, our fascination with bees began long before we had established knowledge of the specific role they play in our diets.

If we had so little understanding of how reliant human diets are on pollination processes, it follows that there was another reason for our early and continued fascination with bees. This reason was the human desire to consume honey. Indeed, it is likely that one of the earliest interactions between humans and bees will have begun with humans wanting to take honey from honeybee colonies²⁸ (Crane, 1999). As Atkins and Atkins (2016, p. 21) explain, “from the earliest contact between bees and humans, people have found ways of harnessing bees’ activities and bees’ “produce” to their own advantage”. Indeed, throughout the evolutionary stages of humanity honey has always been sweet, appealing, and significant. Significant because humans relied on both the calories and medical properties contained within honey. Indeed, across many societies honey has been recognised as containing healing properties, and recommended as part of medical recipes. For instance, “Ancient Egyptians, Assyrians, Chinese, Greeks and Romans [all] employed honey for wounds and diseases of the intestine” (Eteraf-Oskouei and Najafi, 2013, p. 731). The taking of honey thus aided the survival of our human ancestors, and it is thought that “honey hunting by man [...] is as old as man himself and continued through both the Palaeolithic and Mesolithic periods when food was still obtained by hunting and gathering” (Crane, 1999, p. 43). However, honey was not only famed for providing an early remedy for people’s sweet tooth, or perhaps even their wounds. When honey is mixed with water, and commonly yeast or fruits, and left to ferment it will make an alcoholic drink known as mead. Mead is thought to have been consumed for around 9000 years, and is therefore one of the oldest alcoholic drinks in existence (Hanson, 2018).

The precarious places - such as on cliffs or in tall trees - where honeybee colonies traditionally lived, coupled with honeybees’ ability to sting humans with varying effects, means that the taking of honey has forever come with an element of danger. One of the earliest pictorial documentations of humans and bees is depicted in figure 2, and was thought to be painted some 10,000 years ago. The painting depicts humans climbing a cliff to steal honey from a swarm of bees, demonstrating how

²⁸ Bumblebees also produce a version of honey. However, not only do they not create a surplus amount, it is - perhaps fortunately - not easily accessible to humans.

honey was considered such a precious substance that people would risk their own lives to obtain it (Wilson, 2004). Indeed, honey was, and still is, so revered that it has frequently been referred to as the food of the Gods (Ellis, 2004). The Ancient Greeks, for example, considered honey to contain heavenly properties. It was thought that Zeus²⁹ himself was raised by wild bees and fed on a diet of honey (Hanson, 2018; Ellis, 2004). Similarly, the Hindu Gods Vishnu, Krishnu, and Indra are known as the “nectar-born ones” (Hanson, 2018, p. 8). Vishnu is even occasionally depicted as a blue bee (Oldroyd and Wongsiri, 2006). In a similar vein of thought, the Bible describes holy lands as places rich with milk and honey. Thus, honey has classically been understood as a desirable substance befitting and representative of gods and goddesses.

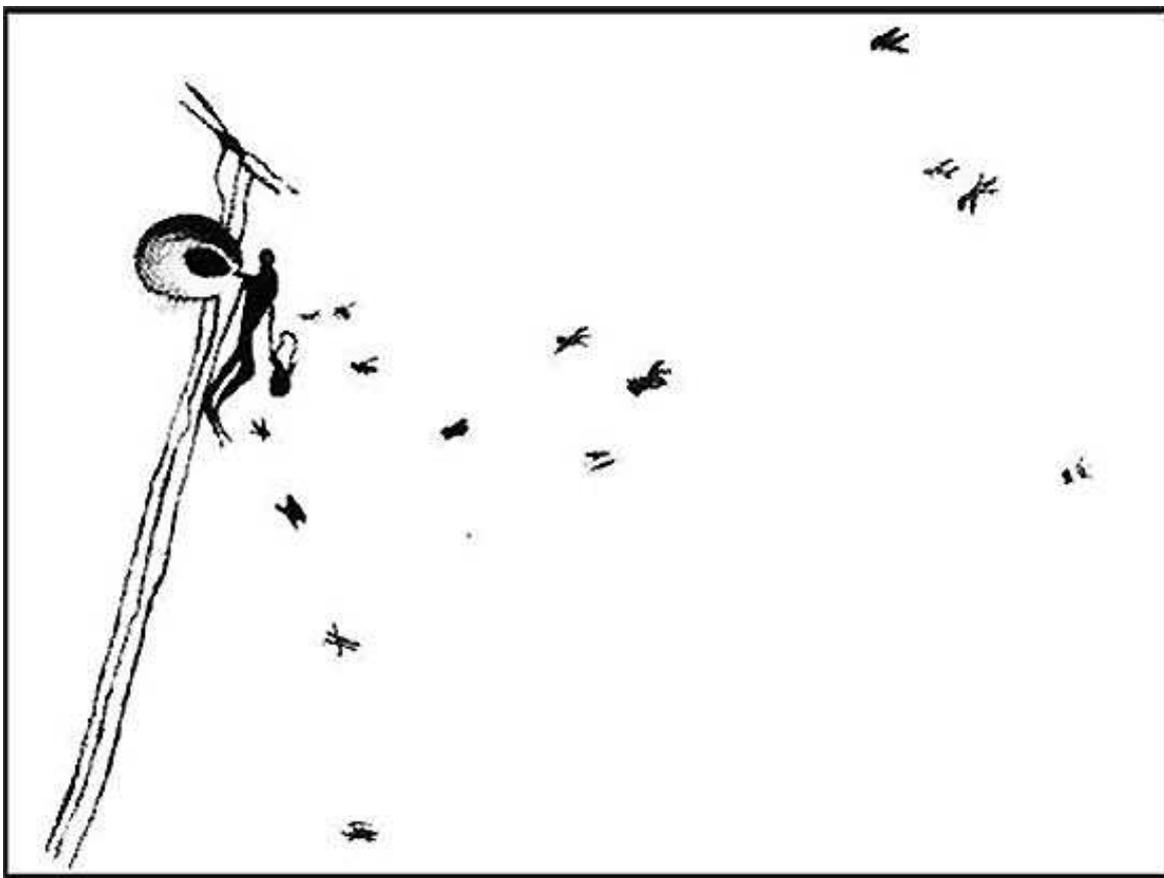


Figure 2: Honey Hunter. Cave painting in Cueva de la Arana, Valencia, Spain (Mustaqim, 2013).

Honey was not the only product of the hive which has been - indeed, still is - sought after by humans. Beeswax, for example, can be burned for light and used to preserve organic matter. Likewise, propolis, which is a tacky substance produced by honeybees to seal up cracks in their hives,

²⁹ Zeus was considered to be the King of the Gods in Ancient Greek religion.

provided an early sealant and, similarly to honey, is famed for its medicinal properties. The appeal of these various hive products means that honeybees were one of the first animals that humans attempted to domesticate. Of course, the extent to which humans ever actually achieved this domestication is debated; Jukes (2018) suggests that one may be able to 'keep' honeybees, but this is a far cry from being able to domesticate them. However, whether or not humans have ever truly domesticated honeybees, we have certainly been attempting to for many years. The start of apiculture, and thus the start of humans attempting to domesticate honeybees, began when people started creating artificial beehives (Kritsky, 2015). The exact date that early beekeepers began their bee husbandry remains uncertain, for it is likely that a number of individuals living in early societies will have observed that leaving out suitable vessels will encourage honeybees to settle there, thus making it easier for them to access honey (Crane, 1999). However, it is suggested that the art of beekeeping was first distinctly refined in the Old Kingdom of Ancient Egypt (Kritsky, 2015; Benjamin and McCallum, 2009). Kritsky (2015) clarifies that it was around 2,400 BC that beekeeping became an established practice, crafted by the sixth pharaoh of the Fifth Dynasty of the Old Kingdom, who was known as Newoserre Any. The hives that these Egyptians used would not be commonly recognised as hives today. These hives would have been made from clay and were constructed as long cylindrical tubes. However, whilst these specific hives are no longer in common use, there are some traditional beekeepers in modern-day Egypt that continue to use hives that resemble their historical counterparts (ibid).

Following in the footsteps of the Ancient Egyptians, keeping bees soon became an established part of many traditional societies, and has long been a popular practice within British culture. As Atkins and Atkins (2016) tell us, in the Anglo-Saxon era beekeeping was widely admired for providing people in Britain with foods such as honey and mead, as well as products such as candles. Indeed, honeybee substances were so highly valued that in Anglo-Saxon Britain, wax, honey, and even bees themselves were accepted as legitimate payment for taxes (Benjamin and McCallum, 2009). The beekeeping heritage of Britain was further established with the growth of monasteries in the eleventh and twelfth centuries, as monks have traditionally been famed for their beekeeping practices. Although beekeeping has since gone in and out of fashion, beekeeping is currently considered to be a relatively popular practice across the British Isles (Maddox, 2020; Hennessey, 2019; Wright, 2017).

4.2.2 Stories, Myths, and Traditions

Due to the life-giving qualities of honey and other honeybee substances, since the earliest days of human society honeybees were seen to be “a creature of special sanctity connected with those things which seemed to [humans] so mysterious - birth, death, and reincarnation” (Ransome, 1937, p. 12). This has meant that honeybees have long provided a rich source of inspiration for myths, stories, and traditions, particularly those of a supernatural quality. This is also why, as Preston (2006) explains, the cultural influence of honeybees is felt more strongly in - what Preston refers to as - the Judaeo-Graeco-Christian West, where beekeeping practices are most common. Preston describes how beekeeping practices are more prominent here because the European honeybee, and all of its subspecies, is typically more susceptible to attempts at domestication. Hence, this is why these areas of the world have typically developed particularly strong cultural traditions around honeybees. For example, in a number of European cultures, the intimacy that is claimed to be felt between a beekeeper and their honeybees, coupled with the supposed supernatural qualities of bees, led to the idea that honeybees are receptive to the experiences of their human beekeepers. Burnside (2015) tells us that sentiments of this nature led to the historical tradition of telling honeybees about important events, such as when their beekeeper has died or a new family member has been born. The tradition of telling honeybees of important events was famously described in 1858 by John Greenleaf Whittier in his poem *Telling the Bees* (Warren, 1971). Whittier tells of how the character in his poem cried to the honeybees to “Stay at home, pretty bees, fly not hence! / Mistress Mary is dead and gone” (ibid, p. 43). It was generally understood that if the honeybees were not told of important events the individual who did not tell the honeybees would either experience ill fortune or have their honeybees fly away. For instance, Ransome (1937) comments how, not so long before Ransome published her work, a woman in Sussex had blamed the death of her baby on her neglect to tell the honeybees of the birth. Whilst Ransome’s description connects this need to confide in honeybees with a story of horror and tragedy, today, this tradition of confiding in honeybees tends to be reflected on positively, even romantically. For instance, visual artist and designer Morvern Odling (2018), who worked on a creative design project inspired by this tradition, described how it is “just such a lovely idea that [...] you would go and tell the bees any problems or secrets, and that they would hold it for you [...] they have this kind of magical quality”.

Telling the honeybees of personal secrets or events is certainly not the only tradition which connects bees and events of significance. For example, there is also a tradition of allowing honeybees to mourn their keeper’s passing. Beehives might be covered with a black cloth or brought to the place of burial. In the present day, it is less common for people to observe these traditional rituals. However, during my research I did observe that there are beekeepers who still speak of honeybees as being connected to our emotional psyche. For instance, in my observational notes of the creative

writing weekend I attended I recorded how a natural beekeeper³⁰ I met during the course told me a story about how, on the day that a dear friend of hers passed away, one of her colonies of honeybees began swarming and refused to settle in any hive or vessel she persuaded them towards. It was her belief that the honeybees were agitated due to them sensing her own emotional trauma. Thus, whether or not honeybees are truly receptive to human events, there is no doubt that many people over the years have felt profoundly and emotionally connected with the honeybees that they watch over.

Reflecting on the history of associating bees with matters of life, death, and even the supernatural, artist Amy Shelton (2019a) described to me how bees are often thought to have a “mysterious connection between the real world and the underworld [...] they slip between different realities”. Although Amy did not specify, her comments echo the many traditional folk stories about ‘bee-souls’. Bee-souls refers to the idea that bees are a physical manifestation of the human soul. Ransome (1937) explains how references to bee-souls started to appear in the later writings of Greek philosophers, connected with beliefs around the transmigration of souls. Since then, all across the world people have been drawing connections between the human soul and bees: from Siberia, to India, to Britain, stories of bee-souls have appeared time and time again (Varner, 2007). As elsewhere, there are numerous references to the idea of bee-souls in British folklore (Ransome, 1937; Mackenzie, 1922). For example, according to Varner (2007, p. 186) in English folklore “if one went to sleep and then the soul, in bee form, departed the body, the body would die if the bee were unable to find it again”. Indeed, Ransome (1937) examples a story from Lincolnshire which describes this very phenomenon in action. Ransome (ibid, p. 308) writes that:

[The story] relates that two travellers lay down side by side to rest, and one fell asleep. The other, seeing a bee settle on a neighbouring wall and go into a little hole, put his staff into the hole and so imprisoned the bee. Wishing to pursue his journey, he endeavoured to awake his companion, but was unable to do so till, resuming his staff, the bee flew to the sleeping man, and went into his ear. His companion then awoke him, remarking how soundly he had been sleeping, and asked him what he had been dreaming of. “Oh,” said he, “I dreamt you shut me up in a dark cave, and I could not wake till you let me out.” The narrator of this story firmly believed that the man’s soul was in the bee.

³⁰ Although there is no official definition of natural beekeeping, natural beekeepers tend to take a more ‘hands-off’ approach to beekeeping, allowing the organic processes of hives to play out with little or no intervention. A visual artist I spent time with during my research with the Bee Time artist residency course, Freya (2018), defined how natural beekeeping is “not about harvesting honey, it’s not about [...] making sure a hive doesn’t swarm. It’s really about allowing whatever needs to be done and not trying to control that or manipulate that”.

In his book *Scenes and Legends of the North of Scotland; or, The traditional history of Cromarty* Hugh Miller (1876, pp. 339-341) tells of a different story of an encounter with a bee-soul. Miller recounts the tale of two friends that were both plagued by the same disease. One of these companions died and his friend - known as William Fiddler - attended his deceased friend's funeral. That night Fiddler - who was still ill himself - had a dream in which the voice of his dead companion asked him to come and meet him by a rock they frequented. In his dream Fiddler made his way to the rock to wait for his friend, but after Fiddler had waited awhile with no one appearing he became dejected, eventually bursting into tears of frustration. At that moment a large bee suddenly appeared, humming and flying around Fiddler's head. He tried to flap it away, but the bee persisted in flying around him. As it did, the humming appeared to change into the voice of his friend. His friend's voice was saying "Dig, Willie, and drink!". And so Fiddler set about digging, and as soon as he managed to rip out a clump from the bank that he had been sitting on, a spring of clear water rushed forth from the hole. As the dream began to fade the bee, triumphant, flew away. When Fiddler awoke he made his way to the rock, and drank from a well he created there. After drinking from the well he discovered that he had recovered from the disease that had claimed his friend's life.

In the story of William Fiddler the bee-soul is seen as a saviour. It brings strength back to Fiddler, offering him the gift of life. However, not all stories of bee-souls represent them in such a positive light. Bee-souls have also been portrayed as being devilish. For example, references to bee-souls can be found in Scottish witch trials, when 'witches' were accused of taking the form of a bee to carry out their supposedly evil work (Ransome, 1937). For instance, in 1679 it was recounted that the Archbishop of St. Andrews was murdered when a bee flew at him from his tobacco box (ibid). This bee was thought to have been the disguise for a revengeful witch. Likewise, in Lincolnshire a woman spoke of how, when she went to the town of Louth for consultation, the wise man she had gone to see took advice from a bumblebee that he had conjured. It is described by Ransome (ibid, p. 312) how the man:

put his head into a cupboard mumbling some incantations to his familiar spirit. On reopening the door of the cupboard a large bumble bee flew out and settled upon the open book. The wise man noted the part of the page on which the bee alighted and gave his advice accordingly.

Thus, whether portrayed as good or evil, the particular qualities of bees - both honeybees and wild bee species - have inspired imaginings of them as being somehow connected to our own fortunes, experiences, and even our very souls.

4.2.3 *Watching the Bees: Biology and Ecology*

Bees have not only inspired folk tales and social customs. They have also proven to be a source of fascination for biologists and entomologists: the diversity of bee species, their significant role in sustaining ecosystems, and the unique social behaviours of honeybees have inspired the work of many. Studies of bees, particularly of honeybees, stem back to the earliest scientific observers. Aristotle is perhaps the most famous of these early observers, for he wrote extensively on honeybees. Crane (1999, p. 379) writes that there is a belief that Aristotle tried to build a window to view into his hive, an endeavour which proved pointless when the honeybees quickly covered the window with either wax or propolis. Although his attempts to build an observation hive may have been scuppered, Aristotle's work helped establish some facts about honeybees that we still know to be true today: he observed that honeybees would follow a leader when they swarmed and that different types of honeybees developed within different honeycomb cells (Maderspacher, 2007). However, his work also clearly reveals the limitations of his knowledge and understandings. For example, Aristotle thought of the queen bee as being a king bee (ibid).

There are many who followed in the footsteps of Aristotle by studying honeybees. One such individual is Pliny the Elder, who was an Ancient Roman philosopher. Pliny notably commented on the rare way that honeybees seemed neither tame nor wild (see: Frier, 1982, pp. 106-107), perhaps an opinion which would contribute to the debate on whether or not honeybees are domesticated (see: Jukes, 2018). A more contemporary and more famous observer of honeybees is the ethologist Karl von Frisch. Karl von Frisch made one of the most widely cited discoveries of the twentieth century, when he observed how honeybees could communicate through dance. Karl von Frisch made this discovery by observing that when a honeybee found some honey or sugar which he had left out it would take its fill and leave. However, the same honey or sugar would suddenly have many more honeybees visiting it. It was written by von Frisch (1950, p. 53) that as soon as one bee found the sugar or honey "many more will appear within a short time-perhaps [sic] as many as several hundred. They have all come from the same hive as the first forager; evidently this bee must have announced its discovery at home". Through focused observation von Frisch discovered that the honeybees were communicating through a form of dancing. Karl von Frisch's first observation was of the round dance, which is performed when food supply is close by. To perform the round dance, on "the same spot [the honeybee] turns around, once to the right, once to the left, repeating these circles again and again with great vigor" (ibid, p. 55). This dance excites the other honeybees, and they troop behind the dancing honeybee until they have fully understood her message. One by one they will leave and find the exact spot of honey, sugar, or flowers that the dancing honeybee has

told them of. However, von Frisch also discovered that bees can perform a slightly more complex dance, known as the waggle dance. This dance is performed when food is slightly further away. By ‘wagging’ their bodies, the honeybees can communicate the distance of the food source, as well as the location. Knowledge of the waggle dance has evidently delighted people ever since von Frisch (1950) discovered it; for instance, theatre artist and performer Laura Ryder (2018a) and artist and composer Lily Hunter Green (2018), who are both creative practitioners that were interviewed for this thesis, both spoke of how their bee-inspired creative projects took inspiration from the waggle dance. However, as Raffles (2010) explains, although the discovery of language might have been von Frisch’s most notable and important finding it was not his only major discovery. The meticulous experiments undertaken by von Frisch led him to discover that bees cannot see the colour red, that bees are responsive to 24-hour time cycles, and that the type of substances bees will consume will depend solely on their hunger levels (Wilson, 2004; von Frisch, 1954). These are all important findings, but evidently not discoveries which tickle the human imagination quite so distinctly.

The delight that von Frisch took in his work is evident in his writings, and although von Frisch is officially known as an entomologist he is described by Hugh Raffles as more of an anthropologist: his honeybees “were his in the way that anthropologists of the past might have fancied the remote tribes among which they lived to be their tribes” (Raffles, 2010, p. 173). Indeed, as Wilson (2004) tells us, von Frisch’s work was rooted in a deeply sympathetic and respectful attitude towards bees. However, Raffles (2010) also points out that von Frisch’s work on honeybee dance communication may have had unintended consequences. It is written by Raffles that language is a key aspect in what supposedly defines us as human, and the notion of honeybees having a less complex form of social language allows for the interpretation of honeybees as mere imitators of humans. Thus, von Frisch’s discovery of the honeybee language was “simultaneously to celebrate their difference and to doom them to impossibility, to condemn them to the merely imitative, at which they could only fail” (ibid, p. 199). However, as I will proceed to show in section 4.2.4, von Frisch was certainly not the first scholar, nor the last, whose observations of processes within the hive inspired people to make interspecies comparisons.

4.2.4 Learning from the Bees: Human and Bee Societies

Perhaps from the moment we learnt of the social lives of honeybees we started to suggest that aspects of honeybees’ worlds somehow speak to human society. Indeed, one might go so far as to argue that this is one of the most prominent ways that honeybees have featured in our

imaginations; as Farrier (2019, p. 99) states, “bees have largely appeared to us as the vehicle of metaphors about ourselves”. One entomologist I interviewed, Sebastian Shepherd (2018), suggested that this was probably because “if you had to pick any species that was [...] closely linked to humans, honeybees are probably number one”. This statement is inadvertently corroborated by Bee Wilson (2004) who, in her book *The Hive: The Honeybee and Us*, interrogates some of the myriad ways in which humans have drawn comparisons between our social behaviours and honeybees’ social behaviours. One such example that Wilson explores in her work is how the perceived efficiency of honeybees’ systems of social organisation has caused them to be anthropomorphised as model industrious workers, who have formed a society of perfect totalitarian efficiency. Indeed, the title ‘worker bee’ is indicative of such an ideology, in that it instantly associates honeybees with work and order. Reflecting on this idea, entomologist Lewis Bartlett (2018) described to me how in the “early medieval period bees were seen as these perfect examples of virtue because they loved work, they were very industrious”. Similarly, Wilson (2004, p. 23) tells us that, during the Victorian period “referring to the busy bees was a way of prettifying even the grimmest of human activities”. The links drawn between honeybees, labour, and industry, particularly during the era of the industrial revolution, is precisely why the symbol of the worker bee was famously adopted by the city of Manchester in 1842. During the industrial revolution in Britain Manchester was famous for its cotton mills, which were colloquially named ‘beehives’ (Naylor, 2017). Hence the symbol being added to Manchester’s coat of arms and, subsequently, still being a common image that one can see featured across much of the city. As artist Amy Shelton (2019a) explained, to this day in “Manchester [bees are] a symbol of thrift and hard work”.

The use of bee metaphors to prettify industrious labour evidences how honeybees have long been symbolically charged as signifiers of a capitalist work ethic. Indeed, connections between the social order of honeybees and a human capitalist agenda continue to be made today. For instance, in a book titled *The Wisdom of Bees: What the Hive Can Teach Business about Leadership, Efficiency, and Growth*, O'Malley (2010) makes a rigorous assessment of how features of honeybee society might guide the decisions of modern businesses. The chapters in this book are presented as ‘lessons’, with each lesson studying a different aspect of hive life in connection with successful business strategies. The book argues that observations of honeybee society will offer business leaders clues to how they might more productively and efficiently run their businesses; this is a sentiment which, although not explicitly furthering a capitalist agenda, is rooted in a capitalist mindset.

Whilst honeybees might have been extensively associated with conformity to an industrial or capitalist society, they have also paradoxically served as an analogy for social movements which revolt against capitalist or oppressive agendas (Halberstam, 2011). Indeed, Bee Wilson (2004, p. 106)

tells us that the beehive is “perhaps the most enduring of social utopias. Sooner or later, wherever people have dreamed of a better life for the oppressed, they have also considered whether the beehive might help them in their labours”. One reason for this is because the hive appears to be the perfect example of sisterly and brotherly co-operation, in which the work of each individual bee is willingly given and collaboratively benefited from. Hence, analogies of beehives were prominently evoked in nineteenth century workers’ movements. Wilson (ibid, p. 107) recounts how an important trade union newspaper in mid-1800s Britain was titled *The Bee-hive*. The newspaper was famous for advocating workers’ rights, writing on and supporting trade unionism, sanitary reform, cooperative government systems, and the need for the fundamental restructuring of Parliament. The name of the newspaper was therefore indicative of this cooperative spirit of thinking, for it was thought that the beehive represents a blissfully harmonious society in which each worker independently, cooperatively, and usefully contributes to the production and continuation of society. Frequently, therefore, models of honeybee society have been used to signify a particular political agenda (Halberstam, 2011). This is not, of course, limited to political agendas - whether in a socialist or capitalist spirit - regarding business and industry. The symbolic use of bees in political analogy has taken many forms throughout history: honeybees have been used to represent monarchical, aristocratic, republican, communist, and even fascist ideals (Atkins and Atkins, 2016; Wilson, 2004).

A political analogy which reflects a more contemporary society was made by the biologist Thomas Seeley (2010), who dedicated a book to exploring how honeybees live in a democratic society. In making this claim Seeley advocates that honeybees act as a superorganism: division of labour is central to the survival of the colony, and individual bees cannot survive alone. Seeley (1989, pp. 548-549) argues that the notion of the honeybee colony as a superorganism is:

reinforced by the picture of pervasive cooperation which has emerged from analyses of colony functioning. In choosing a nest site, building a nest, collecting food, regulating the nest temperature, and deterring predators, a honey bee colony containing a queen resembles a smoothly running machine in which each part always contributes to the efficient operation of the whole.

Seeley (2010) contends that the ability of honeybees to function as a whole allows them to achieve a form of collective intelligence that, in turn, means they have achieved a perfect democratic society. To illustrate how honeybees live within a democratic society, Seeley focuses his attention on the act of swarming. Honeybees will swarm when a new queen arrives in the hive, either organically or artificially, and the old queen decides to leave and take half of the hive with her. Thousands of honeybees will leave the hive with the old queen, leaving the new queen to revive the colony. When the honeybees swarm they essentially become homeless and rest somewhere, such as a tree branch.

As they hang there an activity will take place; according to Seeley, the honeybees “will hold a democratic debate to choose their new home” (ibid, p. 1). Seeley writes that honeybees scour the surrounding areas and report their findings back to the swarm, after which they will - through dancing - debate the best option. Seeley’s understanding of bees as a democratic force relies on the agency of honeybees to choose their own home, rather than have one chosen for them by human hands. This does not necessarily account for how most swarms in Britain are taken by a human to a location of said humans choosing. Although honeybees might exert their agency by refusing to settle in such a location, it could be argued that this supposed democratic process is now commonly interrupted by the human interlocutor. Moreover, as interest in urban beekeeping grows and honeybees are increasingly kept in more densely populated areas, swarming processes are subject to increasing control (see: Benjamin, 2015; Moore and Kosut, 2013). As I observed during my own experience of attending a beekeeping course in York, learning how to prevent a swarm is now one of the core teachings of conventional beekeeping courses.

In his book - and in light of his argument that honeybees live in a democratic system - Seeley (2010) fervently seeks to dispel the traditional perception of the queen bee as somehow the governor and ruler of the hive. This common understanding of hive structure runs throughout historical texts on honeybees, such as in Charles Butler’s (1623) book *The Feminine Monarchie: Or the Historie of Bees*. The conception of the queen bee as a leader absolute was likely fuelled by the reaction of the worker bees to a special pheromone the queen produces which draws the other honeybees close, making them appear as if they are doing her bidding. The worker bees also clean and feed the queen, a process which adds to this façade. This misunderstanding furthered the perception of a queen bee as comparable to a female monarch (Ratnieks, 2011). However, the queen is more of a mother than a ruler, although perhaps not in the traditional maternal sense. Laying around 1,500 eggs a day during the summer the queen is an egg-laying machine: a slave to her fertile biology. The aforementioned special pheromone which the queen emits signals her reproductive ability; when the pheromone starts to reduce the worker bees will prepare for the growth of a new queen. It is complex social and biological processes such as this that have captivated the imaginations of humans for so many years.

4.2.5 *Aesthetics and Design*

Any writing on the relationship between bees and humans would be incomplete without touching upon the inspiration that bees have offered designers and creators. Aesthetically, images of bees

have long inspired the design of human products: for many centuries their image has been represented in our jewellery, printed on our fabrics, and carved into our designs (Kelly, 2019). However, the influence of bees on human design goes beyond the aesthetic representation of them. For instance, an aspect of honeybees' world which has long captured the attention of designers is the hexagonal cell designs of honeycomb. The famed writer Maurice Maeterlinck (1901, p. 114) writes that honeycomb is the one aspect of the hive that can be in no way faulted:

There is one masterpiece, the hexagonal cell, that touches absolute perfection,- [sic] a perfection that all the geniuses in the world, were they to meet in conclave, could in no way enhance. No living creature, not even man, has achieved, in the centre of his sphere, what the bee has achieved in her own; and were someone from another world to descend and ask of the earth the most perfect creation of the logic of life, we should needs have to offer the humble comb of honey.

It is no surprise, therefore, that the pattern of honeycomb is so influential. It is, for example, mirrored in architectural endeavours across the globe. For instance, the Eden Project's famous geodesic domes, as shown in figure 3, adopts the hexagonal pattern of honeycombs. Grimshaw Architects (2016), who designed the domes, made a video titled *The Eden Project*, which explicitly references how bees inspired the design of the domes; the inspiration of honeycomb in the design of these domes is visually indicated in this video by the inclusion of a clip of bees moving around on honeycomb, and further suggested by the inclusion of a clip of an Eden Project employee referring to the domes as a "strange, beehive-like structure" (ibid).



Figure 3: Eden project geodesic domes (Matern, 2006).

The architectural prowess of honeybees has even been noted by Karl Marx (2011 [1906], p. 198), who wrote that a bee "puts to shame many an architect in the construction of her cells. But what distinguishes the worst architect from the best of bees is this, that the architect raises his structure in imagination before he erects it in reality". Marx's comments offer the opinion that whilst bees are

industrious and effective architects, they are guided by instinct rather than creativity. However, whether it is built through instinct or creative merit the structure of honeycomb has widely inspired human design and aesthetic choice.

In summary, bees have influenced the lives of humans since the earliest days of our evolution. They were there in our beginning, intriguing our taste buds and offering substances of precious value. Over time, our fascination with bees grew beyond the physical role that they played in our lives, and they began to find their way into our traditions, our folktales, and our mythologies. More often than not, the pleasure, value, and medicinal relief that bees' presence offered humans led to bees being revered through these cultural imaginings: bees were imagined in connection with Gods, as present in rich and holy lands, and as supernaturally linked to our own lives and fortunes. Thus, the stories and traditions which have arisen around bees have tended to imbue them with respect: a respect rooted in admiration, regard, and, at times, fear. More broadly, the aesthetic qualities of bees, their ability to pollinate plants, and the unique social habits of honeybees, have collectively led to bee species being one of the most closely scrutinised and imagined insects. In suggesting this, I do not intend to imply that most people will have spent their lives actively engaging with bees. Rather, it is to suggest that references to bees, through our languages, stories, metaphors, and designs, as well as through the foods we consume and products we create, have been a continuous and fundamental feature of human society and culture. Moreover, bees stand out as an element of the natural world that people have found particular interest in studying. Fundamentally, therefore, bees have, in defiance of their insect natures, long played a significant and generally admired role in both our physical and our cultural worlds: represented, principally, as a species which is commanding of both respect and reverence.

4.3 Tracing the Decline: Factors Feeding into the Loss of Bees

In light of the extent to which bees have been admired and revered by humans it seems almost inexplicable, perhaps even absurd, that humans are responsible for the endangerment of bee species. However, in the modern world many bee species have become subjected to increasing environmental stressors; today, bees have become a species inflicted upon by processes of ecological violence, stress, pollution, and more. Although bees' plight has become alarmingly visible in recent years, the suffering of bees has been occurring for far longer. As Gunther Hauk (2002, p. 10) tells us, the bee is "a sick patient who has been trying for years to signal to us the deep crises of its diminishing life forces and its inability to resonate with the environment". This section is thus

dedicated to examining both the historical and contemporary reasons for why bees - as a collective species - are now considered to be in decline; in the following pages I present some of the crucial factors that are either hypothesised or known to be responsible for the loss of many bee species in the present day.

The aim of this thesis is not to conduct research that helps prove or disprove specific scientific theories regarding the decline of bees. As such, in providing insight into the theories surrounding the ongoing loss of bees, this section predominantly draws from the literary and scientific studies of experts already working with this topic. The emphasis I place on peer-reviewed scientific knowledge was partially driven by a conversation I had with an entomologist in the early stages of my research, who lamented the lack of scientific data in traditionally non-scientific accounts of the bee decline. Therefore, I have been careful to develop a vigilant understanding of the scientific debates and literature around this issue to date. However, through my research I was also given insight into how, whilst the idea that bees are threatened is not contentious, there is some debate regarding the specific facts of *how* and *why* bee populations have come under threat. This is partially due to the fact that scientific studies are rarely straightforward, being produced within certain cultural contexts or steeped in particular prior assumptions. As argued by Suryanarayanan and Kleinman (2017) in their study of a specific honeybee syndrome, how knowledge of a biological phenomenon is acquired and what is done with it will diverge according to the individual players involved in the knowledge acquisition process. Thus, I stress that the scientific knowledge I examine has been inherently influenced by the social context within which it has been produced. More significantly, I include insight into how the concerns associated with the decline of bees were communicated and described by those individuals - beekeepers, entomologists, and creative practitioners alike - who contributed to my research. This is because the variety of reasons I was given by my participants for the decline of bees both enhanced my own knowledge and demonstrated how some of the issues linked to the bee decline remain contested. Thus, as in section 4.2, whilst the bulk of this work relies on secondary research, to a lesser extent this chapter also draws on my empirical data. The work thereby draws into conversation a variety of academic and personal approaches to understanding the decline of bees.

Needless to say, the story of the bee decline is not an easy one to trace. It is not a story of a group of species having their ability to thrive cut off through a single spectacular act of human ignorance or harm. Rather, it is a complex and biocultural story which has been formed through a seemingly endless number of avenues: pushed, directed, and shoved by a wealth of human led choices over a number of years. We might, as Heather Swan (2017) suggests, understand bees as having been victims of slow violence. This is a violence “that occurs gradually and out of sight, a violence of

delayed destruction that is dispersed across time and space, an attritional violence that is typically not viewed as violence at all” (Nixon, 2011, p. 2). Today, one would be hard-pressed to suggest that bees are still victims of slow violence as, in recent years, the subject of the bee decline has seen significant public attention (Portus, 2020; Swan, 2017; Moore and Kosut, 2013). They are, however, still victims of a violence that is occurring through diverse and often seemingly undramatic acts of environmental harm. Moreover, each species of bee comes to bear different challenges according to their variations in biology, nature, and environment. For example, honeybees alone are threatened by hive-borne diseases, whereas wild bee species are more likely to be impacted by a lack of available nesting sites³¹. As such, to comprehensibly trace the messy and entangled story of the bee decline I individually scrutinise each of the core known factors feeding into the loss of bee populations. In doing so, I examine threats which range from modern techniques of bee husbandry, to the impacts of climate change upon bees, to the various parasites and predators which are spreading round the globe.

One could reasonably argue that human-driven threats to bees began unfolding from the moment that humans evolved. As Kolbert (2014) describes, from the earliest days of their evolution humans began to eradicate or bear negatively upon species they interacted with and, as I detail in section 4.2, bees have long been interfered with by humans. Additionally, the anthropogenic impacts humans have had upon the Earth’s environments and ecosystems will have long disrupted the lives of bees. Yet, despite humans’ extensive role in the struggles and loss of bee populations, I expressly exercise caution in accusing humans of inevitably posing a threat towards bees. Take, for example, the story of the British bumblebees that were shipped to New Zealand in 1884. In December of that year a steamship left London and headed for Christchurch. On board the ship were precisely 282 queen bumblebees, 48 of which survived the entire trip (Goulson, 2013). This process was repeated a month later, bringing another 49 surviving queens to Christchurch. By the summer of 1886 bumblebees could be spotted up to 100 miles from Christchurch, and by 1892 there were even accusations of them being a pest (ibid). Today these bumblebees still thrive in New Zealand, relatively unchallenged by human presence. However, two out of the four species that still thrive in New Zealand have been almost eradicated in the UK. The case of the bumblebees in New Zealand demonstrates the capacity for humans to live relatively harmoniously alongside bees that might elsewhere be threatened. Admittedly, however, whilst humans *can* live in harmony with bees, it is

³¹ It should be noted that, because honeybee health is more closely monitored than the health of wild bee species, it is generally thought that most wild bee species are closer to the possibility of extinction.

more common that the modern relationship between humans and bee species will be tainted by processes of harm, suffering, and loss.

Concerns about the loss of bee populations, most notably honeybees, have surfaced at various other points in human history. Jake Kosek (2010), for example, mentions that there was a decline in honeybees during the Roman Empire. It is thought that this decline was due to the extensive use of honeybees for warfare techniques: hives provided deadly weapons and would have been dropped on invading armies or launched into areas where one's enemies were known to be. It hardly needs to be written, however, that the use of beehives in this horrifying and improper way would have been detrimental for the survival of the colony. In more recent history beekeepers, biologists, and bee enthusiasts have been no strangers to large scale losses of bees. For instance, in the early 1900s a threat named the Isle of Wight³² [IOW] disease started to spread in alarming numbers across the UK. This was a highly infectious disease and was described by Imms (1921, p. 283) as a "serious menace to apiculture in Great Britain [...] no epidemic of an equally permanent and extensive nature has so far been indisputably recognised outside the British Isles". The disease resulted in honeybees suddenly losing their ability to fly and therefore dying in large numbers. It is supposed that the IOW disease wiped out nearly 90% of British honeybees in just under 15 years (Brother Adam, 1968). The IOW disease did, however, finally pass. Beekeeper and researcher Matthew Richardson (2018) explained to me how there were two main reasons for it stopping:

The first one is that as British bees started to die out people imported bees to replace them. So they imported bees from Italy and Germany and the disease died out. So the one possibility is that the imported bees had a higher resistance to it. The second thing is that the native bees that survived were the ones that were resistant. But by that time we'd lost enough colonies that, if imports had been banned, the bee population might have dropped by 80% and the 20% that remained would now be resistant and you'd never see that problem again. But actually what happened is the British colonies died out [...] and they were replaced immediately by imported colonies from Europe. So then we ended up [...] over a period of 5-10 years replacing all of our native bees with hybrid bees. So it's difficult to know now [...] what the original cause was and what the treatment result was. Whether it was the imports, or whether it was native resistance.

Although we now know that the IOW disease would come to an end, it was a time of significant concern for honeybees' survival; Brother Adam (1968, p. 9) describes how people were trying all sorts of techniques to save their honeybees, commenting that the "use of every conceivable remedy

³² The disease was named the Isle of Wight disease as this is where it is alleged to have first appeared in 1904 (Brother Adam, 1968).

to combat the ravages of the IOW disease may appear to us now to have bordered on hysteria, but [...] beekeepers were panic-stricken, and in their despair they grasped every glimmer of hope". Subsequently, the IOW disease did not only cause the physical demise of many honeybees, it also caused frustration and feelings of hopelessness in beekeepers around the UK, resulting in a decline of those engaged with the practice. For instance, it was reported by the Honorary Secretary in the *Yorkshire Beekeepers' Association Annual Report of 1924-1925* that owing partly to World War I and partly to the impacts of the IOW disease "members lost heart and fell away till during the last three years the Association did so little concerted work that I think those might be forgiven who spoke of it as moribund or even defunct" (Allen, 1925, p. 2). Thus, declining bee numbers is not an entirely new phenomenon. However, whilst bees have been threatened before, their recovery has always been relatively swift. The IOW disease, for example, was brought under control relatively quickly by importing or breeding resistant honeybees. Today, however, the multitude of global, environmental, biological, and social factors feeding into the decline means that the recovery of bees will require far more complex and widespread solutions.

4.3.1 (Re)making the Modern Bee: Human Interference in the World of Honeybees

Whilst honeybees are only one of thousands of bee species, a significant amount of research on declining bee populations centres on honeybees. This has occurred for two interrelated reasons. First, as is apparent in section 4.2 of this chapter, honeybees are the bee species that humans have had the most tangible and engaged relationship with. Thus, honeybees are the species of bee that humans are most attentive to. Second, and precisely because we are so attentive to the health of honeybees, it was honeybees that first drew global attention to the fact that bee species might be in decline. Whilst entomologists, beekeepers, and likely even some gardeners had begun to take note of the increasing stressors that bees were struggling against before the turn of the millennium (see: Allen-Wardell et al., 1998; Kearns, Inouye, and Waser, 1998; Kraus and Page, 1995; Watanabe, 1994; Corbet, Williams, and Osborne, 1991; Martin and McGregor, 1973; Anderson and Atkins, Jr, 1958), it was the arrival of CCD in 2006 that marked the beginning of extensive scientific and public interest in the threats facing bees (Portus, 2020; Farrier, 2019; Swan, 2017; Moore and Kosut, 2013).

CCD, or colony collapse disorder, is a syndrome that causes honeybees to disappear from their hives without trace. CCD exposed how modern honeybees have become a species entangled with processes of ecological violence. Today we know that CCD was born out of the catalysing of numerous factors, including, but not limited to, the weakening of bees' immune systems due to a

lack of nutrition, pesticide use, and the global spread of pathogens and parasites. However, because CCD caused honeybees to completely disappear, thus leaving no biological trace of the pathogens or circumstances causing CCD, the syndrome proved to be a complete mystery for many years. The mystifying nature of the CCD crisis, coupled with the anxiety it caused for both beekeepers' livelihoods and agricultural methods, meant that the CCD crisis succeeded in capturing international attention (Portus, 2020; Moore and Kosut, 2013). Pertinently, the spectacular nature of the CCD crisis can be directly linked to a substantial increase in research concerning the health of bees, particularly honeybees (see: vanEngelsdorp et al., 2017; Goulson et al., 2015; Stindl and Stindl Jr, 2010; Potts et al., 2010a; Sharpe and Heyden, 2009; vanEngelsdorp et al., 2009; Naug, 2009). CCD can therefore be understood as a tipping point for awareness around the threats facing bees; it paved the way for the extensive knowledge being generated today around the causes and consequences of the bee decline. Following the CCD crisis, there emerged an abundance of literature which studied and followed the impacts of this particular crisis (see: Swan, 2017; Nordhaus, 2011; Benjamin and McCallum, 2009; McCarthy, 2008; Barrionuevo, 2007). Thus, concerns specifically relating to honeybees have, until relatively recently, dominated both scientific and popular knowledge around declining bee populations. In light of this, I begin my examination of the story of the bee decline by focusing specifically on debates surrounding honeybees.

Whilst CCD may have catapulted news of the bee decline into international headlines, it is actually just one of many problems facing honeybees. Moreover, the anthropogenic behaviours which have contributed to the decline of honeybees began long before CCD became headline news in 2006. For instance, one of the most debated reasons for the threats facing honeybees is developments in beekeeping techniques. Thus, in tracing the story of how modern honeybees have come under new threats it is relevant to return to the beginnings of modern beekeeping. In his study of the IOW disease Brother Adam (1968) notes that in the early 1900s beekeeping in Britain was shifting away from traditional beekeeping techniques, to novel, modern methods of keeping bees. Brother Adam was specifically referring to the widespread introduction of modern hives, as opposed to traditional skep hives. The traditional skep hive, which is shown in figure 4, is a circular hive made from woven straw, and was used throughout much of British beekeeping history. Traditionally, however, to reach the honey inside a skep hive the beekeeper in question would have had to destroy the entire hive. This practice would have commonly resulted in the death of the honeybees which lived there³³.

³³ During my research I met a number of individuals who still keep bees in skep hives. However, none of these individuals collect honey from their hives.



Figure 4: Skep Hive (Author's Own Image, Private Residence in Sussex, 2018).

In 1750 a man called François Huber was born, who would grow to become deeply concerned at the practice of destroying hives to reach the honey (Jukes, 2018). In light of his concerns, François Huber decided to develop a new hive. This new hive, shown in figure 5, employed the technique of removable honeycomb frames. This novel design allowed beekeepers to inspect the honeybees and remove honey without destroying the colony. However, whilst François Huber first came up with the notion of removable frames, and thus began the designs for hives we know today, the start of modernised beekeeping truly began in 1851 with another hive design, produced by a man called Rev. Lorenzo Langstroth. This hive, which is known as the Langstroth hive and is still in use today, also allowed beekeepers to easily enter the hive and remove the honey. It was the Langstroth hive that truly popularised the use of removable frames in a hive. This is because Langstroth discovered that the frames must be hung approximately three eighths of an inch apart. Any bigger, and the honeybees will build their own additional combs which cannot be easily removed. Any smaller, the honeycomb that the honeybees create will stick the frames together. This is called the 'bee space', and was still an aspect of beekeeping which I was taught in the beekeeping course I undertook in

2018. The hive was sold as a design of perfect rationality, in which the frames could be freely removed for either inspection or the removal of honey without causing unnecessary harm to the honeybees (Seeley, 1985). Thus, Langstroth's hive design came to revolutionise beekeeping.

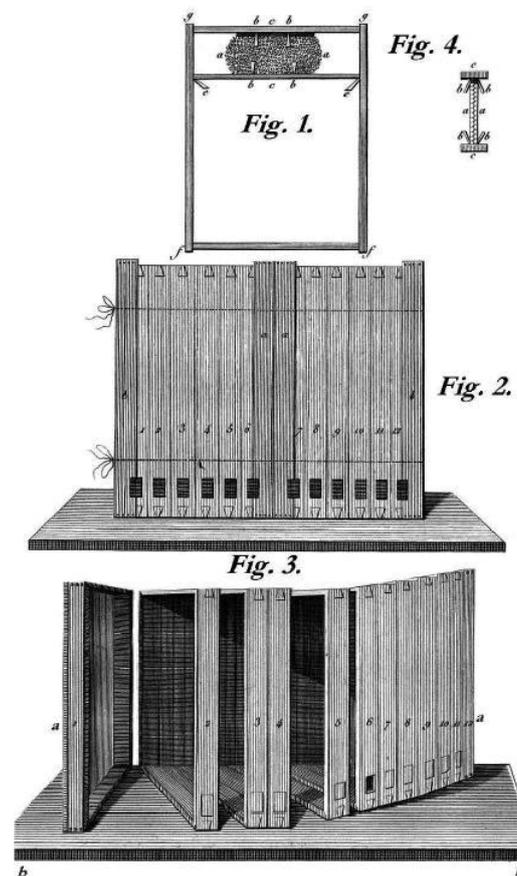


Figure 5: Francois Huber Hive (Huber and Huber, 2019 [1814]).

Whilst the modern hive was first developed as a way of mitigating the harm that honey collecting could cause honeybees, it has since been argued that the modern hive design, and thus the birth of modern beekeeping, has had a number of unintended consequences. In the year 1923, over 70 years after the Langstroth hive was designed, a man called Rudolf Steiner (1998 [1923]), a philosopher and the founder of Steiner-Waldorf education, led a lecture series on the topic of bees³⁴. In these lectures Steiner reflected on modern beekeeping techniques, suggesting that if beekeepers were to continue the current practices of that time there would be a mass decline of honeybees 100 years from that point. Steiner's contention was that modern beekeeping techniques, which centred around the opening of hives to inspect the processes within and remove honey, had changed

³⁴ These lectures were later published in the book *Bees: Lectures by Rudolf Steiner*.

beekeeping into a mechanised and artificial process. This, in turn, had paved the way for processes such as artificial breeding. It was argued by Steiner that beekeepers' still relatively novel capacity to artificially intervene in procedures of the hive would not allow for vital natural and organic processes to occur. Steiner (ibid, p. 178) warned of the perils of disallowing honeybees to organically carry out the social activities of the colony, stating that the happiness felt by beekeepers over the supposed progress of beekeeping "will barely continue for one hundred years". Steiner believed that bees would cease to thrive under such intervention. Needless to say, 100 years later - almost to the date - we have found ourselves in crisis over the future of honeybees. Considering the timelessness of his arguments, Steiner was, arguably, a scholar of a future world which he himself would never see. Although Steiner was speaking at the beginning of the twentieth century his predictions regarding the struggles honeybees would come to encounter are still widely discussed: Steiner's philosophical outlooks and understandings are, today, at the heart of natural beekeeping principles (Green and Ginn, 2014). To clarify, natural beekeeping is a style of beekeeping which involves minimal intervention in the hive.

In Steiner's (1998 [1923]) lectures, his concerns for the health of honeybees centres around beekeepers' capacity to open up, inspect, and control various aspects of hive life. In these lectures, Steiner focuses significantly on processes of artificial breeding, pinpointing this as a damaging development in beekeeping practices. However, the redevelopment of hives in the nineteenth century led to a number of novel beekeeping techniques which today are debated as to whether they are harmful for honeybees. For example, beekeepers' new-found power to easily and repeatedly access the honey stores in hives put pressure on honeybees to increase their efficiency: the more honey that could be taken by beekeepers, the more honey honeybees would need to feed themselves and replenish their stocks. The new ease with which people could access honey, and thus the increase in honey production, further paved the way for a rise in people keeping honeybees for commercial purposes. The growing desire to increase sales further encouraged beekeepers to take excessive amounts of honey, leading to the growing practice of replacing the honeybees' honey stores with artificially created sugar substances. Replacing the honey stores with these artificial substances allowed humans to take more honey, whilst still keeping the honeybees' alive. However Mao, Schuler, and Berenbaum (2013) suggest that the widespread use of replacement honey substances - which continues to this day - inadequately nourishes honeybees and may, over time, weaken their immune systems and compromise their ability to resist pathogens and pesticides.

Concerns regarding the use of replacement substances for honey are actively voiced by individuals who work from a natural beekeeping perspective. For instance, during my time spent on a creative

writing weekend run in association with the Natural Beekeeping Trust³⁵, one of the organisers of the weekend - Carrie Foulkes - expressed the thought that if humans had been used to living on a rich diet of fruits and vegetables and then one day were suddenly confined to only drinking sugary drinks, we would not question why said humans were becoming ill and susceptible to disease. Carrie told me how she considers the replacement sugar substances as being the equivalent of sugary drinks, and an obvious reason as to why modern honeybees have weakened immune systems. In an exploration of the struggles facing honeybees natural beekeeper and gardener Gunther Hauk (2002) makes a similar comparison to Carrie, suggesting that if the human diet was suddenly reduced to substances such as grass or tree bark, although it might provide a temporary food source, it would inevitably lead to discomfort, illness, and death.

Another aspect of keeping bees which has become a standardised practice in recent years, that is also potentially harmful for honeybees, is the prevention of swarming. To clarify, swarming is honeybees' way of generating new colonies. It entails an older queen leaving her original hive, taking half of the hive population with her. The honeybees that vacate the hive then find themselves somewhere new to live, whilst a new queen settles in the old hive. This can result in the beekeeper losing half their honeybees, and therefore half the amount of honey they might produce. It also involves the honeybees literally swarming through the air, which is seen to be socially disrupting. As such, swarming control techniques, which can involve clipping the wings of queen bees or killing new queens in their cells, have become commonplace in conventional beekeeping (Green and Ginn, 2014). Yet, it has also been suggested that honeybees will only swarm if they deem it a necessary process, and that interfering with this process grossly disturbs the social order (Hauk, 2002). Such a suggestion is necessarily contentious for most, if not all of the conventional beekeepers I spoke to suggest that swarming control is a vital aspect of honeybee management. Swarm control was stressed as paramount in the beekeeping course I took, with one entire lesson dedicated to this subject. Indeed, my observation notes on this week comment:

That there was a whole week dedicated to this subject reveals just how important this subject is seen to be nowadays. [Swarm control] is stressed to us as being of utmost importance if beekeeping is going to work, especially in urban environments. The emphasis is on our loss of bees, and the fear or hassle it might cause to others; there seems to be a lot less said of the effect that this might actually have on the bees.

³⁵ The Natural Beekeeping Trust is an organisation which develops and disseminates information around the natural beekeeping approach.

In his book *Towards Saving the Honeybee*, Gunther Hauk (2002) who, as mentioned, works from a natural beekeeping perspective, assesses a number of common beekeeping techniques which he considers to be harmful to honeybees³⁶. Hauk not only takes issue with swarm prevention methods and the use of replacement sugar substances, but also examines issues such as modern methods of controlling parasites or, likewise to Steiner (1998 [1923]), artificial queen breeding. One of the other issues that Hauk (2002) specifically discusses is the use of artificial wax sheets in the removable hive frames. Nearly every beekeeper who uses the standard modern hives will be taught to insert frames that have prefabricated wax sheets slotted into them. These are thin beeswax sheets imprinted with the six-sided pattern of honeycomb. They are wired into the removable frames before they are put in the hive. The honeybees will then build their honeycomb on these wax sheets. This honeycomb provides both the structure of the hive and the protective womb-like cells that shelter larvae and honey. The logic behind the use of wax sheets is that it allows for bees to be more productive in their honey-making, as they will spend less time building their comb. Furthermore, the comb will be more uniform and easier to gain access to. However, Hauk contends that there are two serious issues with the use of artificial wax sheets. First, beeswax will retain any diseases or chemicals present in it. Although the beeswax used to create these wax sheets will be heated in attempts to kill any disease spores, chemicals cannot be eradicated so easily. Therefore, Hauk (2002, p. 23) argues that “the quality of heated detergent-cleansed, poison-enriched wax foundation can hardly provide the necessary environment for the bees’ brood and food storage”. The second reason that Hauk (2002) gives for the wax sheets being harmful is that it interferes in the organic processes of hive life. It deprives honeybees of agency over the construction of their living environment. Moreover, it is increasingly understood that assisting honeybees in their labours too greatly is actually physically unhealthy for honeybees. Hauk suggests that comb-building is, essentially, like a form of exercise. Fundamentally, therefore, Hauk contends that the common use of artificial wax sheets is unhealthy and potentially even dangerous for honeybees.

As I have made clear, the arguments put forward by writers such as Gunther Hauk (2002) are reflective of a natural beekeeping approach. Not unexpectedly, the contention that contemporary beekeeping practices are actually causing honeybees more harm than good, and that we must return to more natural modes of keeping bees, did not necessarily sit comfortably with some of the more conventional beekeepers or entomologists that I spoke to during my research. When I probed said individuals on their thoughts on returning to more traditional modes of beekeeping husbandry,

³⁶ Hauk’s work was originally published some years before the CCD crisis occurred. However, in a second edition of his work, Hauk (2008) references how CCD has opened up the possibility for re-evaluation of how we interact with and exist alongside honeybees.

as a way of relieving bees of modern stressors, I quickly became aware of some deeply rooted tensions regarding this matter. Whilst a number of my interviewee participants that were not natural beekeepers claimed to have limited knowledge, and therefore limited opinion, on the subject, there were others that expressed concern, and even fear, at the idea of a more hands-off approach to beekeeping. The argument was put forward that, although we may have once been able to care for honeybees in a less hands-on manner, the extensive threats facing honeybees today means that we have no choice but to constantly monitor and intervene in honeybee health. For instance, entomologist Lewis Bartlett (2018), who works studying infectious diseases in honeybee hives, described how he passionately disagrees with a more hands-off approach. He told me that “there are certain infectious diseases which are so devastating that they need to be routinely checked for and action needs to be taken very quickly”. Lewis is extremely concerned that using hives such as the traditional skep hive, which does not permit beekeepers to use modern management techniques, will only cause harm to honeybees. Thus, beekeeping, a practice which may have once been considered relatively uncontentious, is now a practice which incites many conflicting opinions and choices. Indeed, in a book documenting the beginning of her own beekeeping journey, author Helen Jukes (2018) recounts how overwhelming starting beekeeping is due to the clear tensions between different methods of keeping bees. Jukes (ibid) describes the arduous and baffling process of trying to decide where one should place themselves on the natural to conventional scale. The wealth of information and various choices new beekeepers have to grapple with today can prove overwhelming.

It is not just modern beekeeping practices that have been suggested as harmful for honeybees. In Benjamin and McCallum’s (2009) book *A World Without Bees: The Mysterious Decline of the Honeybee - and what it means for us* they describe the development of an industry that revolves around the loaning out of beehives to farmers in need of pollination services. This industry is being led by beekeepers living in the United States of America [USA], who have found that there is more profit in the transportation of hives than in honey production. Hundreds of honeybee hives are thus transported around the USA in large trucks and rented out to pollinate large swathes of agricultural land. This practice of taking honeybees to different monocrops, a trend which began rapidly increasing after World War II (Martin and McGregor, 1973), deprives them of a diverse diet. A UK-based beekeeper I spoke to, Richard O’Donnell (2018), comments that “it’s like us living on McDonald’s all the time or [...] lamb chops all the time. It can’t be good for them”. Whilst the practice of transporting hives for pollination services began as early as third century BC with Egyptians (Preston, 2006), the conditions in which beehives are being moved around today, coupled with the lack of floral diversity in the crops they are taken to pollinate, means that this practice will

be a lot more harmful and damaging than it ever was in Ancient Egypt. Thus, although bees have always been fundamental to the production of food, in the last two centuries honeybees - the only species of bee which can be transported around by humans in large numbers - have been redefined by their role in agricultural production; as agriculture moved into mass production, honeybees also became embroiled in this new and inexplicably harmful mode of food production. Accordingly, there have been recent calls to consider honeybees under the label of livestock (see: Cross, 2018). Yet, Eileen Crist (2013) suggests that animals become impoverished, indeed poisoned, from the moment we stop describing species as animals, and rename them livestock. Applying Crist's statement to honeybees highlights the contradictory way that honeybees are concurrently viewed in human society; honeybees are simultaneously still celebrated for their mystical connections and used as a cog in an agricultural machine, both revered and restrained.

A particularly thought-provoking paper on the matter of honeybee exploitation was undertaken by the geographer Jake Kosek (2010). Kosek evidences how honeybee behaviours have been altered by humans in myriad ways. Similar to Hauk (2002), Kosek (2010) writes about the introduction of hives that facilitate factory-like production and the use of artificial honeycomb. However, he also explores beyond the practices of standard beekeepers, investigating the use of bees in military defence strategies. Bees, like many other insect populations, have long been utilised in military strategies: throwing beehives and wasp nests at invading armies is one of the oldest tactics known in biological warfare (Lockwood, 2009). Today, the use of bees in warfare strategy has moved on from the catapulting of hives into enemy areas. Kosek (2010, p. 656) explains that, rather "than being used simply as weapons of war, bees have become involved in the search for what is beyond the reach of human senses". For example, honeybees are widely used as 'bio-monitors', which involves placing hives in a specific area so as to test the pollen, nectar, or various other substances which honeybees might pick up in that particular environment. In his research into the subject of bees and warfare Kosek (2010) also learnt of other projects, such as one which, by inserting new technologies into honeybees whilst they are still larvae, aims to develop machine-insect interfaces that allow people to control insects' locomotion. Following his examination of such practices, Kosek argues that the biological, social, and symbolic modern remaking of honeybees is responsible for their declining numbers. He also suggests - perhaps controversially - that to still view modern honeybees as 'wild' creatures is to erase how human politics and desires have inscribed themselves in honeybees' biology. In Kosek's view, humans have transformed honeybees so extensively that they have little relationship to their former 'wilder' selves.

The degree to which honeybees are exploited, changed, or weakened by modern practices and beekeeping techniques remains an ongoing debate. A natural beekeeper, for example, would likely

consider honeybees to be under more exploitation in commercial practices than a more conventional beekeeper. Conversely, natural beekeepers might be more likely to claim that honeybees retain a connection to their former 'wilder' selves. However, despite varied opinions regarding the degree to which honeybees have been harmed by modern developments, recent centuries have undoubtedly seen vast changes to how we manage and engage with honeybees. As a species whose lives are greatly affected by the choices of humans, they have been confronted with new pressures and, subsequently, stressors from anthropogenic changes.

4.3.2 *Shrinking Nature: Habitat Loss and The Decline of Bees*

As I have previously stressed, narratives around the decline of bees tend to focus on honeybees. However, many other bee species are also threatened. In fact, due to the comparative inattention shown towards wild bees, many of these species are much *more* critically threatened than honeybees. As beekeeper and researcher Matthew Richardson (2018) expressed, "honeybees will always be looked after in some way, shape, or form. Because they have this livestock value, this economic value, people will always fight to keep honeybees going". In reaction to this, a number of individuals are actively working to draw greater attention to wild bees' plights (see: Strawbridge Howard, 2019; Goulson, 2017, 2013). It is argued that it is vital that we now turn our attention to the fate of wild bees, for those are the lives which are becoming ever more precarious in a world that is increasingly hostile for bees. Two of the most important factors for the survival of bee species - particularly wild species - is the availability of food and nesting sites (Razo-León et al., 2018). Accordingly, one of the primary reasons that a great number of bee species are currently threatened is due to the loss of those habitats which provide these resources; as Goulson et al. (2015) explain, the steady decline in wildflower habitats has reduced nesting opportunities and the availability and diversity of floral resources.

When people speak of the loss of natural habitats, there is a tendency to quickly demonise urban environments. There is a prevailing narrative that the growth of urban environments is the reason for the loss of greenspaces and natural environments (Hartig et al., 2014). Yet, whilst the connection between urban expansion and the loss of natural habitats is important to recognise, this commonly drawn link can inadvertently direct attention away from the role that rural and agricultural environments have played in the loss of habitats. Today, we know that developments to rural and agricultural environments have long been just as, if not more, damaging for natural ecosystems. The key changes to rural and agricultural environments which have caused damage for bees centre

around the development of monocultures and large fields, as well as the reclaiming of waste and marsh lands. These changes have been occurring for multiple centuries, predominantly developing in response to the growth of the modern economic capitalist system. However, Goulson (2013) suggests that these changes rapidly sped up - and thus began to have particularly significant impacts on bees and other insects - during the early-mid 1900s. Goulson explains how approximately 100 years ago, before World War II, farmers still relied predominantly on horsepower, as opposed to the power of heavy machinery. Similarly to bees, horses love clover and so farmers had planted it in abundance. This one plant provided bees, as well as other wild pollinators, with a significant source of food. Artificial fertilisers were also not widely available at the time, which meant that wildflowers would have been able to more easily flourish amongst the crops. Additionally, to keep soil fertile, most farmers in Europe would have still been using a traditional three-year or even a four-year rotation system to grow their crops. For example, they might have grown rye or wheat in a field in the first year, oats and barley in the second year, and allowed the field to recover in the third year. So if we imagine Britain 100 years ago it would have been “a patchwork of small fields, cereals and root crops intermixed with clover leys and permanent hay meadows. No artificial fertilisers, no pesticides. Lots and lots of happy bees” (ibid, p. 4).

However, as Goulson (2013) writes, these traditional modes of farming began to rapidly disappear in the early twentieth century. As mechanised alternatives to horses came in and cheap fertilisers became available the clover and wildflowers that provided so much rich feed for bees began to disappear. However, before World War II these changes to farming were relatively slow as, despite the availability of some new technologies, before the 1940s most farmers tended to stick to quite traditional methods of farming. Then, in 1940 Britain suddenly became unable to import food from Europe, and there was a sudden need to produce enough local food to feed everyone living in Britain. This era is classically characterised by the ‘Dig for Victory’ campaign, in which all British citizens were encouraged to grow and eat their own crops. However, it was not just regular citizens who were being encouraged to work to contribute to the sudden lack in food supplies. Farmers were encouraged to increase their production as much as possible, expanding their farms into previously unused meadows, ripping up hedges, and draining marshes. Consequently, “Between the years of 1939 and 1945 the area of land used for food production rose by 80 percent” (ibid, p. 6). We know today that this change spelt disaster for bee populations who, in the fight for the British people to produce enough food for themselves, paradoxically lost much of their food sources; as such, one of the legacies of this era is a huge reduction in the food sources available to bees.

In tracing the connection between World War II, changes to rural environments, and the loss of bees Goulson (2013) makes a rather memorable suggestion that the loss of bee populations in Britain is

partially the fault of Hitler. One might guess that Goulson's accusation towards Hitler triggered some interesting comments for, in a later book, Goulson (2017) openly refers to how he has become somewhat known for this earlier contention, stressing that it had been a loosely made connection. However, because we can clearly see how the loss of insects has partly occurred due to developments triggered by World War II, it is perhaps fair to attribute some of the blame to this terrible dictator.

The impact of agricultural crops on bees was a fact noted by a number of my participants. As textile artist Lydia Needle (2019) described:

I live in the countryside, which should be perfect. But the fields that we live next to are monocultures. So [...] we probably get less bees here than my family do who live in a town. I go to my mum's garden, she's in a town, and her garden is full, full of bees. We see a few and we're over the moon.

Lydia touches upon how, today, the lack of wilderness amongst crops has become normalised. Indeed, the National Farmers' Union (2019a) recently shared a video via the social media platform Twitter with the caption "British farmers maintain and enhance our most beautiful landscapes, all while producing food to feed the nation". This alone is not shocking. However, as shown in a still of the video in figure 6, the video depicted two tractors in an agriculturally managed field. It was a picture of a landscape being chugged with pollution and free from any natural habitat. Interestingly, this particular 'tweet' was deleted not long after, most likely due to the negative reaction it received. This particular case is indicative of the debates that are beginning to arise around conventional farming techniques, and the expected backlash from those farming communities which have become reliant on modern farming techniques. Indeed, it is pertinent to recognise that, whilst many farmers use techniques that are likely to be frowned upon by any keen entomologist, farmers are stuck in a system which pressurises them to produce a certain volume of food and thus persuades them to rely on modern technologies and pesticides: the rewilding of farms, as has been done at Knepp Castle Estate in Sussex (see: Tree, 2018), does not necessarily feel like a possible reality to many. Thus, it is important to not demonise those individuals who have become embroiled in a system which pressurises them to use these techniques as a matter of survival. Rather, we must consider the reliance on harmful farming techniques as a systematic failing: one which does not

adequately help farmers and associated agricultural professionals to engage, either by choice or not, in more sustainable practices.



Figure 6: British farmers maintain and enhance our most beautiful landscapes, all while producing food to feed the nation (National Farmers' Union, 2019b).

Shifts in agricultural practices are certainly not the only reason for the loss of suitable natural habitats; another significant change that came into force around the same time as the major modern developments to farming practices was a surge in suburban living. The growth of suburbia first began when the increasing prosperity of Britain throughout the nineteenth century resulted in the emergence of a new middle-class population. By the 1840s suburban housing estates designed specifically to house the new middle-class had developed on the outskirts of most major industrial cities (Andrews, 1995). Balderstone (2014, p. 142) suggests that “suburban relocation had become so embedded in nineteenth-century culture that movement to the outer fringes was understood as a vital facet of middle-class identity”. Although this migration continued to steadily increase throughout the following century, it was in the years following World War II that suburban development in the UK rapidly expanded, changing large swathes of the British countryside from rural to suburban landscapes. This was a change driven by post war government regeneration programmes, as well as developments in technology and transport systems that started to allow people to live further away from their place of work (ibid). Whilst these suburban developments no

doubt provided, and continue to provide, essential homes for many individuals, suburban environments come at an ecological cost.

Suburban environments can be distinguished by the way in which 'nature' is present, yet controlled; a stereotypical suburban garden is characterised by green lawns mapped out by herbaceous borders, fences, and shrubs (Andrews, 1995). These environments can be deceptively harmful, for they falsely give the appearance that natural habitats are present and flourishing whilst actually providing few of the resources needed to sustain bees and other pollinators. Furthermore, many of the traditional modes of controlling these environments, such as the use of insecticides and lawnmowers, cause further environmental harm. In a 2008 TED talk³⁷ the scientist Dennis vanEngelsdorp specifically connects the decline of bees to developments in lawn culture. Although vanEngelsdorp is speaking about developments in lawn culture throughout the USA, his message is as relevant and applicable in the UK. During his talk vanEngelsdorp (2008) pleads with his audience to "make meadows and not lawns". Not only does vanEngelsdorp describe lawns as useless biosystems, he also suggests that living near a meadow-like environment is a transformational experience. It is thus suggested by vanEngelsdorp that the message to make meadows not lawns, which will simultaneously allow insect populations to thrive and help humans to experience the joy of natural ecosystems, is one that helps counteract a number of the issues feeding into the ongoing loss of bees.

At the start of this section I comment on the misconception that urban environments have the greatest impact on bee populations. However, this was not to imply that urban environments do not negatively impact bees. Indeed, urban environments which are highly populated by humans can result in a complete loss of those habitats which bees need to survive (Razo-León et al., 2018; Martins, Gonçalves, and Melo, 2013). For instance, in their study of wild bees in Brazilian cities Martins, Gonçalves, and Melo (2013, p. 157) write that "the effects of urbanization, in particular intense land occupation and few preserved natural areas can be pointed as the main causes of species decline". Furthermore, as trends in urban beekeeping increase (see: Moore and Kosut, 2013) the availability of resources is stretched between an ever-growing population and diversity of bee species (Benjamin, 2011). For instance, in an experiment conducted by Hudewenz and Klein (2015) it is suggested that red mason bees, solitary bees which are typically found in urban environments, suffer from competition with honeybees for floral resources. Whilst a limit of floral resources is not good for the new 'urban' honeybees, it is worse for the wild bees that will increasingly have to

³⁷ TED talks are relatively short talks given by experts in various subjects. These talks are filmed and distributed online by the organisation TED.

compete with them. Moreover, whilst honeybees nest within hive environments, wild species of bee tend to be more reliant on wildflower habitats for nesting sites. Thus, the rapid changes to habitats and environments that are associated with urbanisation will have a varied level of impact upon different bee species, with some being more negatively affected than others.

Interestingly, despite some concern regarding the lack of suitable habitats for bees in cities, there is also a growing set of data which suggests that urban environments might actually help bee populations thrive. For instance, Baldock et al. (2015), who studied bee species richness in different categories of landscape, found that bee species diversity was higher in urban environments. Baldock et al. (ibid) suggest that urban landscapes are of growing importance to pollinating insects survival. Samuelson et al. (2018) make a similar assertion in their recent study of bumblebee species survival in different habitats. By observing bumblebee colonies across a variety of sites, all of which varied in the degree to which they were considered urban, Samuelson et al. (ibid) discovered that colonies in urban areas thrived better than colonies in rural environments. As such, they assert that their research shows “a link between urbanization and bumblebee colony reproductive success, supporting the theory that urban areas provide a refuge for pollinator populations in an otherwise barren agricultural landscape” (ibid, p. 1). Furthermore, even though Razo-León et al. (2018) discuss how urban areas can modify vegetation for bees in potentially negative ways, they also recognise that urban areas can be important for bee protection strategies as there tends to be a more consistent availability of flowers all year round. Thus, whilst urban landscapes do need to be monitored for how much habitat they can provide the changing numbers of bees present in those areas, it is widely understood that urban landscapes might provide important sites for bee conservation.

The extent to which landscape developments have resulted in a loss of suitable habitats for insects varies across different environments and locations. However, it is indisputable that over the last two centuries there has been a significant reduction in the natural habitats and floral resources needed to sustain pollinating populations. The biggest reduction in habitat can be found in agricultural environments. However, this is due to a myriad of factors, including the expansion of suburbia into rural areas, production pressures on farmers, and the fact that traditionally urban environments had comparably less natural or wildflower areas to be able to lose. Fundamentally, the loss of habitats, which is having serious consequences for bees, stems from wider societal problems and developments which have led to the importance of conserving natural habitats being overlooked in light of other concerns, such as the need to rapidly expand agricultural production during World War II.

4.3.3 A 'Silent Spring': Insecticides, Pesticides, and Other Chemicals

In 1962 Rachel Carson published her book *Silent Spring*, which exposed the extremely harmful side effects of using the pesticide DDT. Carson (1962) produced a rigorous investigation of how this pesticide was extremely damaging, infecting not only plants and animals, but also humans. Whilst Carson's work focused on events in the USA, this seminal text triggered significant changes to environmental knowledge, policy, and behaviours that extended far beyond the shores of the USA; as I emphasise in section 2.2.1 the positive impact of Carson's work is hard to underestimate (Murphy, 2005). However, at the same time, it has been nearly 60 years since Rachel Carson published *Silent Spring*, and we are still heavily reliant on a number of chemical substances that we know are harmful. For example, the toxic nature of some commonly used chemical products has recently been exposed in a court case which linked a person's cancer diagnosis to their use of a weed killer sold by the company Monsanto (Levin and Greenfield, 2018).

The use of chemicals in agricultural production methods has had a particularly damaging impact on bee populations. Goulson et al., (2015, p. 1435) describe how the "intensification of agriculture and increasing reliance on pesticides means that pollinators are [...] chronically exposed to cocktails of agrochemicals". This is not a novel statement; as (Martin and McGregor, 1973, p. 207) wrote nearly 50 years ago, the "use of pesticides highly toxic to bees either weakens or destroys many colonies". Martin and McGregor (ibid) further suggest that the "same factors that are detrimental to honey bees are equally if not more detrimental to wild pollinators". Whilst the particular chemicals used in agricultural production may differ between now and then, the controversy surrounding the impact of chemical substances on bees has not. In recent years there has been a significant amount of attention on the use of insecticides known as neonicotinoids. These were, until recently, one of the most widely used insecticides. However, they are deadly for bees (see: Baron, Raine, and Brown, 2017; Woodcock et al., 2016; Henry et al., 2012). Siviter, Brown, and Leadbeater (2018, p. 109) explain how neonicotinoids, "while not lethal to bees at field-realistic levels, have severe sub-lethal effects on both social and solitary bees, influencing cognition, foraging ability, homing ability, reproductive output, colony initiation and, potentially, pollination services". This knowledge has caused significant outrage on public platforms, with popular figures such as George Monbiot (2013) labelling neonicotinoids "DDT 2.0". Fortunately, this research and the negative press surrounding neonicotinoids has had some positive outcomes. The European Union severely restricted the use of neonicotinoids in 2018, specifically due to the harmful nature of them for bees (Carrington, 2018). Neonicotinoids across Europe can now only be used in permanent and closed greenhouse

structures. Although the material legacy of neonicotinoids will take a long time to disappear, the negative impacts of neonicotinoids will significantly lessen with their decreased usage.

As the use of neonicotinoids comes under significant fire, both in Europe and elsewhere, there has been a clamour for alternatives. Unfortunately, the alternatives to neonicotinoids are not necessarily any better for bees. For example, Siviter, Brown, and Leadbeater (2018) write that sulfoximine-based insecticides are the most popular successors of neonicotinoids. However, despite it being hailed as an alternative to neonicotinoids, Siviter, Brown, and Leadbeater (ibid) show that the sulfoximine-based insecticide known as sulfoxaflor is extremely harmful to bumblebee colonies. Indeed, it is perhaps no less harmful than neonicotinoids. Siviter, Brown, and Leadbeater (ibid) write that the impacts of sulfoxaflor identified in their study is comparable to previous experiments that studied bees' exposure to neonicotinoids; the results of their study evidence how, if sulfoxaflor is used on crops, the insecticide will pose a serious risk to pollinators. However, despite their toxic properties, insecticides containing sulfoximine have been approved in countries around the world. Indeed, the United States Environmental Protection Agency (2019) recently approved the use of sulfoxaflor for a variety of crops, stating that:

sulfoxaflor poses no significant risk to human health and lower risk to non-target wildlife, including pollinators, than registered alternatives. Sulfoxaflor is an effective tool for growers that has a lower environmental impact because it disappears from the environment faster than widely-used alternatives like neonicotinoids.

Whilst it might appear that we could easily stop the harm caused by neonicotinoids and other relevant insecticides or pesticides by simply banning the use of them, the use of such chemical substances is perpetuated by a wider social context. Tom Timberlake, one of the entomologists who contributed to my thesis research, advocates caution in painting a black and white picture of the current use of insecticides or pesticides. When we were discussing the recent ban of neonicotinoids, Tom said that:

having worked with a lot of farmers [...] it looks really insensitive [...] for everyone to be parading like "yes we've defeated them, we've banned neonicotinoids", whereas actually for [farmers] that's such an essential part of their toolkits and their livelihoods. And I do think they need to be banned but I think it's kind of the attitude with which it's done, this kind of idea of a fight between the [...] urban liberals and the rural people, and I think that's a really dangerous divide to start propagating (Timberlake, 2018).

Tom stresses how, although he agrees that harmful pesticides and insecticides such as neonicotinoids must not be in use, unravelling the cycle of dependency upon these modern modes

of farming must be done in a sensitive way that does not ignore the value of people's livelihoods. Moreover, akin to the issue of habitat loss in farmland areas, we must be extremely careful not to demonise those individuals who feel they have no choice but to use pesticides. Whilst the casual gardener might easily turn their back on pesticides or insecticides, farmers have become embroiled in a system which has become increasingly dependent on the use of chemicals to meet demand. This is not to disregard individual choices in the debates surrounding the use of chemicals. Rather, it is to emphasise that the continued use of chemicals on farms must be treated as a far deeper systematic failing which, in turn, requires systematic changes.

4.3.4 Parasites, Pathogens, and Predators: A Global Disease

A significant reason that bees are declining is due to the variety of pathogens, parasites, and predators that are killing or seriously harming bee species. Dave Goulson et al. (2015) explain how bee species, whether they be wild or managed, have become increasingly exposed to numerous parasites and diseases. Additionally, bees are threatened by a number of predators. Wasps, for example, have a reputation for attempting to enter honeybee hives to steal the honey. Whilst the threat of disease or death from other species has always been there for bees, in the current day the danger of these threats has been exacerbated by modern human movement. Specifically, in a globally connected world diseases, parasites, and predators are able to spread far more easily (ibid). Moreover, as bees become weaker due to issues such as lack of nutrition, they will find it harder to defend themselves against said threats (ibid). Thus, the dangers posed by various parasites, pathogens, and predators is contributing to the loss of bee populations in a variety of ways.

There is a significant body of research which specifically examines the current pathogens, parasites, and predators threatening honeybees. The social nature of honeybees means that parasites and pathogens can spread quickly inside and between honeybee colonies. A particularly vicious disease that a hive might succumb to is American Foulbrood [AFB]. AFB is a lethal disease that causes capped bee larvae to die (Genersch, 2009). These dead larvae are not only difficult to remove, but spread more of the spores into other areas of the hive. AFB is incredibly contagious and the spread of it is "facilitated by exchanging hive and bee material between colonies, managing numerous hives in a confined area and the trading of queens, colonies [...] and honey" (ibid, p. S10). In the beekeeping course I attended we were taught that if AFB, or the less contagious version of AFB known as European Foulbrood [EFB], is discovered and reported to authorities then the procedure is to destroy the entire colony. Another disease which beekeepers are taught to look out for is Nosema. There are two strands of the Nosema virus which affect honeybees: *Nosema apis* and *Nosema*

cerane. *Nosema apis*, which spreads via honeybee faeces, is a microsporidian parasite that lives and replicates in the midguts of honeybees (Smith, 2012). *Nosema cerane* is similar to *Nosema apis*, but it is thought to be slightly more aggressive than *Nosema apis*. *Nosema cerane* was first detected in European honeybees in 2006 (Smith, 2012; Fries, 2009). Both strands of *Nosema* virus result in honeybees not being able to digest food or produce brood. Additionally, infected honeybees have much shortened lifespans. As such, the infection of a hive with *Nosema* can quickly result in the collapse of the colony.

A relatively common threat to honeybee hives is the wax moth. Wax moths tend to enter weakened honeybee hives and feed on substances such as wax, larvae, and honeybee faeces. If wax moths manage to find their way inside a beehive they can very quickly destroy the entire colony. During the Bee Time artist residency I attended as part of my research for this thesis I witnessed the loss of a colony from a wax moth infection first hand. This particular event is described in detail in my observational notes:

We went to see some hives in the afternoon. As we drove up to the farm, which had once been Jorge's granddad's family home, he was full of spirit, chatting away. But as we walked towards the hives a sense of dread took over... The hive that Jorge had been so positive about was covered in bright yellow wasps. At first I thought that maybe they were just trying to get in, but it soon became clear something much darker had occurred. The hive had been completely killed by wax moths. They had managed to infiltrate the colony, and kill all inside. This was particularly shocking because [Jorge] had thought this was a good, strong colony. Jorge was the picture of grief, openly lamenting this personal and painful loss. It was a sorrowful experience, uncovering the wax moth invaded honeycombs, and carefully taking them away. We would bring the hive away with us, to try and clean and reuse. This was my first experience of seeing a hive lost, and it was heart-wrenching.

As shown in figure 7, the wax moths left a cobweb-like effect, signalling the horrors which lay inside. Once the wax moths left the hive it had been squatted in by wasps, who emptied the cells of any remaining honey and claimed the hive as their own. As figure 8 shows, the death of the hive is clearly evidenced by the number of wasps clustering at the entrance. Tyler, the fellow resident who came to visit these hives with me, later discussed this event with me. Tyler recounted that "the wasps had taken over the one hive and [Jorge] was very very sad about this" (Lewis, 2018b). Both Tyler and I recognised this sense of grief being experienced by Jorge, who helps run the Bee Time

residencies; the loss of a colony is likely to always be distressing or shocking, but this was particularly upsetting due to the hope that Jorge had for their survival as a strong colony.



Figure 7: Comb Covered in Wax Moth (Author's Own Image, Private Residence in Santa Lucia, Spain, 2018).



Figure 8: Wasps Entering the Dead Hive (Author's Own Image, Private Residence in Santa Lucia, Spain, 2018).

One of the most worrying parasites for honeybees is the parasitic mite *Varroa destructor*, which causes Varroosis. Al Toufailia et al. (2014) suggest that the Varroosis is one of the most serious problems facing honeybees. The varroa mites are small parasites which have a bug-like appearance. They will attach themselves to both bee larvae and adult bees to feed on them. The Food and Environment Research Agency (2010, p. 7) describe how larvae that have been fed on by varroa mites will “show signs of physical or physiological damage as adults. These include shorter lifespan, reduced weight, shrunken and deformed wings and reduced natural resistance to infections”. If they are not managed the varroa mites can spread like an infection through the hive. If the mites become excessive in numbers, and too many honeybees deteriorate, the colony will collapse.

During the Bee Time artist residency I attended we were invited to meet with a local beekeeper. Late in the afternoon, a couple of hours before sunset, we parked the cars at the bottom of a dusty track that led up a hill to our destination. When I, along with the other individuals attending the residency, walked over the peak of the hill to enter the beekeeper’s farm and apiary we were greeted with a gut-wrenching scene. As shown in figure 9, littered around the farm were empty, blackened, and burnt out hives. The apiary felt like a graveyard. A place that should have still been alive with the scent of honey and sound of buzzing had become desolate, a place ravaged by death. The beekeeper did not speak English, and I did not speak Spanish. However, his story was translated for us by the residency leaders. The beekeeper told us of the varroa mites that had infected his bees, killing them off in shocking numbers. This itself was not surprising; varroa has become an increasing concern amongst beekeepers all around the world. What was really shocking to learn was how varroa had actually been present in his hives since the 1980s, but he was always able to keep the parasite under control before. However, over the last few years it had become unmanageable; the summer before we arrived approximately 200 out of 300 of his hives had succumbed to the mite. The beekeeper lamented how it was the increase in external stresses that had weakened his bees, therefore making them easy prey for varroa mites. In my observations I noted how:

the treatments that the beekeeper used to use had started to prove ineffective through natural resistance. The beekeeper, desperate for a solution, was trying out the drug lithium on varroa. He had set up a container of water, honey and lithium in the hive. It was only his second day of experimentation, so he has yet to see the results. This whole experience made me feel desperately sad; this exasperating search for an answer to the symptom of varroa feels so futile in the knowledge that it is the wider environmental issues driving bees’ increasing lack of strength. The burnt-out hives smelt like death. A curdling acidic smell, that made my stomach turn.



Figure 9: Burnt Hives in the Apiary (Author's Own Image, Private Residence in Santa Lucia, Spain, 2018).

In the beekeeping course I attended, managing varroa was taught as an essential part of modern bee husbandry. Varroa management is routinely taught because since it was first discovered in England in the early 1990s it has become one of the biggest threats to British honeybees. There is a significant and vast amount of research underway to try and stem the impact of the mite, including research into oxalic acid treatments (Papežíková et al., 2017; Adjlane, Tarek, and Haddad, 2016), biotechnical and biological methods of treatment (Calderone, 2005; Charrière et al., 2003), eradication through breeding (Büchler, Berg, and Conte, 2010; Rinderer et al., 2010), and even experiments with powdered sugar (Aliano and Ellis, 2005). However, despite this extensive research, each year varroa continues to infest hives and result in the collapse of colonies within the UK and worldwide.

Another rapidly growing concern for honeybees in the UK centres around the invasion of Asian hornets. Asian hornets were originally thought to have been transported over to Europe via some pottery which was sent to the Lot-et-Garonne region of South West France (Keeling et al., 2017). Asian hornets have a rich diet of insects, including pollinating insects such as hoverflies, bumblebees, and honeybees. To catch honeybees the hornets will practice something called hawking, which involves hovering outside honeybee hives and catching foraging bees as they return. European honeybees do not have the ability to defend themselves against this new predator, and Asian hornets can easily destroy a whole colony. The hornet was first spotted in the UK in September

2016, when a hornet was discovered in Tetbury, Gloucestershire (ibid). Further sightings have occurred in locations such as Somerset and Devon, and even the Bailiwick of Jersey (Lyons, 2018). Indeed, during the writing of this chapter an email appeared in my inbox from the local beekeeping association warning its members that the National Bee Unit has reported that the Asian Hornet has now been spotted in Liskeard, Cornwall, and Hull.

Many of the beekeepers I interviewed cited the Asian hornet as a threat they have to be increasingly wary of. One beekeeper - Cathy Blackaller (2018) - told me that, if Asian hornets keep being spotted, she thinks that “that might be when [her] beekeeping comes to an end”. Perhaps unsurprisingly Asian hornets have become a significant feature in recent UK bee-based news. For instance, the August 2018 British Beekeepers Association [BBKA] Newsletter published an article which warned about the importance of reporting sightings of any Asian Hornets, and gave information about what people can do to help stop the invasion. This warning was repeated by the BBKA Newsletter in February 2019, with an article reiterating how important it is to keep the invasion at bay. Similarly, as figure 10 shows, posters giving information about sightings of the Asian hornet litter allotment plots, parks, and apiaries throughout the UK. The poster in figure 10 was spotted during a walk in North Yorkshire, which is an area that is on high alert after the sighting of an Asian hornet in Hull.



Figure 10: Asian Hornet Poster, Yorkshire (Author's Own Image, Clifton Without & Rawcliffe Allotments, York, 2019).

As aforementioned, there is much scientific attention afforded to honeybee specific crises. However, wild bees are also suffering from the harsh effects of pathogens, parasites, and predators. For instance, in recent years there have been increasing discoveries of honeybee viruses in other bee species (see: Mallinger, Gaines-Day, and Gratton, 2017; Genersch et al., 2006). In their study of pathogen and parasite spillover from managed honeybees to wild pollinators, Fürst et al. (2014, p. 364), explain that the:

prevalence of deformed wing virus [...] and the exotic parasite *Nosema ceranae* in honeybees and bumblebees is linked; as honeybees have higher [deformed wing virus] prevalence, and sympatric bumblebees and honeybees are infected by the same [deformed wing virus] strains, *Apis* is the likely source of at least one major [emerging infectious disease] in wild pollinators.

Similarly, when evaluating the current data on the spillover of viruses from honeybees to wild bee species, Tehel, Brown, and Paxton (2016) contend that the current data around this topic readily shows how deformed wing virus - which causes bees' wings to shrivel - is being passed from honeybees to wild bee populations.

It is not only honeybees which can pass on diseases or parasites to other species of bee. Graystock, Goulson, and Hughes (2015), recently conducted a study which examined the degree to which both honeybee parasites and bumblebee parasites might be passed between each species through pollination. The study showed how after either honeybees or bumblebees foraged on flowers visited by the other bee species, they were more likely to be infected by the parasites typical to the other bee species. However, whilst honeybees' digestion of the bumblebee parasites known as *Apicystis bombi* and *Crithidia bombi* caused them relatively little harm, bumblebees' digestion of the honeybee parasite *Nosema ceranae* can have lethal effects (ibid).

Likewise to honeybees, the problems which threaten wild bee species have been exacerbated in a globally connected world. For example, it is suggested by Goulson et al. (2015) that there has been an increased spread of diseases amongst bumblebees. This has partially been driven by the commercial trading of bumblebee colonies for pollination of crops, a practice which began in the 1980s. Goulson et al. (ibid) evidence the harm that global trading causes by recounting how unintentional importation of a non-native strain of *Nosema bombi* to North America has been implicated in the decline of several bumblebee populations in the region. In this same article, Goulson et al. (ibid) make clear how the majority of research on parasites, pathogens, and predators in wild bee species focuses on bumblebees; less is known about the specifics of diseases or threats

amongst other wild bees. Broadly, however, it is known that the threats caused by various parasites, predators, and pathogens have become worse in recent years, exacerbated by both developments in global trading and the weakening of modern bees due to factors such as the lack of diversity in bees' diets or their digesting of pesticides.

4.3.5 *Climate change: The Impact of a Changing Climate on Bees*

When one thinks of the reasons for the decline in bee populations, climate change is not necessarily the first thing that comes to mind. Climate change is perhaps more commonly associated with images of polar bears on melting ice caps, depleted rainforests, or the burning of fossil fuels. Yet, the loss of bees and climate change are inextricably linked. Fundamentally, climate change and the loss of bees have developed alongside one another; both issues find their roots in the egotistical behaviours of much of humankind (Portus and McGinn, 2019). However, it is not only that both issues share a common perpetrator; the impacts of climate change, such as hotter temperatures, more volatile weather patterns, and the disruption of ecosystem processes, are causing significant stress to bees, impacting negatively upon their ability to survive.

Recent research conducted by numerous scholars (see: Balfour et al., 2018; Pyke et al., 2016; Memmott et al., 2007; Visser and Both, 2005) has revealed how climate change is linked to phenological shifts towards earlier or later flowering times, resulting in the disruption of the temporal synchrony between pollinators and the plants they collect pollen from. It is written by Memmott et al. (2007, p. 710) that:

phenological shifts reduced the floral resources available to 17-50% of all pollinator species, causing as much as half of the ancestral activity period of the animals to fall at times when no food plants were available. Reduced overlap between plants and pollinators also decreased diet breadth of the pollinators.

The interrelationship that has developed between bees and plants over literally millions of years is being rapidly disrupted by climate change. This disruption of the relationship between pollinator and plant is even more vital for bee species that rely upon a small number of particular plants to survive. The loss of bees through the lack of flowering plants mirrors the reason that bees were thought to be threatened with extinction during the previous mass extinction, 65 million years ago (Rehan, Leys, and Schwarz, 2013). Yet this time the struggle for bees to find enough plants to feed from and pollinate is ultimately the fault of humans, and not an asteroid.

Another stress for bees being caused by climate change is the rising temperature of the Earth. In a recent publication by Soroye, Newbold, and Kerr (2020, p. 685) it was observed that the increasing frequency “of temperatures that exceed historically observed tolerances help explain widespread bumble bee species decline”. The authors analysed changes in bumblebee population numbers and species richness across locations in North America and Europe, determining that “recent climate change has driven stronger and more widespread bumble bee declines than have been reported previously, especially in Europe” (ibid, p. 687). Soroye, Newbold, and Kerr further warn that the climate is expected to keep warming in the future, which will continue to exacerbate the risks of bumblebee extirpation.

More generally, at a time when bee species are fighting to survive a number of different problems, the volatile weather patterns that we are increasingly witnessing are serving to increase these stresses. When I was attending a beginner’s beekeeping course in the winter of 2018, one of the volunteer instructors showed us a picture of her honeybees building a tunnel through the snow to the hive entrance. As it had been unexpectedly warm before the snow fell, the honeybees had left the hive to start foraging before the snowfall occurred, meaning that many would have found themselves trapped in perilous conditions. Conversely, almost one year later in February 2019 much of Britain was celebrating during record high temperatures. Indeed, sitting outside in my own garden I recorded many bee species happily buzzing about in the seemingly glorious weather. Yet these temperatures were no reason for celebration or satisfaction - it was a frightening and shocking reminder that something is extremely wrong with the climate (Elledge, 2019). As weather patterns become increasingly chaotic the traditional knowledge of the beekeeping season has started to become obsolete. Beekeeper Cathy Blackaller (2018) described to me how “there used to be a thing called the June gap, where there was a gap in flowers. There isn't a June gap anymore. Or it's not so noticeable”. The UK is a place that is relatively protected from the immediate effects of climate change. Therefore, the already apparent impacts of climate change on bees is one of the first truly visible signs of climate change beginning to impact upon our own daily experiences, and should be taken as a warning of the trajectory we are currently on.

4.4 Conclusion

The purpose of this chapter was twofold. First, this chapter proffered insight into the ways in which humans have understood, experienced, and attributed meaning to bees throughout human history. This returned us to the very beginnings of human evolution, tracing the story of how humans first

benefited from the fruits of pollination and, after some time, began to attempt the 'domestication' of honeybees. It is a story which followed how bees - commonly honeybees - flew their way into religious texts and stories, became connected with myths and superstitions, inspired cultural traditions, and delighted the senses and pleasures of humans³⁸. This is also a story which took us from some of the earliest scientific observers - from Aristotle and Pliny the Elder - to more recent researchers, such as Karl von Frisch and Thomas Seeley. The story told through this chapter thus took us through eons of human history, and across many realms of human culture, including medicine, food, science, religion, and mythology. However, most importantly, this story showed how humans have long admired the qualities and abilities of bees. Although our relationship with bees is ever-changing, adapting to suit our simultaneously shifting cultural ideologies, practices, and systems, humans have principally treated bees with a degree of reverence that few other creatures have obtained. Yet, despite this deeply ingrained respect for bees, they have still come to be known today as a creature threatened by extinction.

This brings us to the second purpose of this chapter. This was to detail how modern bees have become subject to increasing stressors, thus providing the foundation of the extinction studies story I tell through this thesis. In accounting for the myriad processes which have come to bear negatively upon bee species, I have illustrated how the reasons for the loss of bees are complex, diverse, and, at times, contested. More fundamentally, I demonstrated that the crisis facing bees today is the result of years of harmful human choices and behaviours. Yet, I also stressed that, for many years, the true impacts of our behaviours upon bees' lives were not necessarily understood; whilst these problematic behaviours which have fed into the decline of bees began to particularly intensify during the twentieth century, many of them only became recognised for their harmful impacts in relatively recent years. This work therefore concurred with Swan's (2017) suggestion that bees have been victims of slow violence, showing how the violence inflicted upon bees was not an instantaneous attack with spectacular and visible consequences, but one that was enacted over a long period of time and through the combined infliction of thousands of small, sometimes invisible, acts of aggression. However, akin to Swan's (ibid) argument, this chapter also made clear how the violence is no longer slow. The violence enacted towards bees has become starkly visible, spectacular, and aggressive in its consequences. Indeed, not only do we unquestionably know that this loss is

³⁸ In light of my research focus upon UK-based creative practitioners, I predominantly focus upon the events, texts, traditions, and scientific endeavours which have had a particular influence on how bees are perceived in the UK. Yet, the world is a vast place, home to thousands of human cultures and societies that will have interacted with bees in varied ways. Thus, whilst my focus upon how bees have shaped British culture reflects the focus of this thesis, it is pertinent to stress that across the globe people and bee species have come into contact through hugely varied avenues of interaction that are not necessarily reflected here.

occurring, but we have extensive knowledge regarding the myriad reasons for why bees are in decline. Thus, the questioning of why and how this loss is occurring, whilst important, is now only part of the question. We must now also determine why this loss matters, whether we have listened to the calls of responsibility that such knowledge demands of us, and how we might work with this knowledge in the future.

5 When is Life Grievable?

Responding to the Loss of Bees through Creativity

It is a truth universally acknowledged that people like bees and dislike wasps.

Seirian Sumner, *Georgia Law*, and Alessandro Cini, 2018, p. 836

If I ever need a PR agent I'm hiring whoever it was for bees.

Sean Leahy, 2019

5.1 Introduction

In a recent research article by Hallmann et al. (2017), it was revealed that over the past 27 years there has been over a 75% decline in flying insect biomass in a number of nature conservation areas. This was a ground-breaking study for, although a general decline in insect biomass has been known about for some time, the degree to which insect populations have plummeted even in supposedly protected areas reveals how alarming the situation is. Insect abundance, which is fundamental for sustaining many of the ecosystem processes upon which both humans and other species rely, is dropping every day; without insects there would not just be a pollination crisis but, for example, we would also see the loss of the thousands of creatures that eat insects or the slowing down of the decomposition of dead matter upon which insects feed. The results of this study by Hallmann et al. (ibid) point to how the declines being observed in bee populations are indicative of a much wider and systematic process of loss underway in the insect world³⁹.

Yet, the focus of Hallmann's et al. (2017) study, which looks at general declines in flying insect biomass, is still relatively ground-breaking, particularly when compared to the rich body of work that has been produced in response to declining bee populations. This is not to underplay the work being

³⁹ Whilst there have been warnings of using small sets of data to determine larger patterns in insect decline (see: Saunders, Kanes, and O'Hanlon, 2020), this study has inspired some further research in this area which observes similar trends (see: Møller, 2020).

done to study declining insect populations. Rather, it is to emphasise that the considerable attention afforded to the potential extinction of bee species, documented by the extensive number of studies commenting on the decline of bees, has not necessarily been extended to many other insect species. Furthermore, when the report by Hallmann et al. (2017) hit the headlines the images that flashed up on these articles were, time and time again, images of bees. For instance, in George Monbiot's (2017) article "Insectageddon", which detailed the results of this study, the featured image used to head the article was a photograph of honeybees. This choice was repeated a year later in an article by Hugh Warwick (2018) titled "Save our bugs! How to avert an insect Armageddon". This article, which also draws on evidence from the study by Hallmann et al. (2017), attracts the reader with a picture of bees drinking water from a bird bath. More broadly, countless works on extinction have made visual or literary references to bees. For example, the cover of Wallace-Wells's (2019) book on the future of life on Earth has an image of a single dead bee. Likewise, the cover of Huebener's (2020) book *Nature's Broken Clocks: Reimagining Time in the Face of the Environmental Crisis* depicts an image of a lone bee. Similarly, McGrath's (2019) online article on the recent extinction report by IPBES (2019) showcases an image of a honeybee. Thus, although there are a number of species that prominently feature in extinction narratives, the language and visual imagery of bees often appears in the books, articles, or documentaries that consider the sixth mass extinction: bees' lives have not only been framed as mattering, but as lives which demand our attention, our care, and our energy. Although the centrality of bees across extinction narratives is interlinked with their long-standing reputation as a valuable species, their cultural reputation does not fully account for why their current decline has inspired such extensive attention. This chapter thus directly follows on from my previous chapter by proceeding to interrogate precisely why the loss of bees has become such a prominent focus of extinction narratives.

As indicated in my methodology chapter, my investigation of this inquiry is directed through the stories and experiences of creative practitioners who have been inspired to respond to the ongoing loss of bees. In their sociological study of honeybee-inspired art following the CCD crisis, Moore and Kosut (2014, p. 3) state that "bees' representation in art worlds demonstrates how certain animals are identified as valuable, and culturally and aesthetically significant". Writing from a more anthropological stance, I suggest that we might not only determine bees' cultural worth by considering *how* they are represented in art, but that we might go back even further, and consider *why* people decided to represent them to begin with. As such, drawing on the stories and experiences of creative practitioners gathered through my research, this chapter specifically explores how knowledge that bees are in decline has been disseminated and therefore interpreted by creative practitioners, how and why people have chosen to invest energy and resource into the

topic of the bee decline, and what broader cultural and social narratives have influenced creative practitioners' choice to consider bees as a species worthy of care, of investment, and, even, of grief.

To conduct my analysis of why the potential disappearance of bees has inspired such widespread and typically elegiac reactions I draw on Judith Butler's (2009, 2004) theory that some bodies - and indeed, some lives - are considered to be more or less grievable than others. I therefore open this work by introducing how I understand and use Butler's theory of grievability. Moving forward, I consider the specific experiences which inspired my participants to actively and creatively engage with the ongoing loss of bees. I organise these experiences according to the key reasons people have tended to become interested in working with the subject of the bee decline in their practices: broadly, these centre around the media attention shown towards the bee decline, bees' reputation as a source of creative inspiration, the physical presence of bees in people's lives, and the understanding that work created around bees will be positively received by audiences. In examining these varied experiences, I illustrate how the particular circumstances of the bee decline, coupled with the cultural value proffered to bees both prior to and after the news of their loss, has led to the cultural framing of bees as a grievable species. I specifically argue that, whilst bees' lives are rarely individually mourned - as the death of a pet or the death of the last member of a charismatic and famed species might be - their lives, and accepted status as a threatened species, have been culturally recognised as acceptably grievable. In doing so, I offer the suggestion that bees have come to provide a face through which to channel more abstract, and yet increasingly common (see: Cunsolo and Landman, 2017) feelings of ecological grief. Thus, in examining the grievability of bees my work supports the broader notion that how people choose to grieve - or, equally, to not grieve - for nonhuman species is inherently social (Heise, 2016). This, in turn, speaks to how efforts of conservation action are rooted as equally in human values and ideals as they are scientific reasoning; as van Dooren and Rose (2011, p. 1) tell us, "pathways toward life and death are formed or lost through calls that elicit, or do not elicit, human desire for another creature's continuing existence". It is perhaps important to mention that this chapter is *not* a justification of the idea that some lives might be considered more valuable and more worthy of grief than others. Rather, it is a reluctant acceptance of the truth that whilst some losses are capturing our attention and becoming subjects of outrage, many others are slipping through the cracks, silently unobserved (Cunsolo and Landman, 2017; Rose, van Dooren, and Chrulew, 2017).

5.2 Why do we Grieve? Exploring Lives, Loss, and Grievability

In 2009 the philosopher Judith Butler, famed for exploring how different bodies are seen to matter, asked the question, when is life grievable? When do we, as both individual humans and as subjects within a society, deem a life worthy of grief, and what hierarchies guide our judgement of this worthiness? Butler's (2009) question was framed against the backdrop of contemporary American war, investigating how it is that some human lives are framed as worthy of mourning, and thus treated with greater protection and care. However, the notion of 'grievability' was actually first introduced in Butler's (2004, p. xiv) book *Precarious Life: The Powers of Mourning and Violence*, in which she considered "how certain forms of grief become nationally recognized and amplified, whereas other losses become unthinkable and ungrievable". Butler (2009, 2004) postulates that a life can only be grievable when that life is first valued and implicitly understood to be living; lives which are othered from us, or perhaps understood as symbolising a threat in some form, tend to lose their claim to grievability and are therefore less likely to have violence enacted towards them opposed. Hence, for a life to be grievable it must have been imbued with the particular values and conditions which make it acceptable for that life to be mourned.

In Butler's (2009, 2004) introduction and development of the theory of grievability, it is supposed that the conditions for grievability are distinctly connected to humanity, and that animal species sit outside this sphere of grief. Butler (2004, pp. xiv-xv) writes that:

Some lives are grievable, and others are not; the differential allocation of grievability that decides what kind of subject is and must be grieved, and which kind of subject must not, operates to produce and maintain certain exclusionary conceptions of who is normatively human: what counts as a livable life and a grievable death?

In fact, in her original introduction of grievability, Butler (2004) suggests we might understand the act of writing an obituary for a life - an act which is typically only undertaken after the loss of a human life - as an act which confirms that life as being grievable. Thus, her work generally focuses on critically evaluating the conditions which deem certain *human* lives as being more 'human', 'living' and thus more 'grievable' than other human lives. Stanescu (2012) does point out that this distinct focus on humans is lessened in Butler's (2009) later work, in which she begins to consider the broader idea of precarious lives, as opposed to only precarious *human* lives. Fundamentally, however, Butler's notion of grievability is centred around humanity. Yet, despite Butler declining to specifically turn her gaze to animals, her interrogation of the processes by which a life might be deemed grievable have since been widely suggested as useful to apply to questions of nonhuman mourning. Indeed, this chapter is written against the backdrop of a growing body of literature which adopts Butler's theory of grievability to interrogate how animal lives may, or indeed may not, be

entered in the realm of grievable (see: Stark, 2018; Cunsolo, 2017; Braverman, 2015; Redmalm, 2015; Stanescu, 2012).

In his study of the extent to which pet owners consider their pets to be grievable, Redmalm (2015) proposes that Butler's theory of grievability is best understood as containing three central tenets. That, first, for a life to be grievable it must be considered as irreplaceable by the individuals grieving it. For a life to be grievable they must have, or indeed have once had, an interdependent and valuable relationship with the grievers. Thus, grievability relies on the recognition of the irreplaceability of this relationship. Second, the experience of the loss itself will have unpredictable consequences that will naturally lead the mourner to experience their own individual transformation. One will not be able to stay the same after experiencing said loss because the demise of the irreplaceable relationship will naturally alter one's own state of being and living. Finally and thirdly, a grievable loss is an embodied experience. As living creatures we are physically vulnerable, and our existence is tied up in the shared physicality of those - human or nonhuman - around us. Indeed, as Butler (2009, p. 23) writes that "we are, as it were, social beings from the start, dependent on what is outside ourselves, on others, on institutions, and on sustained and sustainable environments, and so are, in this sense, precarious". The three outlined components of grief - termed under the headings of irreplaceability, unpredictability, and embodied loss - are suggested by Redmalm (2015) as collectively needed for a life and loss to be unequivocally and acceptably framed as grievable. Redmalm (ibid, p. 23) writes that by:

contrast, to make someone lose-able - human or other - certain discourses must be in place: the being must be framed as replaceable, the consequences of its loss must be framed as predictable and non-transformative, and the loss must not be framed as accentuating a common state of precariousness.

In determining how a nonhuman life might be rendered as grievable I draw direct inspiration from these three central tenets of grievability outlined by Redmalm (2015). I consider how the stories recounted to me by creative practitioners are revealing of how the bee decline has been culturally framed as a loss which embodies these three principles of grievability. In particular, I show that the circumstances surrounding the bee decline, combined with the cultural valuing of bees, has allowed for bees' lives to be recognised as irreplaceable, as having transformational and unknown consequences for our own lives, and as being linked to our own sense of precariousness as living creatures. However, I further suggest that my research reveals how the principles outlined by Redmalm do not adequately suffice for why bees, as a threatened species, have been culturally established as grievable. Whilst Redmalm's principles of grievability might explain how *individual* animal lives become grievable, in exploring the factors which allow for an entire species to become

accepted as grievable I propose that the potential for a more hopeful future should also be considered as a factor; I illustrate how my participants' stories reveal that the very fact of bees' extinction only being one of many potential futures actually helps encourage more people to engage with actions that both respond to and promote the framing of bees' lives as grievable.

5.3 The Crisis of Bees: Creativity in the Wake of Colony Collapse Disorder

Bees have long been a source of inspiration for human creativity, being a part of our “visual culture since the prehistoric era” (Moore and Kosut, 2014, p. 1). Indeed, as I touch upon in section 4.2.5, bees' influence can be seen in our artworks, our designs, and our architectural endeavours throughout much of human history. Yet in recent years, creative responses to bees have often been framed by elegiac messages of concern for bees' lives. This transformation in tone, from celebration to memorialisation, can be loosely traced back to the mid-2000s with the arrival of CCD, a syndrome which, as I detail in section 4.3.1, caused honeybees to begin mysteriously disappearing from their hives. CCD triggered significant alarm, waking the world up to the news that bees' numbers were beginning to decline. As the media attention on the bee decline rapidly increased, creative practitioners began to start responding to this ecological crisis through their projects. Indeed, Moore and Kosut (2014) document how, although bees were largely absent in artworks during the twentieth century, there was a resurgence of interest in bee-inspired creative projects following the crisis of CCD. As Moore and Kosut (2013) tell us in an earlier work, it was by the very act of disappearing that bees started to become far more visible to us.

An artist which directly links the CCD crisis to her initial interest in the bee decline is Manchester based artist, photographer, and filmmaker Megan Powell. Megan recalled how she came to the subject of bees directly in the wake of the media hype around bees in the mid-2000s. Megan described how, despite her pursuit of an arts career, she has long had a particular fondness for the study of insects, saying “I think that maybe I would have been an entomologist if I hadn't been an artist” (Powell, 2018a). In the mid-2000s Megan was undertaking her undergraduate degree and decided to spend her second year of study in Spain, in:

this tiny little village called Quenco, which is a medieval village and [...] very [...] secluded and quiet and there's a lot of time for concentration. There wasn't any media, [...] there was no TV, we didn't listen to the radio [...] so by the time I got back to the UK [...] I felt the effects of media so much more (ibid).

Megan described how this experience led her to question “how we consume the information and carry on that narrative into our daily life” (Powell, 2018a). At the same time, CCD had just begun to gain significant popular attention. Megan remembered how she began “seeing dead bees everywhere, so I was picking them up and making photography and sculpture out of them [...] and then I contacted the National Beekeeping Association and started working with them” (ibid). As she began developing her work with the National Beekeeping Association, Megan became increasingly interested in what the death of bees would mean. She explained how, at the time, there seemed to be a heightened sense of political trauma, elevated by the aftermath of the 9/11 bombings and the tensions around the Iraq war, and that through her work she wanted to direct attention to how actually the “apocalypse could come from a honeybee” (ibid). Following this, Megan described how she became particularly interested with the idea that if “bees did disappear it would be about the death of desire. So I [...] used this psychoanalytical text to be like all desire would also die if we lost the bees. And I made a photographic series around it”. This series was titled *After the Bees*, and focused on the unpredictability of the decline of bees, seeking to stimulate her audience to speculate about the potentially apocalyptic impacts of this loss.

Although Megan began her journey into the world of bees because she felt compelled to react to the headlines surrounding their loss, she told me that her interest in bees was sustained because of how honeybees are linked to many elements of human culture and living. In 2015 Megan received a grant to expand *After the Bees* into a two-year project. For this project Megan conducted just under 40 interviews with individuals who had some expertise regarding the subject of bees, such as beekeepers and ecologists, to document a story of bees through language, sculpture, photography, and film; the project concluded in an exhibition and documentary film, a still of which is exemplified in figure 11. Megan stressed to me that she was inspired by how bees have played a fundamental role in human culture and life throughout history, having long been observed, anthropomorphised, storied, and depicted by humans (Powell, 2018a). She suggested that their loss would see not only the demise of a species, but a demise of the traditions and ideas linked to the worlds of bees. For instance, Megan particularly emphasised her amazement at being told by one academic that bees “are the only [...] species that reproduce within a Fibonacci sequence⁴⁰”, explaining to me how the queen honeybee is first “impregnated by the drones, and then part of the ratio in which she lays workers to drones is completely in a Fibonacci sequence” (ibid). Megan described how the Fibonacci sequence, and the subsequent Fibonacci spiral which this sequence determines, is ingrained in how

⁴⁰ The Fibonacci sequence is a sequence of numbers which follow the rule that each new number is determined by adding the two preceding numbers together. The mathematical pattern of the Fibonacci sequence is used to plot the dimensions of the Fibonacci spiral. It is suggested that the Fibonacci spiral can be witnessed in the biology of many living organisms, as well as in images of, for instance, hurricanes.

humans construct ideals of beauty and, as such, honeybees and the aesthetics of the hive are intimately connected with human ideals of natural beauty. Thus, in her work with the subject of bees Megan encouraged her audience to consider that the loss of bees would go beyond the physical: transforming human society in ways that are still unknown, yet potentially apocalyptic. This narrative which runs throughout Megan's work nods to the belief that the loss of bees would have unpredictable and transformational social implications: a belief which, in turn, illustrates how bees' lives become framed as ones of meaning and significance.



Figure 11: A Fable for Tomorrow (Powell, 2018b).

Another artist who specifically recalls how their initial interest in bees was sparked by the media hype generated by the CCD crisis is Amy Shelton. Amy is a fine artist, primarily working with 'earthbound' materials. Recalling the story of how she came to respond to bees through her creative work, Amy described how she was sat on a train one day when the headline of a newspaper caught her eye (Shelton, 2019a). The headline was quoting the idea that without bees humans will only have four years to live, a notion which is commonly attributed to Albert Einstein. Amy spoke of how she remembers being deeply shocked by both the headline and the accompanying article, which was reporting on the fact that bees were disappearing for unknown reasons. Indeed, Amy went on to say that the early stories around CCD reminded her of "horror movie headlines" (ibid). Amy's reading of this article inspired her to begin researching the CCD crisis further, a research process that began

with Amy going to a university library to see if she could learn anything more about the quote attributed to Einstein.

Amy Shelton's (2019a) research into the Einstein quote proved disappointing, as she could not find a mention of it in any of the university records. Indeed, Amy described how she later learnt that the lack of any mention of this quote is because Einstein never actually said it. The quote was, in fact, faked by a community of French beekeepers during a pesticide dispute (Benjamin and McCallum, 2009). Yet, despite its false origins, this supposed quote by Einstein shadowed the CCD crisis, likely because it provided an eye-catching tagline for books, documentaries, and articles responding to the honeybee syndrome (see: *More Than Honey*, 2012; Evans-Pritchard, 2011; Stindl and Stindl Jr, 2010). This quote was significant in feeding the narrative that bees are a unique supporter of human life, and that consequently their loss would leave humans as physically vulnerable. Thus, following CCD, the lives of bees rapidly became depicted as not only irreplaceable, but as integral to our own physical wellbeing and survival. Indeed, although this quote is famously falsified, it does reflect the reality that bees do play a significant role in the pollination of food crops, and are thus fundamentally entangled with processes which feed and sustain human society.

Despite soon discovering that the famous Einstein quote was fake, Amy Shelton rapidly became fascinated with the story of bees. Echoing Megan, Amy spoke of how, although her interest in the topic of the bee decline was initially sparked by the headline news of CCD, her affection for the subject was grown and sustained by her learning about bees' unique roles within both our cultural heritage and our environments. She specifically began researching bees during her fine art master's course, describing how this was when she decided to "apply for some funding to try and investigate what I began to feel was a really alarming story emerging around pollinator decline" (Shelton, 2019a). Amy described how, to research this project, she:

started to look into the history of bees, started to read some of Eva Crane's extraordinary books about bees, [...] [who] takes an archaeological approach to looking at bees and their place in the human imagination and in different cultures across the world. And then I was off, just thought oh my god this rich vein . . . [I've] basically been making work about bees and all of the associated stories around that ever since (ibid).

Directly inspired by her master's research, Amy would go on to create a project in collaboration with the poet John Burnside called *Melissographia*, which is a handmade artists book consisting of a series of poems and corresponding hand-painted pollen maps. Not long after finishing her master's degree, Amy was awarded a Research and Development Award from the Wellcome Trust, which offered her the opportunity to embark on her own project responding to the bee decline. Amy

describes how her aim for the project was to tell the story of bees, uncovering “the hidden choreography of pollination and the invisible worlds of the bees through the plants that sustain them” (Shelton, 2019a). This project, which came to be called *Florilegium* and is exemplified in figure 12, consists of a series of large lightbox artworks. The series is ongoing and to date consists of two public artworks and a series of four lightboxes titled *Florilegium: Honey Flow*, now purchased by the Wellcome Collection, which exhibit pressed samples of the nectar and pollen-rich flowers that bees need to survive in the UK. The flower samples in the *Florilegium: Honey Flow* lightboxes are arranged chronologically, so as to trace how the plant-pollinator relationship changes throughout the year. In an email correspondence with me Amy Shelton (2019b) described how the process of creating this involved her having to:

engage in the bee-like activity of collecting plant samples day by day across the seasons. This involved me driving around, walking around, and collecting the plants as they came into bloom. This collection of hundreds of flowers were then painstakingly pressed each day to become the herbarium palette from which to create the artworks in the studio. Each sample catalogued and filed in strict chronology was mapped by a post-it note record created on the studio walls. Each recorded the Latin name[s], where they were found, and which month they appear in. This meticulous written record became the accurate chronologies of the flowering times of the biodiverse flora needed by bees.

Florilegium also consists of a public artwork titled *Princesshay Honey Flow* which was commissioned by The Crown Estate and is permanently installed in Princesshay, a shopping precinct in Exeter. This artwork illuminates the rich biodiverse flora that supports pollinators in the city and signposts the presence of a rooftop bee garden above the shops and restaurants. A recent *Florilegium* public artwork has also been created for installation in a health centre on Dartmoor. The flowers in this artwork represent the wild, cultivated, and agricultural plants essential for bees, grown in a specific village across a calendar year. This body of work is a contemporary herbarium collection documenting the precise interrelationship between bees and their ecosystems. Amy’s work emphasises how bees play an irreplaceable role in sustaining environments, and are thus imperative in the preservation of a biodiverse habitat for humans and bees alike.



Figure 12: *Florilegium Honey Flow Series* by Amy Shelton (Wellcome Collection, 2014).

Since beginning her work on *Florilegium*, Amy has developed her practice on honeybees into an organisation called Honeyscribe. Honeyscribe brings together scientists, producers, visual artists, writers, school children, and the general public to creatively explore the relationship between the environment, bee health, human health, and the arts. Thus, Amy's interest in bees, sparked from one headline, has not only been sustained, but has become fundamental to Amy's identity as an artist. In her interview with me, Amy described how her next project moves on from studying the plant-pollinator relationship to investigating the stories and traditions that surround the world of honeybees. The work will be a rich exploration of how honeybees have figured in human imagination and experience. Amy's story demonstrates how, due to the rich and diverse ways that bees are seen to be connected with our stories, our traditions, and our physical landscapes, one encounter with bees - in Amy's case a headline about CCD - can quickly take root in one's imagination and lead one into a whole world of discovery around bees. Amy's work directly responds to the idea that bees are not only a creature whose precariousness is interwoven with our own lives, but that their lives are fundamentally worth knowing, celebrating, and protecting.

In recent years, the connection between the loss of bees and specific fears regarding CCD cases has loosened (Hanson, 2018). This loosening is a result of our knowledge around both honeybee and wild bee threats expanding, as well as the number of recorded cases of CCD dropping (ibid). However, despite the general focus somewhat shifting away from this specific syndrome, the legacy

of the shock caused by CCD still prevails. This is because, as a crisis, CCD propelled bees' precarious state into public view, serving to highlight both the gravity of the problems facing bees and our own vulnerabilities in connection with bees' survival. As Amy's and Megan's stories emphasise, the narratives surrounding this crisis established bees as a species whose lives and fortunes intermingle with the lives and fortunes of humans. Today, not only does the decline of bees remain at the forefront of environmental news, but their plight has become an environmental buzzword; bees' case has become symbolic of current environmental and extinction crises (Portus, 2020; Moore and Kosut, 2013). Indeed, a number of creative practitioners who came to work with bees more recently cited the broader yet sustained buzz around the loss of bees as feeding into their decision to pay attention to this topic. For instance, textiles and mixed-media artist Lydia Needle (2019) told me how she became inspired to work on bees after reading news about honeybee decline on a social media page in 2016. Photographer Fiona Filipidis (2018) recounted how, even though she did not realise the full extent of what was happening until she began conducting research with beekeepers, it was through being sent online "save the bees" petitions and seeing messages about it on a social media site that she first knew about the decline of bee species. Likewise, in my interview with the crew members of the show *Me & My Bee*, it was discussed that their attention was drawn to this topic because the bee decline is one of the central issues being discussed in environmental news. These three examples speak to the degree to which the topic of the bee decline continues to be discussed across both traditional and social media platforms. Thus, my research provides evidence for the statement by Maxwell (2016 cited in Light et al., 2018, p. 21), who writes that "bees have become popular subjects of non-fiction prose, literature, poetry and art, in part because their plight has become emblematic of contemporary environmental crises". Fundamentally, CCD not only served to make bees' fragility visible, but sparked a global interest in their plight which continues to this day.

5.4 A Vessel for the Imagination: The Historical and Contemporary Cultural Legacy of Bees

Before I began conducting the bulk of my research with creative practitioners I had the preconceived notion that most, if not all of the creative practitioners I worked with would have been introduced to the subject of bees because of the extensive media attention conferred upon the bee decline. However, people's choice to work on this subject was as often rooted in a particular connection that creative practitioners had with bees that was separate or distinct from the hype generated by news

headlines. For instance, Laline Paull (2019), author of *The Bees*⁴¹, told me that she first began researching honeybees following the untimely death of a beekeeping friend. It was over the course of this research that she then “began learning about the appalling anthropogenic threats facing bees and all pollinators” (ibid). Thus, I proceed to explore the stories of creative practitioners who were inspired to explore the topic of bees due to an experience or an encounter that was initially disconnected to narratives around the threats facing bees.

Both Megan Powell (2018a) and Amy Shelton (2019a) narrated how their interest in the topic of bees quickly grew once they began to research beyond the fact of their decline, and learnt about matters such as the long-established connection between bees and the human imagination. However, for other creative practitioners the established visibility of bees across creative and cultural projects, both prior to and following their ongoing loss, sparked the seeds of interest which inspired them to begin their own creative responses to bees. For example, in 2017 creative writing Professor Abi Curtis, of York St John University, ran a project called *The York St John Pollination Project*. Abi described how her idea for the project started with her reading Laline Paull’s (2014) novel *The Bees*, which Abi found both “interesting and compelling” (Curtis, 2018). Paull’s novel sparked Abi’s interest in bees, and she began her research into other authors who have created work on the subject, exploring the poetry and literature of authors such as Emily Dickinson, Sean Borrodale, Les Murray, and Carol Ann Duffy. Abi spoke of how her research took her deep into the world of bees, teaching her of the privileged place bees occupy in the human imagination. Having become personally fascinated by the relationship between bees and our creative imagination, Abi felt inspired to bring her discoveries to a wider creative community. Thus, she began work on *The York St John Pollination Project*.

Abi’s first step in her project was to link up with Andrew Cutts, who works with the organisation Buglife⁴². With Andrew’s input Abi developed an idea for, and successfully applied for funding to run, her bee-inspired creative project. Abi described to me how her primary intention for the project was that it would help “raise awareness, get our hands dirty in a sense, but also explore why [bees] are [...] creatively interesting” (Curtis, 2018). As such, Abi’s project centred around offering students at York St John University a variety of both practical and artistic experiences that would enable them to produce bee-inspired creative projects. Abi worked to offer her students a rich opportunity of experiences, from participating in bee-inspired practical workshops, to attending talks with bee

⁴¹ *The Bees* is a novel by Laline Paull (2014) that follows the story of a worker bee, named Flora 717, who rebels against the natural order of honeybee society.

⁴² Buglife is a UK-based charity organisation dedicated to the protection of invertebrates.

experts such as the naturalist Steven Falk⁴³, to visiting the work of, and meeting with, creative practitioners such as Wolfgang Buttress⁴⁴. As a result, Abi's project - which was concluded with the publication of an anthology of poetry, prose, and artwork - inspired a diverse collection of creative works: the anthology imagines worlds in which bees have already become extinct, explores bees' unique relationship with flowers, examines aspects of bees' biology, and studies the bee-inspired creative work of Wolfgang Buttress.

Abi was not the only creative practitioner whose creative work on bees was first inspired by the imaginings of another. When a beekeeper set up their hives on her allotment, composer and choir leader Sheila Macbeth (2018) described how she was enthused to start "looking for poems about bees, of which there are many thousands". Not long before, Carol Ann Duffy's (2011) book of poems titled *The Bees* had been published. Duffy's volume of work - which imaginatively explores bees' relationship with the world in a time of ecological uncertainty - was of particular inspiration to Sheila. Thus, Sheila decided to explore this subject in her own compositional work, writing a collection of songs which both celebrated honeybees and lamented their disappearance from hives. Much of the language contained within Duffy's poems featured in Sheila's songs, which were later performed and recorded for an album titled *Bee*. Reflecting on her experience of working with this topic, Sheila recounted how she was so inspired by the subject matter and by Carol Ann Duffy's beautiful words that the work "all flowed very quickly" (Macbeth, 2018). Sheila's creative work is wrapped up in the creative responses of another: inspired as much from her own personal interactions with honeybees as it is by other people's interactions with them.

Both Abi's and Sheila's stories speak to how bees' visibility in our histories, our stories, and our imaginings has established bees as a species which is creatively inspiring. But more than that, bees' well-established cultural presence plays an important role in shaping the perception that bees' lives are worth cherishing into the future. As Thom van Dooren (2017, p. 196) reminds us, "how we tell the past, as well as which pasts we tell, plays a powerful role in structuring what is nurtured into the future, and what is allowed or required to slip away". The celebration, as opposed to the marginalisation, of bees' worlds by humans is thus a key reason for the ease at which their lives have been framed as grievable; the distinct attention proffered to bees through our cultural outputs not only establishes their uniqueness, but also their irreplaceability. Perhaps more fundamentally, it reinforces the perception that bees are creatures which are acceptable to revere and, even, to love. This established reverence for bees, rooted through the songs, the poems, and the stories which

⁴³ Steven Falk (2015) is the author of *Field Guide to the Bees of Great Britain & Ireland*. In addition to being a naturalist, Falk is also a photographer and artist.

⁴⁴ Wolfgang Buttress is an artist who has become well-known for his bee-inspired works.

celebrate them, serves to feed the narrative that diminishment of bees' lives will not only result in a physical loss, but the loss of a relationship and presence which we hold culturally significant. This, in turn, provides an essential motivator for people to protect them; as the biologist Micheal Soulé (2018) expressed in a recent interview, "we only protect what we love".

5.5 Flying into View: The Simultaneous Absence and Presence of Bees

Over the course of my research it came to my attention that, despite their prominent connection with narratives of extinction, bees are, paradoxically, notably present in the world. To elaborate, despite their focus being on the loss of bee species, many of my participants came to engage with this decline because of a physical encounter with one or more bees. They encountered these bees in various ways, but in all these cases it was not an *imagined* bee but an actual bee: living, breathing, and existing. These tangible, corporeal bodies inspired imagination, and this imagination prompted creative production.

Perhaps the most striking story I was told of an encounter with a bee was recounted to me by the artist and composer Lily Hunter Green. I first met with Lily in the café of the Wellcome Trust in January 2018, when she was completing an artist in residency with Birkbeck University in London. Lily's story with bees began on what she described as a beautifully sunny day in 2014, when she was playing a piano in her family home in Suffolk. Lily described how the acoustics of her family home, a converted church with high windows, already amplifies the sound of any unwitting bee which flies inside. However, she told me how on this particular day a bee "flew into the body of my piano and I stopped playing it, but the sound was completely elevated and [...] really big and beautiful" (Hunter Green, 2018). Listening to the sound of that bee in her piano marks the exact moment that Lily knew she wanted to work with bees. Thus, Lily's journey into the world of bees began.

The first step Lily took towards working with bees was to begin researching them. Not satisfied with what she could learn from books and articles alone, Lily started attending a local beekeeping course. In fact, Lily actually became a beekeeper herself, recalling how she became "completely obsessed with beekeeping and spending time around [the] hive" (Hunter Green, 2018). In my own beekeeping lessons I was told of how many budding beekeepers become gripped by a sense of 'bee-fever', becoming completely consumed by their work with honeybees. I would suggest, therefore, that Lily is an example of someone who was gripped by such a fever. Indeed, whether or not Lily would agree

with this assessment, her experience as a novel beekeeper certainly helped solidify her desire to protect the life of bees through her creative practice.

Whilst this process of becoming acquainted with bees - both practically and intellectually - was significant in establishing Lily's profound care and affection for bees, what particularly stands out to her about this process was the shocking realisation that bees are seriously threatened. Lily explained how, before she had begun her work on bees, she had had a vague idea that bees were in decline. However, it was only once she began her research that she "realised how significant the problem was . . . that's kind of what threw me, because the fact that I had seen these banners, but I had not connected with the information and I didn't know the severity of the subject and the problem" (Hunter Green, 2018). Hence, by the time Lily received funding to begin her first project, the aim of highlighting the severity of the threats facing bees had moved from being a secondary concern to, in Lily's words, a "primary focus" (ibid). In a second interview I conducted with Lily, 11 months after my initial interview with her, she expressed how she would never stop working to engage with this crisis: "everybody I know is [...] like, are you still working with bees and I'm like "are the bees still dying? Yes I am still working with the bees"" (Hunter Green, 2019a). Until Lily is assured that bees have a viable future, she considers their lives an irreplaceable focus in her work.

Despite her focus on the *loss* of honeybees, honeybees' physical existence was integral to Lily's first project with bees. Lily explained how, before her encounter with a bee, she had already been creating projects which involved "putting pianos in [...] unlikely spaces and letting them decompose or deteriorate, and seeing how nature interacted with them and with the body of the instrument" (Hunter Green, 2018). Following her bee encounter, Lily had the idea of continuing her work with pianos and decomposition by actually moving a colony of bees into the body of a piano, modifying it to become a real hive. However, creating her hive piano, which is shown in figure 13, would prove impossible without the real and physical presence of honeybees. Lily discussed how she had wrestled with ethical dilemmas regarding how she might safely incorporate real honeybees in her work. The most immediate ethical dilemma that arose in Lily's work was how she might create a piano hive that would not interfere with the organic process of the hive or cause undue harm to the colony. Thus, Lily described how she worked in collaboration with experienced beekeepers from a local apiary to ensure that the hive would not cause unintentional distress to bees. She explained how they decided to attach:

a regular hive to one side of the piano and then [make] the entrance to the hive on the other side of the piano so the bees had to actually fly in through one side of the piano in order to get into their hive [...] the apiarist I worked with was really sure that would be the best way to get them to [...] recognise the environment (ibid).

Lily also removed the hammers from inside the piano as she “wanted to make sure that people wouldn’t play them” (ibid). The second dilemma that arose in Lily’s first project came when she exhibited the work. She was asked to exhibit this project by the arts organisation SNAP, as part of the Aldeburgh festival. Lily explained how, because of the associated risks, she did not feel comfortable bringing the hive piano into the outdoor exhibition space provided. As such, Lily:

decided to build another piano. So I had one piano down the road at a farm shop, which is where I was working on my piano for the bees, and then worked with a sculptor to build some geodesic domes on the side of a different [piano] which had [...] a live feed from the other one. And so from the Moore Lawn you could stand and look within these big geodesic structures, and there was a mini projector projecting all over the inside of this dome some live footage from down the road. So it was kind of a way of experiencing it (ibid).

However, although she had not wanted to explicitly bring bees into the exhibition space, Lily did plant bee-friendly plants near to the exhibited piano. This act encouraged the space to be alive with the presence of bees, whilst also ensuring it was the bees’ choice to enter into that environment.



Figure 13: *Bee Composed: Hive Piano* (Hunter Green, 2014).

Lily was certainly not the only creative practitioner whose story with bees began following a chance encounter with them. Laura Ryder is a theatre artist and performer who wrote and performed a show titled *The Bee Project*, which is a poignant story of a young person who is distressed at the

impact that the diminishment of wild habitats is having on bees' ability to survive. Laura recounted to me how her story with bees began when she was working at the Edinburgh Fringe Festival one year, and would walk through a public park to get to work each day. Laura described how, one week, "five days in a row on my walk to work I just kept finding bees" and so she started "walking along with them on sticks trying to find flowers and stuff" (Ryder, 2018a). Laura recounted how she remembers thinking "how beautiful and interesting they were" (ibid). Having known of bees' ecological importance and current precarious situation prior to this encounter, Laura's interaction with bees sparked her inspiration, and she became "really interested in looking at how you can make a creative response to that" (ibid).

Similarly to Lily, Laura conducted research for her work on bees by meeting with individuals who had expert knowledge in the world of bees. Laura described how the more research she did, the more she was "linked with different researchers and [...] beekeepers" (Ryder, 2018a). Moreover, Laura described how the more research she was doing "the more I just thought "wow, they're amazing" regardless of like environmental issues or declining populations like they're just fab to [...] make work about" (ibid). For Laura, her motivation to respond to this subject matter was not only connected to bees' ecological role, but also to her admiration for the exceptional qualities of bees: aesthetically, biologically, and culturally. As Laura told me, "regardless of whether bees pollinated a third of our food [...] we should save them because they're [...] an incredible, beautiful species" (ibid).

The play that Laura wrote reflects on her original, influential encounter with bees in that Edinburgh park. Specifically, the play follows the story of two young adults, depicted in figure 14, one of which has found a bee. This character - who is played by Laura - is concerned for the bee, expressing dismay at the lack of wildflowers in the local area. The story thus follows Laura's character as she searches to find a suitable habitat for the bee, all the while attempting to persuade her friend of the need to do so: the dialogue between the two characters serves to reveal to the audience the dire impacts of habitat loss on bee populations. The play draws to a conclusion with Laura's character persuading her friend to help her rewild a roundabout in their town that they used to visit as adolescents. Earlier in the play it had been communicated to the audience that this roundabout was once a place filled with shrubbery and flowers, and thus a place the characters had considered their personal safe haven. The story running through the work therefore plays on the notion that bee health is interconnected with human health; the habitats which bees both rely on and sustain are also places of significance for human wellbeing. This narrative accentuates how bees' state of fragility is interwoven with humans' parallel fragility. However, whilst the story told is not afraid to highlight arguably bleak ecological circumstances, Laura is careful to ensure the play is not entirely

dispiriting. By ending with the two characters successfully rewilding the roundabout, the story told through the work emphasises that it is not too late to redirect bees' futures. As Laura conveyed to me, she felt it was important to be able to leave people feeling hopeful and empowered to engage (Ryder, 2018a).



Figure 14: *The Bee Project, Promotional Material (Galloway, 2018).*

Another individual who spoke of how their creative interactions with bees began after a chance encounter is the York-based poet and performer Anneliese Emmans Dean. Anneliese is the author of the book *Buzzing!*, a child-focused collection of poems and science facts all about insects, in particular bees (see: Emmans Dean, 2012). Recalling how she became interested in responding to the topic of insects and ecology in her work, Anneliese told me how it all began with her buying a digital camera in 2004 and, not long after, spotting a bee. She recalled how:

on the very first day that I had my camera [...] I took this picture of a bee. And I had never seen a bee like this before. I had never seen all the hairiness, I had never seen the venation on the wings, I had never seen the hairs on the legs, I'd never seen the antennae (Emmans Dean, 2019).

After taking this photo, which is shown in figure 15, Anneliese became ever more fascinated with the insects in her garden. She described how she spent the following summer months constantly photographing them. Soon after, Anneliese started working on poems inspired by her photographs, describing how writing was her form of processing this new fascination. Over that year, which coincided with a period in her life where she was considering a career change, Anneliese built up her knowledge and collection of poetry inspired by bees and other minibeasts. She told me how she worked in development with individuals such as Dave Goulson, biologist and co-founder of the Bumblebee Conservation Trust⁴⁵ [BBCT], to ensure the accuracy of her work. She soon began regularly performing her poetry, which would later lead to the production of her insect inspired-poetry and science book. Reflecting on her journey into the world of bees Anneliese reiterated how it all:

started with the camera, and watching what was going [on], and then being intrigued [...] so it all happened organically basically, I never set out to do any of this. It just happened. And it was all because of that first bee picture [...] it just [...] shift[ed] my way of understanding the world (Emmans Dean, 2019).

Since 2004 Anneliese has continued to develop her poetry around bees, and in 2010 was commissioned by the BBCT to write and perform a ‘political bee poem’: a poem which explicitly spoke about the struggles bumblebees were facing. Although Anneliese’s collection of works inspired by insects does not solely concentrate on bees, she chose to portray a wild bee on the front cover of her book. This is likely because, as Anneliese described, bees are a fantastic opener for generating conversations about wider insect declines, “because you're starting with something [the audience] know and that they're not scared of, and they kind of think [bees] are a good thing” (Emmans Dean, 2019). Anneliese further described how the thing “about bees is [...] they're furry, they kind of look like teddy-bear type things [...] so I think they're very handily designed to make people react [and] respond to them in a positive way rather than a negative way” (ibid). Anneliese’s statement speaks to how bees, despite their insect natures, are generally considered aesthetically appealing: a reputation which helps inspire empathy for their plight.

⁴⁵ The Bumblebee Conservation Trust is a UK-based charity which works to ensure the protection of bumblebees. It is co-founded by Professor Dave Goulson and Dr Ben Darvill.



Figure 15: Bee (Emmans Dean, 2004).

Yorkshire-based printmaker Laney Birkhead also came to produce creative work on bees after physically encountering them. However, Laney's story differs from that of Lily, Laura, and Anneliese; Laney was inspired to work on bees after years of practicing as a beekeeper, as opposed to having a chance encounter with bees. In her interview with me Laney Birkhead (2018) explained how she first came across beekeeping in 2006, around the same time that CCD started to be reported on. Laney described how bees and beekeeping had just started to be on the cultural agenda, recounting how:

I think it was somebody like Hugh Fearnley-Whittingstall or *Countryfile* or one of these things that I was watching that said [...] we have lost 20,000 beekeepers since the Second World War and there's now a problem with our bees, we're not quite sure what's going on. [So] if you fancy learning something new have you considered being a beekeeper? And at the time I was just feeling a bit flat [...] so I was thinking, like, okay I maybe just need to go and learn something totally different. Didn't actually think, I'm going to go and do a big project on bees, therefore I need to train to be a beekeeper, it didn't sort of happen like that [...] I was led to beekeeping first, basically because I just felt maybe for the first time in my life I should do something that isn't art-related (ibid).

Laney's journey into the world of bees began precisely as a way of taking up an activity outside of her artwork. She had no knowledge of how her beekeeping would come to transform her creative identity. Indeed, Laney explained how it was not until:

three or four years later after getting [bees] I suddenly thought it would be quite nice to start studying them a bit more. So I started taking sketchbooks to the apiary when I was doing inspections, and just started doing very very quick loose little sketches of them (ibid).

Through her beekeeping practice Laney described how she began to deeply appreciate the aesthetic qualities of honeybees, thus beginning her journey into bee-inspired creative work. Today, Laney has produced a large collection of bee-inspired prints and artworks. Reflecting on the incorporation of bees into her prints and artwork, Laney spoke of how she did not want to just add bees to her work to “frilly” things up (ibid). Rather, she wanted to counteract the common depiction she saw of bees as just being fluffy and wonderful by giving a more raw and honest impression of honeybees as powerful, complex, and ferocious creatures.

Whilst her knowledge of bees’ precarious status was fundamental in leading Laney to beekeeping, explicitly responding to the bee decline did not begin as a priority in her creative practice. However, Laney’s work around bees quickly evolved to incorporate extinction narratives. Laney explained that the process of specifically incorporating ideas around loss into her work began when an arts funding group called Chrysalis asked her to design a series of workshops. It was these workshops that would later lead Laney to create her project titled *Swarm*, which is a community-based project focused around printing 50,000 bees: the average number of honeybees in a colony during the summer months. Laney spoke of how:

Swarm started out as not *Swarm* at all, it just started out as a series of workshops introducing people to printmaking with bees as the content. And that very quickly took off and I just loved it [...] when people found out I was a beekeeper as well, they just wanted to talk to me all the time about bees. By that time, the bee crisis was on the agenda a lot more . . . So people were very sort of confused and I found that actually not only could I go and do creative workshops, I actually had a wealth of information about bees which people seemed to be really amazed by . . . So I then started thinking well maybe I could just make something that was a little bit more of a statement piece. And I had always wanted to do one big project that maybe would be something like that, a very memorable thing. In the world of bees and science there's a lot of statistics, so we have to report back to the British Beekeeping Association, to Beebase, and various other people, who actually ask us once a year how many hives have we got, how many hives did you get through winter, how many colonies have you lost, what state are your colonies . . . And I thought that [this] is actually reported to a wider audience, but very flippantly. Blink and you miss it on the national news . . . So I was thinking why don't I try and show people actually what [the loss of a colony] might mean (Birkhead, 2018).

Thus, Laney began her work on her project *Swarm*. To create her print of 50,000 honeybees, Laney ran community workshops, as depicted in figure 16, in which she had members of the public help her print the honeybees. During these workshops Laney sought to both inspire people's connection with honeybees and communicate with people about the threats facing honeybee populations. The primary intention of the *Swarm* project, which was concluded with an exhibition of the printed material, was to help people realise the sheer extent of the loss which occurs with each collapsed honeybee colony. Yet as a creative piece, *Swarm* also responds to Laney's understanding that the loss of honeybees should not be allowed to occur undocumented and unfought; *Swarm* was not only a communication of the threats facing honeybees, but an invitation for people to engage with and challenge the loss of honeybees.



Figure 16: *Swarm* Printmaking Project (Birkhead, 2017).

The physical encounters highlighted by my participants are at odds with the increasing association of bees with loss and disappearance. Collectively, therefore, these narratives illustrate the paradoxical way that bees are both present and absent: bees are still visible in our everyday lives, yet already

mourned. Significantly, these collective experiences add weight to the understanding that the extinction processes which most popularly capture public imagination tend not to be about losses which have already come to pass. More often, the extinction narratives which inspire popular interest focus on those species who are currently in peril, but not yet absent: those whose lives are threatened with disappearance, but which also retain the potential of a future. As Whale and Ginn (2017, p. 92) write, “the nagging *presence* of that which threatens to disappear - a disappearance both happening and perpetually threatening - captures the imagination even more [italics in original]”. In the case of bees, not only do they qualify as a species whose extinction has yet to actually pass, but their relatively apparent physical presence in our lives perpetually draws public attention back to their existences and, by virtue of this, the threat of their non-existence. Certainly, as a species which is popularly known as being threatened by extinction, bees remain a lively presence in our lives; despite the serious threats facing bee populations, during the warmer months of the year it is still common to encounter different bee species across the UK landscape. As Atkins and Atkins (2016, p. x) ponder:

Reading and relaxing in the idyllic, peaceful bliss of our Welsh mountains garden, soaking up the warm, embracing rays of the early summer sun, it is almost impossible to imagine that the world is in the grips of climatic catastrophe, mass species extinction and the potential end to all life on Planet Earth. The bumblebees wend their clumsy way from our lavender bush to the pot of fat, purple chives, bumping through the breeze to pots of herbs and assorted flowers. A bee crisis? A catastrophe in global bee populations? Threats to the world’s food supplies? Surely not.

Whilst Atkins and Atkins are, of course, fully aware that bees are in crisis they point to the fact that, despite the fact that bee species are declining, they remain an established part of the British landscape. In spite of their current struggles, bees have not yet become an invisible or even rare species. As such, the relative ease with which one might unexpectedly or easily encounter bees across British landscapes is a crucial factor in understanding why people are so often inspired to create work drawing attention to bees’ potential extinction.

Naturally, the physical presence of a species in people’s lives does not guarantee that people will be inspired to protect said species. For instance, in a study titled “Why we love bees and hate wasps” Sumner, Law, and Cini (2018) example how wasps, an insect species which is as equally fundamental to and present within the British landscape, are agreed to be amongst the least loved species in the UK. Thus, it is evident that bees do not only, literally, fly into our line of vision, but that their physical presence invites admiration and approval: Lily’s joy at the sound of the bee buzzing, Laura’s instinct to help protect the bee, Anneliese’s delight at the image she captured of a bee, and Laney’s desire to

sketch her honeybees collectively points to how both the sight and sound of bees inspires appreciation. Put simply, people typically enjoy and appreciate the interactions they have with bees, particularly in light of the common knowledge that this is a threatened interaction. Thus, as Sumner, Law, and Cini (ibid) indicate, the positive cultural bias towards bees is fundamental in shaping how physical encounters with them will be reacted to; indeed, World Bee Day⁴⁶, observed annually on May 20th, would undoubtedly attract far less attention if it were focused upon moths, spiders, or wasps.

In claiming that it is far more common for people to enthuse over an interaction with a bee than an interaction with a wasp, it is perhaps pertinent to mention that how people perceive bees is not always reflective of the biological truth. Beekeeper Matthew Richardson (2018), who runs the University of Edinburgh's apiary, spoke to me about how, although cultural narratives around bees tend to focus on honeybees, many members of the public still think that when they encounter a honeybee they are actually encountering a wasp:

people say "oh we should really save the bees" and then you show them a picture of a bumblebee and they're like "yes we should save those", and [then] you show them a picture of a honeybee and they go "I don't like wasps".

Brigit Strawbridge Howard (2019, p. xvi) makes a similar comment, writing that:

Mention the word 'bee' to most people, and images of hives, beekeepers, and honey are the most likely things to come to mind. However, if you were to give the same people a sheet of paper and a box of coloured pencils, and ask them to draw you a bee, most would draw something shaped a little like a rugby ball with striped yellow, white, and black bands, to which they might attach a head, six legs, two antennae, and a pair or two of wings - something that looks, essentially, like a bumblebee rather than a honeybee.

Thus, it is likely that the creatures which people commonly identify as 'bees' will be creatures who are also thought of as "cute, stripy fluff-balls" (King, 2012).

The fact that bees have not actually disappeared not only helps draw attention to their potential loss because they are, literally, still flying into our line of sight, drawing our attention to the threat of their potential absence. It also, importantly, allows for their loss to be framed in a hopeful light: the *actual* extinction of bees is still speculative, imaginary. As a species associated with endangerment, bees are not yet figures haunted by a ghostly spectre of what once was, but are - unusually - figures which are still imbued with a sense of lively possibility. Thus, narratives surrounding the decline of

⁴⁶ May 20th was declared as World Bee Day by the United Nations in 2017. The chief purpose of World Bee Day is to raise awareness of the importance of bees.

bees are not so constrained by the sense of doom and hopelessness which, as O’Neill and Nicholson-Cole (2009) tell us, so often envelop environmental messages. The integral connection between the bee decline and narratives of hope is described well through the words of London-based artist Louis Masai, who is famed for his graffitied depictions and murals of bees. Louis is best known for his life-like pictures of honeybees painted across city walls in the UK. However, in a more recent project titled *The Art of Beeing*, in which Louis travelled to different cities across the USA, Louis began to paint bumblebees as well. As shown in figure 17, for this more recent project Louis would paint murals that depicted endangered animals in a patchwork style. He would then add images of bumblebees holding on to a needle and thread, giving the impression that the bumblebees are sewing the endangered animals back together. Louis explained that he chose to do this because:

everybody needs to be talking about extinction crises and about, let’s say, a rhino being on the brink of extinction. But let's not be doom and gloom about this, let's put a bee in it because the bee [is] stitching it up [...] the bee is a metaphor now, in that it can say look guys we've got an animal that's on the brink of extinction, it's in crisis, it's not extinct yet, but let's stitch it back up together, let’s improve its situation (Masai, 2018).

Louis referenced how bees have become metaphorically linked to ideals of hope; despite the contemporary association between bees and extinction, because they are still so physically present there is substantial hope that we can indeed still save them. Certainly, all four creative practitioners who came to work on bees after a physical encounter with them explicitly touch upon ideals of hope: in her second interview with me Lily expressed how “hope is the most important thing [...] there's nothing worse than coming out of an experience feeling hopeless because you just don't feel [...] motivated or anything” (Hunter Green, 2019a), Laura told me that she wants her audiences to “walk away with some sort of sense of hope” (Ryder, 2018a), Anneliese specifically mentioned her desire to leave people feeling “chirpy” and hopeful for positive change (Emmans Dean, 2019), and Laney spoke of how she takes an optimistic approach, believing that if we can collectively raise enough awareness bees might have a future (Birkhead, 2018). Thus, it is precisely bees’ physical presence which drives the narrative that they are still ‘worth’ campaigning for; fear and grief for their loss can be counteracted and placated with this, naïve or not, hope that we can still save them. Undoubtedly it is far easier to engage with a loss which remains speculative, that is not yet set in stone, for there is still the potential for positive transformation; indeed, nearly all the creative practitioners I interviewed contended that, to some degree, bees have a future. In a world where the scale of loss leaves people in despair and pain (Cunsolo, 2017), it is perhaps unsurprising that a subject which is not only seen as urgent and fundamental, but which might also have a pathway

forward and a brighter future, is so keenly engaged with. Narratives of grief become more accepted, therefore, when they can be placated by feelings of hope.



Figure 17: Berlin RAW-Gelände mural Karp (Otrębski, 2019).

5.6 Collective Grieving: Creative Agency and Society

The creative practitioners who contributed to this research came to the topic of bees through individual and varied avenues: through a bee flying into their piano, through reading the words of Carol Ann Duffy's poetry, through spotting a headline about the collapse of honeybee colonies, or through taking up beekeeping. Yet, whilst these early moments of inspiration are significant indicators of why and how people might view bees' lives as mattering, creative practitioners do not create work in isolation. Indeed, the work creative practitioners produce will be influenced by, and sometimes arguably constrained by, the social landscape within which they are producing work. What sources of funding they can reach, the opinion and interest of the public, and the common need to make a living from the work they create will all influence their choices (Wolff, 1984). Accordingly, when discussing why and how my participants chose to pursue the subject of the bee decline, the role of the audience was frequently brought up. It was consistently noted that

audiences' apparent willingness to engage with - by which I mean view, discuss, or perhaps even spend money on - work which responds to bees provides a central reason for creative practitioners' choice to both fully execute their creative ideas and, potentially, continue to expand their work around the bee decline. This is not to disregard the agency of creative practitioners in the creation of their work, but rather to recognise that the choices that they make as creators are, to varying degrees, influenced by wider social contexts and pressures. Thus, I continue my inquiry into why the lives of bees have become a focus for ecological grief by studying how the broad cultural acceptance of bees' lives as mattering, and as embodying qualities which are worthy of attention, serves to further support and perpetrate actions rooted in the narrative that bees' lives are grievable.

In her interview with me, printmaker Laney Birkhead (2018) recounted how, once she began creating sketches and prints of bees, she realised:

that everyone loves bees, everyone wants to try and help bees, everyone is incredibly interested to ask you about beekeeping. And the sort of questions and things that [...] came at me at the workshops and at the exhibitions have been incredible. And I realised I had something really quite special on my hands that I'd never had in anything I'd done.

Indeed, Laney spoke of how the bee-themed events she runs not only sparks the interest of artistic communities, but also people interested in subjects such as beekeeping, entomology, or botany. Laney further explained that, because arts funders particularly value projects which reach out to people who might not normally engage with arts events, being able to show that her bee-themed events engage diverse audiences proves particularly useful when she is applying for further funding (ibid).

Laney's comments are indicative of how people's choice to continue or expand their creative responses to bees can be as much inspired by their own relationship to the subject matter as it is by their audience's enthusiasm for the topic. My participants cited a mix of supposed reasons for this visible enthusiasm from their audiences. For instance, the producer of the children's show *Me & My Bee*, Josie Dale-Jones (2018b), chatted about how the typically aesthetic appeal of bees, coupled with people's growing awareness that we are reliant on bees to produce a substantial amount of our food, means that there has developed a clear trend of interest in projects centred around the idea of saving bees. Likewise, performance artist Laura Ryder (2018a) described how, whilst she had relatively low expectations for her show, as it was her first self-led piece of theatre, the interest her performance received is a testament to how many people are interested in the topic of the bee decline. Laura specifically cited a number of reasons for this reception of her work, ranging from people's traditional fascination with the social worlds of honeybees, to the growing interest in

conservation practices and guerrilla gardening, to the long-established inclusion of bees in our stories, mythologies, and even our religious texts (ibid). More broadly, artist and composer Lily Hunter Green (2019a) expressed how she felt blessed to have stumbled upon a topic which has such a rich cultural history, and which she palpably sees inspiring so many others. Overall, therefore, there was a noteworthy trend of participants discussing how the subject of bees and their ongoing decline is one which, for a variety of reasons, easily strikes a chord with people's imaginations and interests.

A creative practitioner who specifically noted the popularity of work which engages with the subject of bees was the artist and illustrator Shane Swann. Shane told me how he initially became interested in extinction narratives when he decided to draw a tribute to an extinct wolf. During the execution of this piece he became increasingly shocked by the levels of extinction occurring in the present day, and decided he had to focus his artistic efforts on challenging these extinction processes. Shane described how that "was the point when the subject matter shifted from just wildlife art, to the concepts I base my work around now" (Swann, 2018). Early on in his extinction research Shane discovered a list of extinct bee species, which would later inspire an illustration depicting each individual species, shown in figure 18. As such, for Shane, bees are but one of the species which has inspired his creative work on endangerment and extinction. Yet, despite his exhibitions thus being filled with a broad range of animals, Shane described how "often when people walk into my exhibition they'll see the bees on the wall and they'll go "oh a nice little bee collection" and "that's cute"" (Swann, 2019). Shane went on to say that "when I put it online, on my website, on Facebook, on Instagram, [...] and I say I've got an exhibition coming up it's quite often the thing that people want to see" (ibid). Indeed, Shane's images of bees are plainly one of his most popular pieces of work; Shane describes his bee-inspired piece as "probably [the] most successful piece I've ever done" (ibid). Thinking through why this might be the case, Shane suggested that it is likely because "people associate bees with gardens and flowers and they look pretty [...] cute looking [...] and make people feel happy" (ibid). However, Shane did not lament the disproportionate attention shown to his work inspired by bees. Rather, he referred to how his work on bees provided "a good gateway piece" to get his audience willingly talking about the loss of species in the modern-day (ibid).

Shane's experience speaks to how the perception of bees as aesthetically admirable increases people's willingness to engage with the work and subject matter in question. This is a sentiment which was echoed across my research: it was frequently commented by my participants that bees are considered aesthetically beautiful, or at times 'cute' and 'fluffy'. Moreover, it was broadly asserted that bees' aesthetic qualities are a key reason why they are widely considered as creatures which are deserving of empathy and care.



Figure 18: Eighteen Extinct Bees of England (Swann, ([no date])).

Fundamentally, work around extinction - creative or otherwise - is rarely, if ever, produced without consideration for the response it will garner or the audiences it might engage. Thus, people's choice to pay attention to the threats facing bees - whether this is through using the image of a bee on a book cover, designing an installation exploring bees' lives, or writing an article on the threats endangering bees - is often driven not only by their own personal view of the subject matter, but also the general excitement and interest extended to the topic of the bee decline. Thus, the positive reception which is generally proffered to work around bees, due to the general reputation of their lives as important, irreplaceable, and worthy of care provides an incentive to continue highlighting the bee decline in ecological narratives.

5.7 Conclusion

When is life grievable? This question, first asked by Butler (2009) but echoed by others many times since, guided this chapter. In questioning why the ongoing loss of bees' lives has been broadly responded to as mattering, I explored if and how my participants' choices to engage with this topic

speaks to a wider social and cultural knowledge of bees' lives as grievable. In particular, I took inspiration from the work of Redmalm (2015) who suggests that for a life to be considered as grievable by another it must embody three individual principles: first, the life must be considered irreplaceable, second, the loss of the life would need to have unpredictable and potentially transformative consequences, and, third, the loss of the life will accentuate the mourner's own precariousness as a living being.

Through my examination of creative practitioners stories, I showed that my participants' descriptions of why they chose to respond to the loss of bees - which, broadly, centred around reading media headlines, being inspired by bees' cultural and creative legacy, finding inspiration through the aesthetic and physical presence of bees, or, finally, responding to positive audience bias - resonate with the notion that bees are a species whose collective lives have been framed as embodying Redmalm's (2015) three principles of grievability. Although the degree to which my participants genuinely feel grief for bees may differ, the reasons they gave for choosing to make work inspired by the bee decline responds to the understanding that bees are a species which can be considered worthy of grief. Specifically, I demonstrated how these three principles are visible in the stories conveyed to me through indicating how participants speak of bees as being unique and irreplaceable, through showing how my participants speculate about the unknown and undesired consequences of the bee decline, and, finally, in evidencing how a number of participants speak of our own health and existences as being entangled with the lives, health, and existences of bees.

However, whilst bees' lives are indeed spoken of by my participants as embodying Redmalm's (2015) principles of grievability, I suggest that these three principles do not fully account for why the lives of bees have been framed and broadly accepted as grievable. This is because, rather than considering how individual lives might be deemed as grievable, as Redmalm does, my work considers if and how the collective lives of a species might be deemed and responded to as grievable. Indeed, how the lives of a collective species might be considered grievable will inherently differ from how the life of an individual being might be considered grievable, for it is not a grief that rests on the intimate mourning of another's life - as one might mourn a pet or friend - but rather one that rests on the wider social knowledge and acceptance of said species as grievable. In direct connection to this, I argue that my research reveals another significant factor which has allowed for bees' lives - a species widely known as being threatened by extinction - to have been broadly portrayed, accepted, and responded to as grievable. This concerns the fact that work which responds to the bee decline can be tempered with narratives of hope. Indeed, the majority of my research participants spoke of feeling hopeful for bees' futures, linking this possibility to feel hopeful with their choice to actively engage with this crisis. Hence, in this chapter I suggested that the sense of hope that people have for

bees' futures helps encourage people to engage with the topic of bee decline. I therefore propose - somewhat paradoxically - that the decline of a species will be more likely to inspire elegiac responses if people feel there is hope for the species' future, and thus some obvious worth in them investing their energy into responding to and lamenting said species' loss.

At its core, my research reveals how the values and qualities afforded to bees' lives, coupled with the circumstances of their potential loss, has led to bees becoming a focus for ecological grief. As Nancy Menning (2017, p. 39) suggests, we "don't grieve abstractly; we mourn particular losses of people, places, animals, objects, and ideas to whom and to which we are attached. These losses range from the most direct to those grasped only in the historical imagination". Bees are a particular example to which Menning (ibid) indirectly refers; the social and cultural narratives surrounding the ongoing loss of bees are persuasive of the idea that bees' lives are worthy of our grief and, thus, their plight has become a focal point for feelings of ecological grief. Not only have bees' lives become a subject of significant interest for many creative practitioners but, as the following case study chapter introduces and explores, bees' lives and current circumstances have even inspired an artist residency programme. This is not to disregard people's genuine feelings of care for bees, or lessen the agency of their own choice in responding to their loss. Rather, it is to emphasise that how people choose to express and direct feelings of ecological grief is undoubtedly influenced by wider social and cultural contexts. For example, had those participants which came to the subject of bees through a physical encounter had a similar encounter with a wasp, it would be far less likely, albeit not impossible, that this would have led to a creative exploration of wasps' ongoing decline⁴⁷. As such, this research offers significant evidence for the idea that expressions of ecological grief are inherently social, for how we choose to express grief and care for nonhuman species is interlinked with what and who we culturally understand as being valuable. As Heise (2016, p. 5) tells us, "biodiversity, endangered species, and extinction are primarily cultural issues, questions of what we value and what stories we tell, and only secondarily issues of science". Thus, which deaths inspire controversy and lamentation, and which are left to slip away, is a matter steeped in the social and cultural valuing of said species lives.

This leads me to my final and concluding point. The idea that an entire species might be deemed as grievable will no doubt sit uneasily with some: notions of grievability tend to be attached to particular, and typically human, lives. Yet, as we find ourselves living firmly in an age of ecological diminishment, we are forced to confront and grapple with new forms of grief (Cunsolo and Landman, 2017; Head, 2016). Accordingly, ideas of what and how we might grieve must be

⁴⁷ Wasps, like bees, are in decline (see: Heffernan, 2017; Archer, 2001).

expanded to account for the fact that we are experiencing and responding to nonhuman loss on mass scales. In Butler's (2004) original definition of grievability she suggests that if a life is seen as valuable - loved even - then it will be given an obituary. These creative acts of mourning for bees, a species whose general decline has rendered them creatures shadowed by a deathly spectre, are such an obituary: a mass obituary woven through the works of composers, poets, authors, performers, painters, and more. This possibility for such a collective ecological obituary confirms that, whilst many nonhuman species' lives are disappearing without notice or care, there are a rare few who have indeed entered into the realm of the grievable, with their deaths inspiring care, attention, and, fundamentally, lamentation.

6 Bee Time:

An Encounter with Honeybees

Walking into an apiary is intellectually challenging and emotionally rich, sensual and riveting.

Time slows down. Focus increases, awareness heightens, all senses captivated.

Mark Winston, 2014, p. 1

The disappearance of honeybees is a portent not merely of physical demise, nor merely of ethical catastrophe, but of something more ultimate: the unravelling of the larger context of meaning itself, the context in which ethics and even extinction can matter.

Freya Mathews, 2010, p. 367

6.1 Introduction

We are warned not to sit too near the hive or to block the line of flight of the honeybees that are busy flying back and forth to the landing platform. We do not want to find ourselves the victim of their sting or, rather, make them a victim of their own fright⁴⁸. Accordingly, we all seat ourselves a good few metres away from the wooden hive structure, located on a gently sloping hill in the Andalusian landscape. It is a beautiful beehive, painted in a delicate blue and white pattern, finished with dots of yellow petals. Once we have all settled, scattered loosely in a semi-circle, the woman who brought us here begins to tell the story of this hive: we hear of why it was originally placed here, how it came to be decorated in swirls of blue, white, and yellow, the various struggles this particular colony has experienced, and the anxieties that the individuals which care for it have felt

⁴⁸ When a honeybee feels threatened, or perceives a threat to their hive, it will likely sting the perceived threat. When a honeybee stings a human, more often than not, its sting will twist and get embedded in clothing or skin. When the honeybee tries to pull away the sting will stay, and this causes the honeybee to die.

for the future of the bees that live inside. We are, in essence, told the story of honeybees in an age of ecological crisis through this one Andalusian hive and its inhabitants.

It is my first day on the artist residency programme Bee Time, an art and research collective inspired by practices and philosophies connected to natural beekeeping. Natural beekeeping is described on the Bee Time (2016) website as encompassing “a wide range of beekeeping practices that all have in common a respectful attitude towards bees and their natural processes”. This artist residency is run biannually, and the intention of it is to encourage artistic research and creations inspired by honeybees. This chapter tells a story of this artist residency programme, examining how it brings together creative practitioners to respond to the subject of honeybees. This chapter thus leads temporarily away from my broader research conducted with creative practitioners working on bee-inspired projects across the UK, and instead focuses solely on the work and experiences of individuals connected to the Bee Time artist residency programme. As such, this chapter draws most closely on the observations that I gathered during my time at the residency, coupled with interviews I conducted with one of the residency organisers and five other Bee Time residents. In this way, the work differs in style from my other chapters rooted in empirical study: concentrating solely on individuals connected to Bee Time, as opposed to all the creative practitioners I interviewed in connection with creative work inspired by bees.

The Bee Time residency programme was initiated by beekeepers Karmit Even-Zur, Jorge Gallardo, and Pol Parrhesia, and is based in a village called Santa Lucia, near the town of Vejer de la Frontera in Andalusia, Spain. Despite the Bee Time residencies being chiefly based in Spain, and my focus being on contemporary British culture, Bee Time has significant connections with the UK cultural landscape and is thus relevant to my core research questions. Primarily, the residency I attended, alongside the three organisers, brought together four creative practitioners currently completing PhDs in the UK. All four of the residents, including myself, were funded by the Manchester School of Art to attend this specific residency. Moreover, residencies run both prior to and since the one I took part in have had significant connections with UK-based creative practitioners. Out of the 20 creative practitioners who have visited the residency since it started running in 2016, ten have been UK-based creative practitioners. In addition to this, Bee Time has worked in connection with a natural beekeeping community in Sussex⁴⁹, with one previous residency even taking place at a Sussex-based

⁴⁹ This Sussex-based natural beekeeping community is partially run by one of the co-founders of the Natural Beekeeping Trust, an organisation which is introduced in section 4.3.1 of this thesis. This community is particularly active within the natural beekeeping community, running numerous workshops and events inspired by natural beekeeping.

adult learning centre called Emerson College⁵⁰. These significant connections with the UK cultural landscape are precisely why, despite Bee Time's Andalusian location, the story of Bee Time offers value to my particular exploration of the connections between the bee decline and creativity.

The chief intention of the Bee Time artist residencies is to disseminate knowledge of honeybees and their related struggles through the work and engagements of creative practitioners. As such, creative practitioners are invited to join the residency community so that they can gain greater insight into the worlds of honeybees, and subsequently, use their practice to engage with the stories and struggles of honeybees. However, over the course of my time at a Bee Time residency it became apparent that mine and my fellow residents interactions with honeybees, and associated discussions about their lives and current threats, were generating much wider conversations around how humans live and consume, how we work with our landscapes and environments, and how we are entangled in complex systems of loss. Indeed, through the conversations and activities we engaged in over the course of the residency we were explicitly urged to understand how the situation of honeybees is indicative of a much wider ecological and social crisis. As such, Bee Time not only teaches its residents about honeybees, but encourages them to use their learnings about honeybees to engage in creative forms of socio-ecological research that tap into wider questions about the human/nature relationship in an age of ecological scarcity. Therefore, through my telling of a story of the Bee Time residency I specifically question why and how honeybees might provide a useful starting point for engaging people with wider and potentially more daunting socio-ecological questions. I thus examine the suggestion made by Marshman, Blay-Palmer, and Landman (2019, p. 10), in a study they made of pollinator initiatives in cities, that bees are "a timely and charismatic species to offer insights into our relationship with the rest of the biotic environment". In doing so, I gesture towards a previously made argument (see: Portus and McGinn, 2019) that engaging people in dialogues around the loss of bees provides a valuable avenue through which to initiate broader and potentially more intimidating conversations about what it means to live in a time of ecological instability. Consequently, this case study chapter speaks to the value of using a topic which typically inspires interest to inspire people to engage with broader socio-ecological discussion and debate.

6.2 Bee Time: Connecting Natural Beekeeping and Creativity

⁵⁰ Emerson College is situated in Forest Row, Sussex, and is an adult learning centre which is inspired by the work of the philosopher Rudolf Steiner.

As aforementioned, the Bee Time artist residency programme was fundamentally inspired by the philosophies and practices of natural beekeeping. It was the brainchild of Karmit Even-Zur who, prior to the initiation of the first residency, had been practicing natural beekeeping for nearly a decade. Karmit is dedicated to taking as natural an approach as possible in her beekeeping practice: she refrains from interfering in the organic processes of the hive, does not take any of the honey, refuses to use chemical products in and outside the hive, often builds and uses hives that mimic the hives that honeybees traditionally make in the wild, and tends to wear minimal, if any, beekeeping gear when visiting the honeybees. At the heart of the natural beekeeping approach practised by Karmit is the fundamental hope that, through adopting these natural beekeeping practices, we might be able to give new life to the world of honeybees, and reconfigure our relationship with them. As observed by Green and Ginn (2014, p. 167) in their study of the same Sussex-based natural beekeeping community that the Bee Time community has worked with, natural beekeepers “see the bees as vulnerable companions who require, by virtue of intertwined history, care and perhaps even love”. In an age where bee species are under significant threat from multiple sources, natural beekeeping practices - like all beekeeping practices - have become unavoidably entangled in modes of challenging the suffering of honeybees. Accordingly, Karmit’s experience of working with honeybees has necessarily been plagued by experiences of loss.

Karmit’s own deep-rooted care for bees, and interest in natural beekeeping practices as a way of redirecting honeybees’ futures, originally led her to start her own natural beekeeping learning community. This learning community is officially named the Apijanda Natural Beekeeping Association, although I will henceforth refer to it as Apijanda, and is also based in the Vejer de la Frontera area. Apijanda seeks to promote natural beekeeping, provide support to and workshops for budding natural beekeepers, deepen and distribute knowledge about the lives of honeybees and their health, and, finally, establish a network of apiaries and beekeepers which support activities such as swarm collecting. Whilst there are hives connected to the Apijanda community dotted across various locations in the hills surrounding the town of Vejer de la Frontera, Apijanda centres its activities around a publicly kept area of land, partially depicted in figure 19, which is home to an old Moorish viaduct and some communally owned out-of-use mill buildings.



Figure 19: Santa Lucia Mills (Author's Own Image, Santa Lucia Mills, 2018).

Having access to these public mills and land, which rises up from the village of Santa Lucia, offered Karmit the opportunity to build on her work with Apijanda, by starting an artist residency inspired by the work of the local Apijanda community. As explained to me by a fellow organiser of Bee Time, Pol Parrhesia, soon after she initiated Apijanda Karmit asked both Pol and Jorge to join together in an artist residency inspired by the work and ethos of the learning community. Together Karmit, Pol, and Jorge invited two creative practitioners, both from the UK, to join the first Bee Time residency. Pol reflects on how, for this first residency, they “joined together for two weeks, [and] we started learning about bee biology. Except for [...] Karmit, for all of us, all of the rest of us, it was all new. It was a new world we were discovering” (Parrhesia, 2019). Pol described this first residency as “a very magical experience” (ibid). Pol went on to say that after that first residency experience they “decided we have to do this again. Let's do it again. Because I think [...] we finished that first residency very touched, very transformed [...] I entered as [one] person and I finished as another person” (ibid).

In this way, the Bee Time artist residency programme was born.

Thus, at the heart of the Bee Time residencies are honeybees. More precisely, at the heart of Bee Time is a focus on inspiring people to understand and creatively interact with the techniques and philosophies of natural beekeeping. This focus was not only witnessed by myself, but also specifically communicated to me by other residents who have attended Bee Time residencies. For instance, in

2017 I met with one of the very first residents to attend Bee Time, Lydia Heath, to learn about her experiences. Lydia described how during Bee Time her group “learnt about the [...] practice of natural beekeeping, and then we were invited as artists to make work in response to that” (Heath, 2017). Lydia also spoke of how her group had the opportunity to meet with conventional beekeepers in the region, speaking to them about their troubles and discussing the potentials of a more bee-centred approach to beekeeping. Another former Bee Time resident Carrie Foulkes (2019) - who visited Santa Lucia in October 2017 - described how:

people come to Bee Time that don't have a lot of experiences with bees, but have the motivation, or have that curiosity. And I think that they do a really good job of [...] bringing in people with diverse practices and then exposing them to the bees, and exposing them in a way that's sort of quite bee-centred.

Carrie herself was already deeply involved with the Natural Beekeeping Trust when she attended Bee Time and, as such, already had significant knowledge regarding the crisis facing bees and natural beekeeping. However, despite this, Carrie reflected on how Bee Time provided her with an opportunity to explore combining her artistic practice with her interest in bees and related ecological concerns. Both Lydia’s and Carrie’s experiences reflect on how the central aim of Bee Time is to educate creative practitioners in the ecological circumstances surrounding honeybees, and invite them to creatively engage with both this knowledge and the specific work of the Apijanda community.

I personally arrived to join the Bee Time community in October 2018. Stepping off the coach which had taken me and another Bee Time resident - Freya - from Gibraltar to the town of Vejer de la Frontera, I was a jumble of emotions: excited and enthused, but also tentative. I was aware that the next two weeks, which would conclude with an open studio event, would challenge me to marry my more creative interests with my academic research, and I was undeniably nervous. Unlike the other three residents I was joining Bee Time with - Tyler Lewis, Sabina Sallis, and Freya - I am by no means a professional creative practitioner; despite my manifest enthusiasm for the work of Bee Time, coupled with some experience in the arts, I counted myself particularly fortunate to be able to join the residency. However, I quickly found myself left with little time to ponder my perceived inadequacies. From the moment of our arrival we were immersed into the world of the Bee Time community: a world of creative explorations, ecologically-inspired art, meditations, deliberations, hives, and, most importantly, honeybees. Our first port of call on the residency, after settling in and getting acquainted with one another, was to make a trip to the honeybees. On our first morning with the residency we piled into two cars and took a journey through the Andalusian hills, up through the town of Vejer de la Frontera, to go and visit the first beehive. It was on this first visit to a

hive that we got to hear Karmit's story of her relationship with honeybees, and the anxieties which she has often felt in connection to them. My notes described how:

Karmit told us of how she has struggled often to know when is right to intervene. She spoke of a time in which she was leaving to go away, and she came to check on the bees and thought that, maybe, she should try to open the hive. But something deep and unexplainable stopped her opening and encroaching on this space. It felt wrong to her somehow. And when she returned they were thriving, and she is thankful that she listened to her instinct.

During the Bee Time residency we visited a number of the hives connected with the Apijanda community. The very next hive we visited, situated just ten or so metres away from the first hive but hidden by a wall of trees and shrubs, was a hive that was chosen by the honeybee colony that lived there, with no persuasion or intervention from the Apijanda community. It was discussed that the community was anxious for its stability and survival: they hoped that the honeybees had made a wise choice.

Many of the hives we visited over the course of our time with Bee Time were accompanied by stories of struggle or previous losses. However, the truth of the plight facing honeybees was not only conveyed through the stories and discussions we engaged in when we visited hives; as I discuss in section 4.3.4, myself and another resident were confronted with the reality of honeybee decline when we went to visit a hive which had been decimated by wax moths. The hive, which was crawling with wasps by the time of our arrival, was a scene of devastation: the honeycomb was clogged up with the residues of wax moths, and the stores stripped of honey and brood. Also detailed in section 4.3.4 is my experience on the fifth day of the residency of paying a visit to a nearby commercial beekeeper whose hives were being overrun with the *Varroa* mite. Over the previous year he had lost nearly two-thirds of his hives to this particular parasite, and was desperately searching for new methods to save his honeybees. Thus, the reality of honeybees' ongoing struggle wove itself through the residency; the threats facing honeybees was not a forced conversation, but rather one that was necessarily present through our interactions with honeybees and hives, as well as our learning of the potential for the practices and philosophies of natural beekeeping to work as one solution to some of the crises being witnessed.

Bee Time is thus dedicated to honeybees. As described on the Bee Time website, creative practitioners are invited to come and "respond and reflect on the work that is carried out in the apiaries" (Bee Time, 2016). And yet, from the moment of my arrival into the Bee Time community I observed how we were further encouraged to expand our creative focus beyond bees. It was openly

discussed by the Bee Time organisers that they hoped our learnings and deliberations about honeybees would act as catalysts for creative explorations around wider ecological and social concerns. Fundamentally, we were encouraged to question what honeybees could teach us about how we interact with both other humans, other species, and our environments in a time of ecological uncertainty. Bee Time therefore readily puts into action the observation given by Hatley (2017, p. 26) that a species loss is a process that “not only is to be questioned but already is a questioning, uncannily interrogating we who remain behind”.

The hope that the creative practitioners who join Bee Time will use an aspect of honeybees’ lives and stories as a starting point for greater investigations into how we live and interact with the Earth is explicitly vocalised by the Bee Time organisers; in a book they published that was inspired by the residency run immediately prior to the one I attended they say that:

The natural history of the Bee is so wide-ranging that visiting artists who spend time with us usually find an attraction to a particular aspect of bee biology, social behaviour, relationship with the landscape or as a subject of veneration. Participants then begin following a thread of investigation to develop their artistic process (Even-Zur, Gallardo, and Parrhesia, 2018, p. 13).

Pol expanded upon this idea in her interview with me, telling me how:

bees are just a symbol of, of something much wilder, which is the whole ecosystem, which is all animals, which is nature. And so from that point of view [...] we work with bees, but bees are just [...] a window through which to look, to look [at] the whole system from a different point of view (Parrhesia, 2019).

The creative practitioners who join Bee Time are thus directed to not only use their work to communicate about honeybees and natural beekeeping philosophies, but rather to embark on their own explorations of the relationship between honeybees, humans, and wider ecological circumstances. This aspect of the Bee Time experience was also recognised by my fellow residents. For instance, in an interview I conducted with electro-acoustic sound artist Tyler Lewis (2018b), three months after we left Bee Time, he spoke of how he initially attended Bee Time:

to work on bees, but of course that's not the only thing that we were talking about or studying or becoming excited about. So it was one of those [...] experiences where you go [...] with one main objective but you have no idea where it's going to lead, and I feel like throughout the two weeks we were able to [...] see or be surprised by a lot of different things that came out of the Bee Time residency.

Indeed, during my participation in the same Bee Time residency as Tyler, I likewise witnessed how our individual and collective interactions with honeybees prompted explorations - both conversational and creative - around deeper themes of ecology and society. I thus became committed to understanding *why* honeybees - and perhaps bees generally - are particularly well placed to inspire discussions of a broader nature, as well as what kinds of specific topics people's interactions with honeybees inspire. It was a curiosity centred around how creative responses to the plight of honeybees might extend far beyond the struggles of the hive, drawing people into conversation with a wider unravelling world and biosphere.

6.2.1 *The Earth's Story: Drawing Connections Between the Beehive and the Biosphere*

In considering how honeybees offer a valuable avenue through which to engage both the Bee Time residents and their audiences with socio-ecological discussions, it is pertinent to first consider how and why bees' cultural reputation and position already helps facilitate this. This section thus proceeds to consider how the cultural framing of bees as grievable, coupled with our long tradition of considering honeybees as emblematic of wider social or environmental processes, means that the subject of honeybee decline might already be considered a particularly useful gateway topic for facilitating broader environmental discussions.

It has long been apparent during my research into bees, and was certainly clarified during my experience with Bee Time, that honeybees typically inspire a degree of public engagement that many other nonhuman animals do not. The fact of their decline has been registered on a mass scale, and their plight has become an ingrained focus of contemporary environmental movements (Portus, 2020; Swan, 2017; Ball and Haynes, 2013; Moore and Kosut, 2013). The very existence of Bee Time, a residency inspired by honeybees, arguably confirms the popular interest in bees. Indeed, during my time at the residency Karmit admitted to myself and my fellow residents that the organising team had had to work through an overwhelming number of applications for the residency I attended. Thus, the popularity of the Bee Time residencies, the active engagement with their work from the local community, and the continued expansion of the work of Bee Time evidences the degree to which bees are a species which draws interest and excitement. Beyond the boundaries of Bee Time, however, it has also long been evidenced that honeybees are a species of utmost fascination to humans (see: Hanson, 2018; Preston, 2006; Wilson, 2004; Ransome, 1937; Maeterlinck, 1901). Indeed, as Sumner, Law, and Cini (2018) decisively argue, bees are a species which are typically beloved and celebrated. Moreover, as I detail in chapter five, following their potential decline, bees

became popularly recognised as a grievable species, a species whose loss broadly invites care, sympathy, and attention. Bees have become a living emblem of extinction narratives which are non-threatening, typically inspiring, and agreeably important. Thus, on a particularly literal level, artistic opportunities or creative projects that are inspired by bees are more likely to appeal to a wider audience and subsequently inspire a broader engagement.

Perhaps more importantly is the degree to which honeybees have long been considered a species which might have something to teach humans, both about human nature and about wider ecological processes. First, as indicated in section 4.2.4, honeybee societies have long been cited as both a reflection of and a guide for human societies, very often in contradictory ways: metaphors drawn from honeybee societies have been used to inspire revolutions, justify capitalism, fight for worker equality, offer guidance for creating a textbook business model, and depict the perfect monarchical regime (Winston, 2014; O'Malley, 2010; Wilson, 2006). Indeed, fellow resident Freya (2018) reflected that when she first began working with the topic of bees in her work, she quickly “realised how much there is in folklore around honeybees and the way honeybees have been understood as metaphors for community, metaphors for industry”. Freya further explained how honeybees were therefore relevant to explore in connection to questions she was already examining in her work around agency, tradition, rituals, culture, and identity. Thus, the intention of the Bee Time organisers to encourage creative practitioners joining Bee Time to consider what lessons honeybees might offer for human society follows in the footsteps of a well-established tradition: a tradition that has arisen precisely because honeybees’ easily observable social natures offer so much potential for providing insight into how humans operate socially.

Second, whilst honeybees have long been considered a useful avenue through which to consider human social processes, research has also highlighted honeybees’ usefulness as indicators of various environmental processes⁵¹ (see: Quigley, Amdam, and Harwood, 2019; Skorbiłowicz, Skorbiłowicz, and Cieśluk, 2018; Badiou-Bénéteau et al., 2013; Kevan, 1999; Celli, 1991). Indeed, as Preston (2006, p. 15) writes, the “health of ecosystems can be judged partly by the health of bees, an intimation surely accounting for the great stores of honey in heaven and the promised lands of most eschatologies”. The positioning of honeybees’ struggles as reflective of the calamities occurring across the Earth’s ecosystems is an inclination further commented upon by Mathews (2011, p. 174), who writes of the crisis of CCD:

⁵¹ Similar research has concluded that wild bees also function as useful environmental indicators (see: Goulson and Nicholls, 2016; Schindler et al., 2013).

In contemplating the bleak reality of colony collapse disorder [...] we are faced with the prospect of ecological breakdown. Humanity has, we know, for decades been recklessly ripping and slashing, gouging and pulverizing, poisoning and expropriating the living tissue of earth, but now it seems that under this assault the very structure of the biosphere, the intricate ecological jigsaw of the life-system, is finally starting to come apart. Without honeybees, the renewal of plant life is impaired, and with impairment of plant renewal, terrestrial life generally is doomed.

In grieving at the disappearance of the honeybee, then, I am grieving for the diminishment of the biosphere.

By Mathew's (2011) reasoning, engaging with the decline of honeybees inherently leads one to call into question both the circumstances which have led them to become threatened, and the wider ecological story that their plight is revealing. Certainly, that the loss of honeybees is inescapably indicative of a far greater ecological breakdown is an understanding that was expressed by individuals I met during my Bee Time experience. Bee Time co-organiser Pol articulated how, to her, the situation surrounding honeybees is a visible sign of the increasing threat of extinction in the contemporary age. Pol spoke of how "because [honeybees] are so tiny and fragile and vulnerable they are just [...] one of the first ones [to disappear]" (Parrhesia, 2019). Pol also referred to how the suffering of honeybees is notably more visible to us than other processes of loss, saying that there are actually "lots of different kinds of insects who are dying and disappearing and we don't even realise, or we don't count it as something so important". In a similar vein of thought, in my first interview with fellow resident Tyler he told me that he has been particularly interested to work with bees because they are "like the litmus test for the health of the ecosystems" (Lewis, 2018a). Tyler expressed the opinion that studying honeybees would provide a valuable opportunity to facilitate conversations around wider environmental themes in his compositional and sound-based creative explorations.

Fundamentally, therefore, the general admiration which honeybees seem to inspire, coupled with their long history of being used as both a metaphor for human society and a bioindicator of environmental concerns, means that honeybees are uniquely well-placed to inspire and facilitate much broader discussions around current socio-ecological circumstances. It is thus unsurprising that the discussions and creative explorations which Bee Time facilitates often move away from the initial focus on honeybees, tapping into wider socio-ecological topics and debates.

6.2.2 *Avenues of Inspiration: Narratives of Time, Community, and Landscape*

This brings me to my second enquiry, which is concerned with what specific avenues of thought the focus on honeybees during the Bee Time residencies instigates. Through my own experience of the Bee Time residency, as well as through discussions with fellow residents that attended both my own and other Bee Time residencies, I surmised there to be three fundamental avenues of inquiry which the Bee Time residency experience inspires. To elaborate, I observed how there are three key themes which keep appearing through the conversations, creative projects, and writings that the residency programme generates: community, landscape, and time.

As mentioned, a theme which was explicitly explored during my time at a Bee Time residency was community. Community is a central focus of the Bee Time residencies, which has its roots in the local natural beekeeping community. Thus, during our experience with Bee Time there was much discussion about how we might also work as a collaborative community, as well as how we might learn from honeybee societies when forming these communal relations with each other. Whilst these discussions of community are integral to all Bee Time residencies, I would suggest that this theme was particularly emphasised during the specific residency I attended, due to the residency having a sub-focus on the theme of the superorganism⁵². Our sub-focus on the topic of the superorganism meant that, both through readings given to us before we joined the residency and throughout our Bee Time experience, we spent significant time thinking about how honeybee societies work as superorganisms and, thus, as communities which are supposedly democratic, co-operative, and reliant on each individual part to be successful (see: Seeley, 1989). With each honeybee hive we visited we were shown how the individual honeybees were engaging with an intricately choreographed dance of activity, working as an entirely interlinked community with each individual being integral to the continuation of the whole. We also specifically discussed how the social dynamics of the Bee Time residencies, which seek to be entirely democratic and provide all residents with equal opportunities to contribute, engage with, and further the intentions of the rest of the group, are inspired by this idea of a superorganism. In my field notes it is evident that I considered this intention of Bee Time to be successful. As I recorded in my notes:

⁵² Sometimes the Bee Time residencies have a specific sub-focus. For example, other Bee Time residencies have been focused around themes such as 'Swarming', 'Holon' and 'Finding the Common Thread'. The sub-focus of my residency, that of the superorganism, refers to the way that honeybee societies function as a whole, with each individual aspect being integral to the survival of the colony.

*I feel we have all been in a co-operative spirit through our learning of the hive.
This sense of collaboration really feeds out into the energy of the group - almost
like a superorganism!*

Thus, our focus on conversing about this idea of the superorganism fed into broader discussions about how we, as an artist residency community, might also interact with one another.

One of my fellow residents who explored ideas around honeybees and community through his work was Tyler Lewis. In the creation of his piece inspired by his time with Bee Time Tyler went and visited many of the different beehives that the Apijanda community looks after, carefully placing recording devices within them. He was then able to collate all these individual recordings of different hives into a singular piece of music: composed by Tyler but played by the honeybees. Tyler then designed a wooden structure, depicted in figure 20, in which he was able to play his recording. Through this work Tyler expressed how individual honeybee colonies are fundamentally connected, both through the shared processes of their societies and through their shared relationship with, and contribution to, their communal environment. Indeed, Tyler recounted to me that he hoped to artistically bring the honeybee colonies that are cared for by the Apijanda community into a single shared space, gathering “their sounds together and having them exist in one place” (Lewis, 2018b). Tyler also later told me that his intention in presenting his recording inside a wooden structure was to allow the audience to physically immerse themselves in the sounds of honeybees, understanding better what was happening inside the intricate, social worlds of honeybee hives.

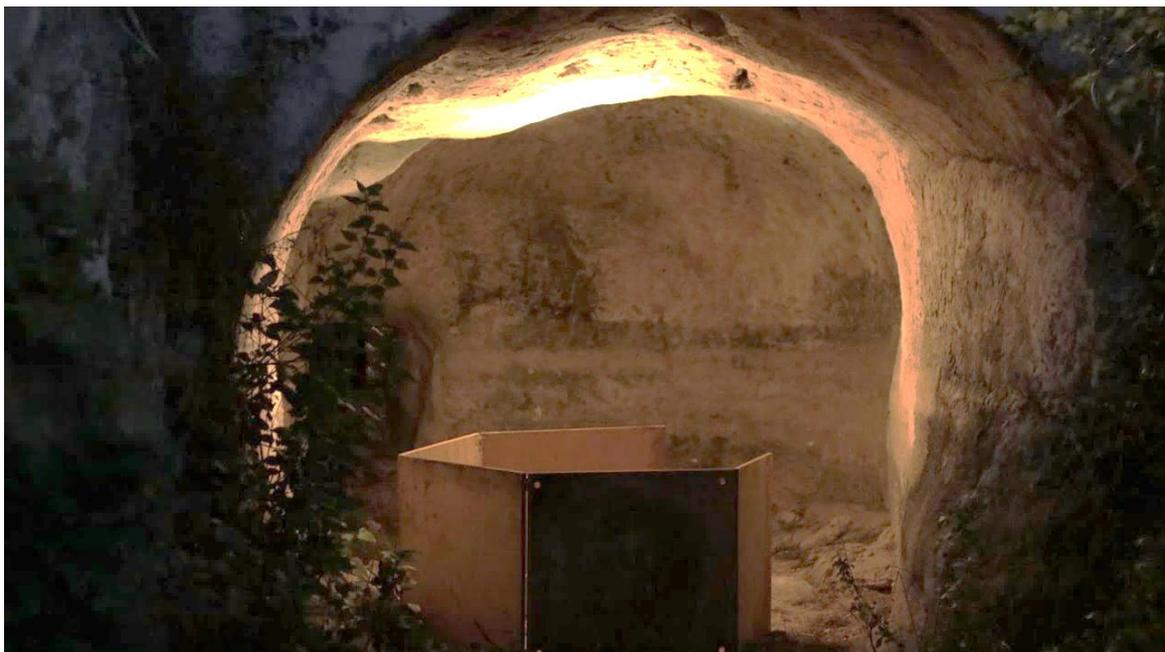


Figure 20: Tyler Lewis's Creative Project (Author's Own Image, Santa Lucia Mills, 2018).

However, our attention through the residency was not solely focused on how honeybee communities work as a superorganism. From the very beginning of our residency we were also explicitly urged to consider how this idea of the superorganism might relate to how we think about the role of humans in a global and multispecies community. To be more specific, in one of our first discussions around this theme of the superorganism Bee Time organiser Jorge Gallardo encouraged us to consider whether it was possible that the whole planet might work as a superorganism and, if so, what our role should be in this community. In my notes I describe how Jorge asked us to consider:

all the ways in [which] species are connected into a superorganism. So [he] spoke of [a] story about beetles getting into [a] hive and stealing honey, and he asked if we should not take these beetles out because is that disturbing something? Or are we also part of that superorganism?

Jorge went on to purposefully suggest that we consider how the formation of honeybee societies - in which every individual and every part of their world is vital for the continuation and success of the whole - might be used as a guide for how we - as another living species - might try to interact with and contribute to the health of the Earth. Jorge's suggestion is not necessarily radical. For instance, approximately four decades before we sat listening to Jorge, James Lovelock (1979) famously proposed his Gaia Hypothesis which suggested that the Earth, and all life on it, exists and interacts as a self-regulating and unified living organism. Lovelock's proposal, which was considered both admirable and controversial in equal measure, spoke of how 'Gaia' - by which he means the entire Earth - works as a single organism, despite the individuality of all the parts which make it up (ibid). Since this initial publication Lovelock has fervently worked to update his original proposal. In the fourth edition of his 1979 book *Gaia: A New Look at Life on Earth* Lovelock (2000) adds a preface which details how Earth is not just regulated by living organisms, but by every single aspect of the world: rocks, water, air, fire. Furthermore, as concerns such as climate change accelerate in their urgency, Lovelock (2009), controversially, suggests that as a singular species we are fundamentally assaulting the organism of the Earth and will thus become purged from this Earth community. Essentially, and similarly to Jorge, Lovelock (2009, 2006) continues to advocate for us to consider the Earth as a superorganism, and humans as one - albeit sometimes toxic - aspect of this singularly connected and worldwide community.

This question of how we as humans might try to consider ourselves as connected to a wider and worldwide superorganism particularly inspired the research and work of fellow resident Sabina

Sallis. Sabina, who is a visual artist, had been considering this pathway of research from relatively early on in the residency; four days into the residency Sabina told me that “bees are superorganisms, and I think we are superorganisms as well, so that's what I want to explore actually” (Sallis, 2018). In reflection of this interest, Sabina’s creative research and project led her to investigate how we interact with our environments, drawing specific attention to our damaging habit of excessively taking from our environments, whilst giving little back. As such, Sabina’s intention for her work was to be able to create a project using locally sourced materials that would then be able to be gifted back to the local community who look after the landscape.

To execute her idea Sabina spent the week before the open studio event gathering various herbs and plants from the local landscape. Over the course of the week leading up to the open studio Sabina simmered these herbs together with local olive oil and beeswax taken from a deceased colony. Then, as shown in figure 21, during the night of the open studio Sabina performed the act of making this infused oil into pots of herbal balm: straining the liquid, potting it up, and giving it to people to take away with them. As she worked through this process Sabina spoke to the audience of how we, as both individuals and as communities, must work to reconnect ourselves with the greater ecological community, not only taking away from the community of the Earth but also offering something back; Sabina thus offered a plea to her audience to reconsider their place in the world. Communicating in this way, and drawing attention to ecological and social fractures, is a responsibility that Sabina considers integral to her work as a creative practitioner. Speaking about her creative practice with me, Sabina communicated how she feels that “it is a form of responsibility, [...] I think there is nothing more important now to do. Yea. [...] I think the weight of responsibility is [...] huge, and I think it's actually empowering as well” (Sallis, 2018). Indeed, Sabina’s work told a story of responsibility, urging people to try and become contributors to the biosphere, rather than just consumers of it.



Figure 21: Sabina Sallis's Creative Project (Parrhesia, 2018).

The second topic which was commonly discussed over the course of our time with Bee Time, and that certainly also inspired Sabina's work, was how we interact with landscapes. Our time spent with honeybees unsurprisingly highlighted how, as a species, they have a reciprocal relationship with their landscape: taking pollen and, in the course of doing so, pollinating the plants. Witnessing this mutually beneficial interaction take place led me and my fellow residents to start discussing how we ourselves interact with our local landscapes, and the degree to which we consider this in our everyday behaviours. Moreover, the hope that we might use our time at Bee Time to reconsider how we care for our landscapes was also made explicit by the Bee Time organisers; for instance, the very first activity we engaged in, even before we visited a hive, was to stop twice, both on the edges of fields, and spend time witnessing and engaging with the local landscape. During this activity we were also told stories of how the residency organisers sought to connect with their local landscape. As I recorded in my notes:

On the way to meet the hives we stopped the car at a point that, according to Karmit and Pol, was a good point to see all around the landscape. They spoke to us about some of the stories of the land . . . From there we went to acquaint ourselves with the land. To do so we drove a bit further on, stopped the car and walked up a small ridge. We then stood in a circle and listened to and smelt the world around us.

From my conversations with residents who attended different Bee Time residencies to my own, it was clear that the invitation to consider how we connect and work with the landscape is typical of any Bee Time experience. Former Bee Time resident Lydia Heath (2017), who first introduced me to the work of Bee Time in 2017, told me that she developed some performances where she was:

dressed up in a beekeepers suit and [...] mimicking the movements that bees make when they clean themselves. So how they use their limbs to sort of like compact pollen and [...] keep themselves clean. I was doing that but in a beekeepers suit. So I was performing these actions and then [...] photographing it . . . The kind of thought process behind that was when I was in Spain [...] it was this really beautiful place that had these rolling hills and waterfalls [...] really really beautiful, but then it was quite [a] tourist attraction as well. So you'd see all these traces of human interaction with the landscape. You'd see rubbish and bits of plastic and [when] I was there and I was thinking about you know my - our - relationship to the landscape. And not being able to go into it without either leaving some kind of harmful residue in the form of [...] rubbish, or like destroying it. Having [...] a negative relationship with it. And then I was learning about sort of bees and their symbiotic relationship with the landscape and how [...] it was mutually beneficial, and they were sort of, you know, working together for the betterment of the hive and also the flowers as well, and vegetables in terms of pollination. So I was [...] contrasting their relationship with the landscape and my relationship with the landscape and feeling this sort of sense of frustration that I couldn't have a more harmonious relationship with the landscape. So in my sort of ridiculous way I was trying to almost, like, think like a bee, become a bee by making these movements.

Thus, Lydia's piece, which she is shown performing in figure 22, was directly inspired by her observation that we can learn from honeybees about how to engage more harmoniously and reciprocally with the Earth.



Figure 22: Be Clean Still Image (Heath, ([no date]).

Like Lydia, former Bee Time resident Carrie Foulkes also emphasised that the question of how we might better interact with our landscapes was at the heart of her investigations and project. Carrie described how she remembered seeing that the hill where the Moorish viaducts and mills are situated “was filled with debris when we got there, filled with branches and rubbish [...] there's so much rubbish there, it was mind blowing and so sad. And it made me so angry” (Foulkes, 2019). In response to this feeling, Carrie felt it was vital to create a piece of work that could be tangibly placed in the landscape, taking up space in it and offering, as Carrie stated, the “promise of more life” (ibid). Carrie Foulkes therefore decided to create an:

installation using combs from a colony that had died. So these were honeycombs that had been brought from one of the local beekeepers who had been losing a lot of bees. And [...] I had this idea of a process by which I could take this, basically, residue from a dead colony [...] and embed it in a sculpture, embed it in an installation that would [...] alchemise it or transform it, or use it as part of a narrative that was hopeful (ibid).

Carrie went on to say that she:

also made these little eggs out of beeswax that I put under the tree. And it was almost supposed to look like fruit that had fallen from the tree. And these allowed [...] people that came to see the exhibition [...] to pick them up and smell them, and if they wanted to take it they could take them, and [that] was in my mind almost like these seeds [...] being sent out into the world (ibid).

Carrie's installation, which is pictured in figure 23, therefore paid homage to the landscape, drawing attention to its intrinsic beauty as well as its capacity to be revived through simple acts of care. Moreover, both Lydia's and Carrie's work reveal how the interactions people have with honeybees on Bee Time residencies typically leads residents to consider through their work and research how we might better care for the landscapes upon which both human and honeybees are dependent.



Figure 23: Carrie Foulkes's Creative Project (Foulkes, 2017).

The final topic which I observed as central to the conversations, investigations, and projects inspired by Bee Time was that of time; the relationship between honeybees, human time, and ecological time is a fundamental focus of the Bee Time experience. This focus on time in relation to the loss of honeybees came about in two distinct ways. First, in the hours we spent sitting and conversing, we frequently discussed how honeybees' experience of time was being interrupted and threatened by humans: as recognised by Phillips (2020), honeybees' literal time on Earth, their temporal synchrony with their environments, and the temporal processes integral to the hive are all impacted by anthropogenic changes. As Huebener (2020) might suggest, honeybees have been impacted by the human breaking of 'nature's clocks'. More fundamentally, we are plainly running out of time to try

and offer this time back to honeybees; when we went to visit the commercial beekeeper who had lost approximately two-thirds of his hives to the *Varroa* mite, all of us were shocked by the desperate measures he was resorting to in his fight against the parasite, even experimenting with drugging honeybees with antidepressants. Encountering this experience, we entered into discussions of how we, as both individuals and a community, might seek to use the seemingly little time we have left to resist further nonhuman loss. In the specific context of Bee Time, we were encouraged to consider how natural beekeeping might return time to the honeybees by offering them a chance to reconnect with their ancestral wilderness. For instance, through engaging with activities such as the building of natural beekeeping skep hives⁵³, which I am pictured doing in figure 24, we were encouraged to consider how historical and traditional techniques of keeping bees might fight against this interruption of honeybees' time, making their decline but a blip in the story of bees. In this way, discussions over time - and lack of it in the current day - pervaded our conversations, experiences, and projects during the Bee Time residency.

However, during the residency our explorations of time were not limited to considering how honeybees' time is being taken away from them. The focus on time in the residency also occurred through the encouragement to try and step away from everyday time pressures, and allow for time to flow in a more natural and ecologically attentive way. To explain this further, it has previously been observed that spending time with honeybees requires a certain slowing down: engaging with a temporal rhythm that does not necessarily correlate to our own. For instance, drawing on his own beekeeping experiences, Winston (2014) observes that when you walk into an apiary time slows down, and you enter into a space which has its own rhythm and ritual. Likewise, Phillips (2020, p. 5) details how the beekeepers she worked with in her study of Australian beekeeping communities "spoke about slowing down - slowing their bodies, focusing on bees, and enjoying the distance from monitored and measured times". Phillips further illustrates how engaging with honeybees necessitates negotiating and connecting with wider ecological temporalities. Becoming re-attuned to seasonal rhythms, weather and flowering patterns, and biological cycles is, as Phillips details, a fundamental aspect of working with honeybees. Whilst our interactions with honeybees and hives during the Bee Time residency tended to be less hands-on than a more conventional beekeeper's might be, this same sense of slowing down and engaging with a rhythm potentially unnatural to our commonly timetabled lifestyles pervaded the mood and pace of the entire residency. Thus, as the

⁵³ As I describe in section 4.3.1 a traditional skep hive is a circular hive made from woven straw. Unlike conventional hives, it cannot be opened for observation.

very name of the residency implies, Bee Time offers its residents the opportunity to step out of their everyday schedules and connect with the time of the bees.

During the process of the residency we chatted often about this unforced structure of the Bee Time experience, laughing at how, when we sat with the hives or spent time sharing our thoughts in meetings in the mills, the unhurried nature of our conversations meant that each activity could take many hours. On my second full day at the residency I deliberated on this slowness, noting how:

Everything in Spain runs over - we laugh and call it Spanish time. But I also wonder if it is a purposeful slowness, deliberately pushing this feeling of 'non-pressure' or 'non-leadership' that we have discussed.

I got to confirm my answer to this deliberation when I read Karmit's reflective write up of the Bee Time residency I attended. Karmit commented that the two weeks we spent together seemed far longer, for "Two weeks can seem like two months in the Time of the Bee; slow time which enables the things that are usually overlooked in our busy lifestyles to surface and open new possibilities within our work" (Even-Zur, 2019). Thus, the encouragement to slow down and become re-attuned to the surrounding environmental rhythms was indeed a purposeful intention. Bee Time is therefore an exercise in escaping the clocks, steering away from imposed schedules and experiencing a different way of working and being. As Michelle Bastian (2017, 2012) has often pointed out, clocks - those long-observed devices which mark out the patterns of our days and force order upon the chaos of the world - do little to account for the temporalities embedded in the life patterns of nonhuman animal species.

This overt focus of trying to shed the restrictions of human-defined time schedules, and connect with a more natural rhythm, captured my research interest. I started to think about what honeybees might teach us about how we manage and understand time. I remembered learning from a natural beekeeper that I had met on a previous research trip that honeybees naturally store up more honey than they could possibly need, so as to ensure the safety of future generations. I came to realise that, in the context of a honeybee's timeline, their work was not orientated towards short-term goals, but sought to contribute to a much longer history. This led me to write - as part of a short creative nonfiction piece of writing I produced during Bee Time - about what honeybees might teach us about how we manage our own sense of time. In this piece I pondered how:

the bees do not just build a world for themselves, or for the next generation, but labour to create a hive that can help sustain their colony for years to come. When they store up honey they create enough surplus that they will be able to

sustain themselves for as long as possible (and not so humans might have it on their toast)! One of the core problems with human understanding is how rooted we are in only completing short-term goals. We must begin to think in much deeper time, looking not just to the next generation, but to generations that we will never see, but that will be living on the Earth that we have damaged so extensively.

Thus, how we individually use our time, and consider ourselves in relation to the deeper time of the Earth's story, became a fundamental lesson that I felt I learnt and was able to communicate during the Bee Time residency.

The fact that time stood out as a key area of exploration during the Bee Time residency is perhaps of no surprise in the context of Bee Time's focus on honeybees and their associated struggles. Living in a time of extinction is to live in an age which is confronted by the idea of time running out for many species: warped or lost through human action. Mass extinction is interrupting the timelines of innumerable species, cutting through the synchronies upon which their lives are built and accelerating their natural histories. Thus, as observed by Rose, van Dooren, and Chrulew (2017, p. 9), "thinking extinction has frequently drawn us into conversation of temporalities: from the deep-time processes of evolution and speciation, to the frighteningly rapid pace at which biodiversity loss is taking place". Observing extinction, therefore, entails negotiating with crises of time. It is further suggested by Rose, van Dooren, and Chrulew (ibid, p. 10) that the ways in which we study and seek to respond to processes of extinction might lead one to pursue:

creative attempts to produce new ways of understanding and relating to time, of measuring and counting time, of taking time - ours and theirs - and of giving it back to creatures prematurely deprived of the time they need to prepare their own resilient generations, to face their own fruitful deaths [italics in original].

The focus on thinking about time - and how we engage with and understand time in an age of loss - throughout the Bee Time residency is thus reflective of a wider dialogue that brings narratives of extinction and time into connection with one another.



Figure 24: Learning to Make a Skep Hive (Author's Own Image, Santa Lucia Mills, 2018).

6.3 Conclusion

As I sit and write on the work of Bee Time, exactly one year after I left the Bee Time residency, I realise that my time there gave me an opportunity to wholly encounter honeybees. Not to simply learn about their biology or hear about their threats, but actually to spend time bearing witness to their lives and their interactions with the world around them. Thus, it is indisputable that, as both an artist residency and a community, Bee Time pays homage to honeybees. Yet, as I have shown, those that facilitate and lead the Bee Time experience do not suggest that the creative outputs generated by the residency should be limited to studies of honeybees. Rather, honeybees' lives and experiences are presented as being indicative of much wider social and ecological troubles: troubles which Bee Time residents are encouraged to engage with. This is not to imply that honeybees are forgotten in the discussions and outputs of Bee Time. Rather, their struggles are placed within a wider context: it is recognised that we cannot move forward without engaging with broader socio-ecological dialogues and current challenges.

The intention of the Bee Time experience to inspire deep socio-ecological debate is evidently successful; drawing on my own experience of participating in a Bee Time artist residency, as well as

engaging with fellow Bee Time residents, I attest to how the creative research journeys and outputs of Bee Time connect the story of honeybees with wider questions around society and ecology. Through examining my research with Bee Time I identified three core topics which our engagements with honeybees most evidently led us to engage with: community, landscape, and time. It is not my intention to suggest that the creative research of Bee Time residents is limited to these core topics. Nor is it to suggest that discussions around honeybees will always lead to these three topics of conversation. Rather, it is to show that these are the key avenues of research which unquestionably appeared and reappeared through the Bee Time experience. Thus it is plain to see how, whilst honeybees are what brings together the Bee Time community, those that enter the Bee Time community will undoubtedly engage with debates that go far beyond the initial focus of honeybees. This, in turn, speaks to the value of engaging people with wider environmental dialogues by using an opening topic - bees or otherwise - that is potentially more familiar or accessible. Whilst the creative practitioners that attend the Bee Time residency are admittedly likely to be already interested in exploring socio-ecological discussions beyond bees, their creative outputs also serve to engage their audiences with wider socio-ecological conversations. This work therefore demonstrates that beginning environmental dialogues using a topic that people feel more familiarly connected with can be a valuable technique for encouraging engagement with more abstract, and potentially more intimidating, socio-ecological discussion. However, beyond some recognition of the value of opening environmental discussions with topics that are more localised or personal to one's audience (see: Corner, Shaw, and Clarke, 2018; Jarreau, Altinay, and Reynolds, 2017), this idea has received little attention in current literature. I suggest, therefore, that this would benefit from further study.

To conclude, the insights recorded through my experiences with and learnings of Bee Time naturally all relate back to this specific community and place. Yet, the ethos and understandings that Bee Time is built upon resonates with a much wider cultural landscape. For instance, it speaks to a wider cultural landscape in which bees have not only become a grievable species, but which is becoming increasingly rich with creative projects responding to and challenging ecological circumstances. Similarly, the processes and conversations I experienced during the residency speak to the relatively underexamined idea that gateway topics are valuable for engaging people with broader socio-ecological debates. Fundamentally, therefore, this story of Bee Time speaks to processes and narratives which extend far beyond the boundaries of this one small, but determined, bee-inspired community nestling amongst the Andalusian hills.

7 **Storied-Mourning:**

Reshaping the Story with Creativity

How might a novel or a poem possibly account for our authorship of global-scale environmental change across millennia - let alone shape the nature of that change?

Robert Macfarlane, 2016

Unlike the scientist, who must follow established scientific methods, the artist is free to question and redefine anything or everything at any stage, to be wide-ranging and open to all possibilities.

Andrew Brown, 2014, p. 6

7.1 Introduction

Famed environmentalist Bill McKibben (2005) once wrote of climate change that “though we know about it, we don’t know about it. It hasn’t registered in our gut; it isn’t part of our culture. Where are the books? The poems? The plays? The goddamn operas?”. McKibben was lamenting the noticeable lack of cultural and creative input into environmental communications. Today, however, McKibben’s statement has become outdated. Written a mere decade and a half ago, it represents a cultural landscape starkly different from the one we witness today. As ecological narratives take on a new degree of urgency within contemporary culture, individuals working across the creative sector are increasingly seeking to bring attention to and transform environmental crises (Blanc and Benish, 2017; Heise, 2016; Brown, 2014). As I observe in section 2.4, we have entered into a new phase of environmental creative arts in which the world has become enriched by a vast array of creative projects responding to environmental concerns. The platforming of environmental dialogues across the creative sector has been fuelled by movements such as Culture Declares Emergency⁵⁴ and

⁵⁴ Culture Declares Emergency is a community of arts-based individuals and organisations that are openly declaring a climate and environmental emergency.

Extinction Rebellion, both of which are actively supporting individuals and organisations in the creative sector to input their voices into environmental narratives. Fundamentally, in recent years there has been an observable awakening to environmental crises across creative and cultural platforms.

As interest in environmental dialogues across the creative sector swells, so too has literature that questions and debates the role of creativity in responding to environmental issues (see: Barr, 2017; Blanc and Benish, 2017; Neal, 2015; Brown, 2014; Curtis, Reid, and Reeve, 2014). Across this literature it has been cited that the creative arts have a meaningful role to play in challenging environmental crises. Thus, it is implicitly suggested that creative work which responds to nonhuman loss might play an important role in confronting extinction events. In this chapter I interrogate this contention - which is both suggested and actively asserted in wider writings on the environmental creative arts - by specifically exploring how the creative practitioners I conducted research with seek to use creativity to engage with the crisis of the bee decline. In doing so, this work follows four lines of enquiry: first, what kind of knowledge, emotion, and action are creative practitioners intending to generate through their work? Second, what can creative projects offer as an avenue of environmental communication? Third, what, if any, are the practical implications of these creative responses? And, finally, what do the narratives of creative practitioners working on the bee decline reveal about the role of creativity in responding to extinction crises more generally?

Through my examination of how creative practitioners are using their creative platforms to engage with the story of the bee decline, I propose that there are three key avenues through which creative practitioners might bear influence upon both this and potentially other extinction stories: through bearing witness to and encouraging debate regarding the loss of bees, through making conversations around extinction more inclusive and accessible, and through directly engaging with ecologically motivated actions and practices. Through this chapter I consider each of these avenues in distinct sections, exploring specifically how each of these pathways of influence was demonstrated to me through my interviews with creative practitioners. It is important to stress that whilst I study each contention in isolation, these three avenues of influence are not mutually exclusive. Nor are they necessarily adhered to by all the creative practitioners studied in my work. Rather, they are reflective of the central ways that the creative practitioners I studied communicate about the impact and intentions of their creative projects. In exploring these, I develop a fuller picture of how creativity might interact with and exert influence upon extinction processes more widely. As a result, this chapter necessarily draws attention to the significant role that creative practitioners can - and indeed should be encouraged and supported to - fulfil in this age of extinction. This is not to suggest that this avenue of response should, or perhaps even could, ever

act in isolation from other responses to extinction crises - whether these are responses rooted in science, politics, or protests. However, it is to suggest that creative avenues of exploration have a fundamental role to play in responding to current and ongoing extinction crises.

7.2 Stories of Mourning: Bearing Witness to the Loss of Bees

On stage a young woman shoves her hands in her pockets, looking uncomfortable, embarrassed even. Her eyes roll to the left, an awkward smile dancing upon her lips as she attempts to look casual. The other actor on the stage wears the opposite demeanour: agitated, impassioned. “Flowers are food”, she declares. “Imagine if the supermarket near yours shut down. What would you do?”. Sighing, the first woman replies, “well then I’d just go to another one”. Undeterred, the second woman asks again - “and what if that one shut down?”. The first woman answers, “well then I’d go to one *even* further away. I don’t get what you’re saying”.

This is a description of a scene taken from the play *The Bee Project*, the brainchild of theatre artist and performer Laura Ryder. As previously introduced in section 5.5, *The Bee Project* - which is shown being performed in figure 25 - is centred around the story of two friends that, after finding a flagging bee, end up rewilding areas of their local neighbourhood. The performance responds directly to the loss of wildflower habitats across human influenced environments, which deprives bee species of the resources they need (Jackson, 2019; Goulson, 2013). Before my interview with Laura Ryder (2018a) she had been kind enough to send me a video recording of her play. Sitting down to watch the show for the first time, I engrossed myself in the stories of these two people: their struggles and experiences. However, it quickly became clear that there was a much larger narrative at play here. I was also witnessing another story. This was the story of bees, and the threats that hang over them. This other story was both directly and metaphorically told to the audience. Directly, Laura’s characters *literally* discuss the reasons for bees being in decline. Through the dialogue of the play the impact of habitat loss upon bee populations is simultaneously questioned, explored, and explained. Allegorically, Laura’s play demonstrates the severity of the problems threatening bees through portraying the human equivalence of the issues. This is achieved by having the characters converse about or encounter problems that are representative of the ones bees are currently facing. For instance, in the scene described above, the play encourages the audience to imagine how we would suffer if all our food began to disappear. Likewise, in another scene one of the characters gets

her drink spiked which, as Laura stated in her interview with me, is intended to represent how bees can be drugged through inadvertently ingesting pesticides (ibid).



Figure 25: *The Bee Project, On Stage* (Cawery, 2018).

Laura's work expresses how creative projects that engage with nonhuman worlds might seek to challenge the silencing of nonhuman voices. By having her characters imitate the struggles facing bees through their own storylines, Laura's play invites the audience to imagine themselves in the same position as bees. In doing so, Laura seeks to bring bees' experiences alive to the audience. Thus, her work acts as a challenge to a human history which has "unfolded by silencing nonhuman others, who do not [...] speak, possess meanings, experience perspectives, or have a vested interest in their own destinies" (Crist, 2013, p. 134). Rather than silence, Laura's work gives voice to the experiences of bees in the modern-day.

The aim of bringing alive the struggles faced by bees was also at the heart of artist and composer Lily Hunter Green's recent project. This project followed on from Lily's earlier project *Bee Composed* which, as evidenced in section 5.5, sought to draw attention to the bee decline through various creative strands. Lily's current project titled *Silencing the Virus* continues her exploration into the world of bees. This project was specifically born out of an artist-in-residence opportunity with The Gurdon Institute, University of Cambridge. This artist-in-residence offered Lily the opportunity to work in collaboration with two molecular biologists called Dr Eyal Maori and Dr Luigi Aloia, a

computer scientist called Karun Mathar, and a violinist called Tom Moore. The residency centred around Dr Eyal Maori's current research into the honeybee virus known as *Israeli Acute Paralysis Virus* [IAPV]. IAPV causes infected honeybees to display "shivering wings, cramping, and disorientation before their paralysis, and death within a few days" (Amiri et al., 2019, p. 2). The virus can rapidly infect whole hives, resulting in the deaths of entire colonies.

Lily's first step in the *Silencing the Virus* project was to consider how she might represent IAPV through music. Using the music of a bee-inspired composition she had created, Lily worked with computer scientist Karun Mathar to develop an algorithm that would essentially 'infect' the music with the virus. To do so, Lily and Karun took the genome sequence of the virus and converted it into a digital code. This code was then used to artificially infect the original composition. In her second interview with me, Lily described how the music "starts to deteriorate, it starts to [...] become infected and you can hear it" (Hunter Green, 2019a). Lily's composition is a symphony of the lethal energy of IAPV. However, Lily went on to say that she had also become "a bit dissatisfied with [it] by this point [because] it wasn't communicating. It was really cool and quite beautiful to listen to, but it wasn't communicating enough" (ibid). Lily told me that she felt that as solely a piece of music it was too inaccessible, and that people might not understand it in the way she intended. As such, Lily's next step was to make the work visual. To do so, Lily embedded a number of lights in a rectangular frame. The rectangular frame was imitative of the shape and size of the frames that are inserted into honeybee hives. As the virus artificially infected the music, the lights embedded in the frame also appeared to become infected. This worked by having one of the lights, which were originally orange, turn green. As the virus creeps through the music more and more of the lights appear to become infected by switching from an orange light to a green light. As shown in figure 26, Lily then positioned the frame of lights behind a frame of honeycomb taken from a real hive. This allowed the visitors to experience the virus spreading through a real honeycomb frame, whilst simultaneously listening to the music becoming infected. Lily described how the digital virus "spreads in the exact same way that it's spreading in a real hive [...] so it's actually like it is actually taking over" (ibid). She went on to explain that the small installation communicates how out of control the virus is, emphasising how the work has proven to incite deeply emotional responses in its audience. For instance, Lily told me that she has witnessed incidences in which "audience members have been like crying, sitting, and watching it. Because [...] it's quite sort of dystopian and freaky [...] it's [...] exposing the invisible stuff" (ibid).

After having successfully developed the first two components of *Silencing the Virus* Lily decided to significantly expand the work, and create an immersive installation. At the time of my final interview with her in early 2019, Lily was still in the process of obtaining the funding and technology to make

this immersive installation possible. Since the date of my interview with her Lily has successfully turned her idea into a reality. Her aim was to create an installation that fully immerses people in the virus infection, embodying the experience of being threatened by IAPV. To set about achieving this, Lily began by collaborating with the computer scientist Karun Mathar “to develop a piece of wearable technology which means that the virus can travel between the audience members” (Hunter Green, 2019a). As depicted in figure 27, each audience member is required to dress in a white suit and enter into a room together. Each audience member is listening to an uninfected piece of bee-inspired music through headphones attached to a phone. However, one audience member will be wearing what Lily calls the host suit. When this person moves near other audience members the music they are listening to on their phones will start to be infected by the code virus. Lily explained how she is essentially “infecting a room full of people with an [...] artificial honeycomb virus” (ibid). Through partaking in this activity, Lily’s audience will experience how IAPV infects honeybee hives. Lily described how, through the telling of this story, she was seeking to create a sense of compassion for bees in her audience: she told me that you have to find “ways to tell the story in order to get people to empathise” (ibid). Indeed, Lily considers her intention to tell the story of the bee decline as so integral to her practice that she expressed to me how “I just feel like I’m [...] here to tell that story in lots of ways” (ibid).

Likewise to Laura Ryder’s play, the immersive installation element of Lily Hunter Green’s project questions the loss of bees by confronting one of the many threats that bees are battling. Both Laura’s and Lily’s creative projects seek to achieve this by getting the audience to witness human actors battling against metaphorical versions of the dangers bees currently face, the only key difference being that in Lily’s case the audience were also the actors telling the story. To this end, Lily’s work explicitly urges the audience to wholly embody the experience being faced by bees, witnessing their plight first-hand. Laura’s work, on the other hand, conveys the story of bees’ potential extinction by drawing the audience into the imaginary world of two fictional characters. However, despite their variations in execution and technique, both creative acts deliberately and purposefully witness and decry the plights of bees, encouraging their audiences to engage in an act of sustained remembrance for the lives which both have been and will be lost. As such, both creative acts invite audiences to see bees beyond their role in the biosphere, and understand them as living, breathing, and experiencing creatures that are worthy of care and empathy. In doing so, both projects necessarily question the suffering of bee species. Undeniably, as I make clear in chapter five, bees are already typically recognised as grievable. However, these creative acts seek to not only sustain this narrative, but also to connect people with these grievable lives on a deeper, emotional level. I therefore propose that both creative projects might be understood as engaging in acts of

storied-mourning: an act which is premised on the understanding that the current age demands lively, considered, and creative stories of loss that pay heed to and grieve for creatures which are threatened or dying.

The concept of storied-mourning was initially proposed by Thom van Dooren (2014, p. 142) who suggests that, as a specific act:

storied-mourning does not attempt to recover and move on from a loss— to put the dead to rest— but [...] offers us the possibility of mourning as a deliberate act of sustained remembrance that requires us to interrogate how it is that we might “live with ghosts”.

Acts of storied-mourning therefore seek to bring people into greater connection with the experiences of extinct or endangered nonhuman animals, telling stories that pay heed to lives which have been lost or harmed. Thus, they are necessarily stories of grief: mourning both for those lives that have already been lost, and for those future lives which are now threatened. Essentially, therefore, acts of storied-mourning are a novel form of obituary, one that has become necessary for the sixth mass extinction. Indeed, as I suggest in section 5.7, the creative explorations studied through this research can be viewed as a collective obituary for bees.

Perhaps unlike more traditional obituaries, acts of storied-mourning also inherently question the processes of loss which have led to the necessity for mourning at all. Indeed, because extinction has become a process known to be wrongly inflicted on many nonhuman species, these stories necessarily ask questions of these processes of death and dying. As such, they are inherently political in their act of mourning. In fact, it is a well-established contention that acts of ecological mourning frequently participate in the world as political acts (Cunsolo and Landman, 2017; Heise, 2016; Stanescu, 2012). Acts of storied-mourning might thus be further understood as embodying principles of resistance. Indeed, van Dooren (2014, p. 143) states that:

[storied-mourning] is the kind of mourning that asks us— that perhaps demands of us, individually and collectively— to face up to the dead and to our role in the coming into being of a world of escalating suffering, loss, and extinction.

Thus, acts of storied-mourning might also seek to transform, engaging their audiences in political, social, and ecological debate. However, it is pertinent to stress that van Dooren (2014) asserts that the purpose of storied-mourning is not rooted in finding “consolatory strategies for recovering from loss” (Barr, 2017, p. 208). The intention is not to offer satisfactory answers that allow the audience to simply move on, but rather to inspire a continued questioning of our role in extinction events. In this way, stories of mourning are also intended to inspire an ongoing questioning: asking what an

extinction might mean, how and why it matters, and how we might respond to the call of responsibility that these extinction stories demand.

The specific theory of storied-mourning was introduced by van Dooren (2014) in his book *Flight Ways: Life and Loss at the Edge of Extinction*. This work draws philosophical perspectives into conversation with the natural sciences and ethnographic encounters to trace the extinction stories of varied bird species. Thus, van Dooren's initial explanation of acts of storied-mourning concentrates its gaze on stories which are told through written language. More specifically, van Dooren writes of acts of storied-mourning as being narrative-based works which draw on the tools of ethnography and philosophy to develop rich pictures of multispecies worlds in an age of extinction. In fact, van Dooren is indirectly referring to the types of stories that might be produced under an extinction studies framework. However, as demonstrated, my research has led me to conclude that acts of storied-mourning are not confined to the narrative-based format exemplified by van Dooren (ibid)⁵⁵. Indeed, although I have specifically introduced the work of Lily Hunter Green and Laura Ryder as being acts of storied-mourning, many of the creative projects I observed during my research resonate with the purpose of storied-mourning: using creative methods to narrate part of bees' story, so as to encourage genuine engagement, questioning, and responses from their audiences.

Another creative practitioner whose work also particularly resonated with van Dooren's (2014) definition of storied-mourning was the photographer and artist Megan Powell. As described in section 5.3, in 2015 Megan embarked on a two-year long project called *After the Bees*, inspired by her concern for honeybees. The project gave her the opportunity to interact with a range of individuals whose professions had led them to engage with or have some interest in bees: beekeepers, entomologists, conservationists, designers, mathematicians, and more. Megan described how she came to learn of a rich body of work being done to both protect and celebrate bees' lives (Powell, 2018a). Following her research, Megan was inspired to create her own body of work which sought to narrate a story of bees through film, photography, sculpture, and language. As part of this exhibition there was a film screening of Megan's surrealist bee-inspired documentary titled *A Fable for Tomorrow*, a name openly inspired by Rachel Carson's (1962) famous opening chapter to her book *Silent Spring*. Megan described to me that, through her creative work, she "wanted to find a way of creating a new dialogue about bees that was both beautiful and

⁵⁵ Although van Dooren (2014) specifically talks of acts of storied-mourning as being rooted in ethnographic and philosophical modes of telling stories, other works by this author draw attention to the significance of creative projects for constructing stories and examining nonhuman species lives in an age of extinction (see: van Dooren, Kirksey, and Münster, 2016).

informative” (Powell, 2018a). Megan went on to explain how her hope for the exhibition was that people would “go and see [it] and look at [bees] in a different way, that would kind of trigger some of the processes that I've been through in other people” (ibid). Fundamentally, Megan hoped to use her work to not just launch a campaign for bee conservation, but to connect people with bees’ plight on a deeper, emotional level.

I also witnessed acts of storied-mourning in creative projects - both collective and individual - where I did not have the opportunity to specifically meet with the creative practitioners behind the work. For instance, in 2017 I had the opportunity to join a planning meeting for the annual Memorial Day that a gallery called ONCA, based in Brighton, holds to celebrate and remember the lives of lost or dying species. The event - which was conceived of by the director of ONCA Persephone Pearl - is called *Remembrance Day for Lost Species*⁵⁶ [RDLS]. This annual event - which is described by ONCA as being an opportunity to explore the stories of threatened species and ecological communities - is observed through varied creative events across the world⁵⁷. It is, in essence, a globally observed act of remembering and mourning. In 2017 the organising committee of RDLS chose to focus this shared act of remembrance on the lives - and indeed deaths - of pollinators. As such, on the day of the event - this being the 30th November 2017 - many of the creative projects and events which partook in this act of remembrance sought to bear sustained witness to the struggles pollinators are facing. For instance, associates of ONCA Gallery led a ‘Procession for Pollinators’ which involved taking 45 people, dressed up as different pollinators, on a procession from the gallery to a local green space in Brighton. In memorial to lost pollinators, they then burned a structure made from branches of willow. Elsewhere in the UK, in Glasgow, the community organisation GalGael⁵⁸ led a sharing circle which saw participants engaging with poetry and dialogues inspired by the decline of pollinators. In a recent article on the work of RDLS Brewster (2020) reflects on another ‘Pollinator Procession’ that took place as part of RDLS, this time around Lake Merritt in California. This pollinator procession also included the opening of a ‘Generative Memorial’, which is a memorial for pollinators in the form of a “public garden comprised of the plant species pollinators need to survive” (ibid, p. 99). To open this memorial, the artist responsible for organising the memorial held a burial for the bodies of several pollinators. This act of marching for, burying, and memorialising pollinators not only told a story of the plights that pollinators are facing but, as Brewster (ibid, p. 100) writes, allowed for pollinators to

⁵⁶ Remembrance Day For Lost Species is an annual event on November 30th which connects creative projects and community events to explore the stories of extinct or endangered species.

⁵⁷ Events for Remembrance Day for Lost Species 2017 took place in locations around the globe including, but not limited to, Canada, Scotland, Australia, France, Germany, England, and the USA.

⁵⁸ GalGael is a community organisation that helps engage individuals with practical skills, such as woodworking, so as to offer them a sense of agency and community.

become “recognized as worthy of remembrance and mourning”. Indeed, these varied creative projects run in connection with RDLS collectively illustrate how RDLS encourages people to deeply engage with the stories of lost species, seeking to offer people a chance to embrace, confront, and narrate their grief for processes of nonhuman suffering.

The projects of Laura Ryder, Lily Hunter Green, Megan Powell, and RDLS collectively demonstrate how creative responses to nonhuman species loss might often resonate as being acts of storied-mourning. These creative practitioners do not root the stories they tell in academic text, but through varied and creative modes of storytelling. Moreover, it is unlikely that these creative practitioners would actively describe themselves as engaging in an act of storied-mourning, which is not a widely adopted term. However, these creative acts still exhibit the same qualities and intentions suggested by Thom van Dooren (2014) in his defining of storied-mourning. This is not to suggest that *all* creative responses to nonhuman species loss will inherently or necessarily engage in the type of storied-mourning proposed by Thom van Dooren. Not only would that be an untrue statement, it would be far too broad a claim to make. Rather, it is to suggest that creative practitioners are able to draw on creative tools that help engage their audiences in acts of sustained remembrance for those lives that have been, or are being, lost to anthropogenic changes: breathing life into lost and suffering species through telling embodied, experiential, and emotional stories of their worlds. It is imperative to not overlook the significance of this; narrowing this gap between human and nonhuman worlds, fostering a realisation of the entangled significance of these extinction processes, is crucial for galvanising people to respond to the call that processes of extinction demand of us.

Creative practices are further well-placed to engage in the world as acts of storied-mourning due to creative practitioners’ distinct ability to pose questions through their work that they themselves cannot necessarily answer, but which still need to be asked if we have any hope of encouraging transformation. Essentially, creative practices allow questions without answers. For instance, Brown (2014) points to how creative practitioners are in the unique position of being free - or are at least freer than, for instance, an academic researcher in the natural sciences - to ask demanding questions without having to necessarily provide strategic or satisfactory answers. Correspondingly, van Dooren (2014) emphasises that acts of storied-mourning are not rooted in providing definitive answers to extinction crises, but are instead about overtly questioning them: a questioning that is necessary for encouraging the actions needed for transformation. As acts of storied-mourning, therefore, creative practices typically have more freedom to inspire the types of questions and interrogations that do not always have a clear answer, but that *need* to be asked. Thus, fundamentally, creative engagements with lost or threatened species are uniquely well placed to confront and challenge the

loss of nonhuman species under anthropogenic changes, engaging in the world as critically needed acts of storied-mourning.

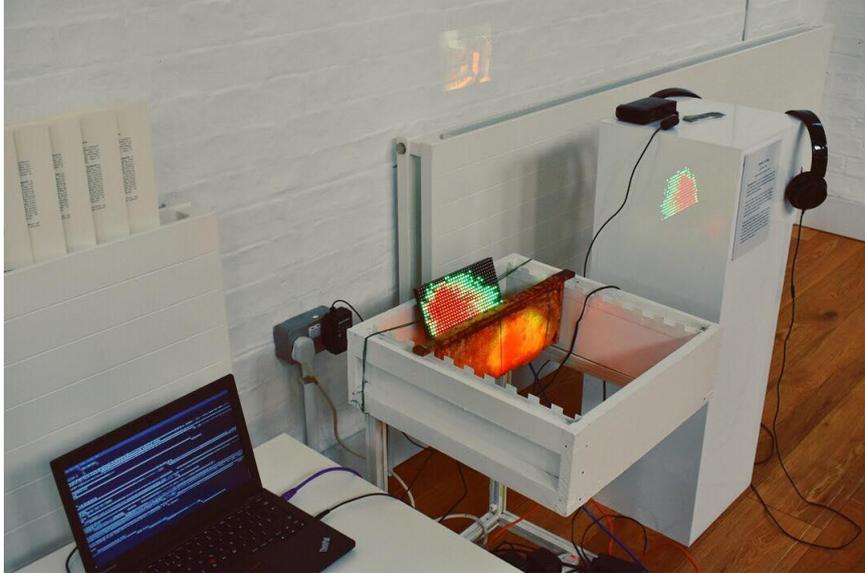


Figure 26: Silencing the Virus, Image One (Hunter Green, 2019b).



Figure 27: Silencing the Virus, Image Two (Hunter Green, 2019c).

7.3 Communicating through Creativity: Inclusivity in Environmental Conversations

Acts of storied-mourning are undoubtedly powerful communicators: simultaneously imparting knowledge and encouraging questions through narrating stories of loss. Thus, in illustrating how

creative projects studied through this work resonate as being acts of storied-mourning I have also demonstrated how they inherently work as valuable modes of ecological communication. This contention is reflective of a growing body of scholarship which suggests that creative projects are effective modes of communicating about ecological matters (Portus and McGinn, 2019; Roosen, Klöckner, and Swim, 2018; Burke, Ockwell, and Whitmarsh, 2018; Barr, 2017; Van Den Bergh, 2015; Corner, 2013; Curtis, Reid, and Ballard, 2012; Dieleman, 2008). For example, in their study of art as a mode of ecological communication, Curtis, Reid, and Ballard (2012) broadly propose that the creative arts “can synthesize and convey complex scientific information, promote new ways of looking at issues, touch people’s emotions, and create a celebratory atmosphere”. A similar conclusion was drawn in a study by Burke, Ockwell, and Whitmarsh (2018), who suggest that the creative arts provide a useful avenue for achieving both cognitive and affective emotional engagement with environmental issues. The suggestion that artistic expression is a profoundly effective form of environmental communication is further echoed by environmental artists. For instance, famed environmental artist Olafur Eliasson (2016) suggests that one of the responsibilities of artists is to “help people not only get to know and understand something with their minds but also to feel it emotionally and physically”. Essentially, there is a growing consensus that creative projects might effectively communicate about environmental issues in simultaneously cognitive, embodied, and emotionally affecting ways, thus having a greater potential for encouraging transformation than many other modes of environmental communication.

It is, in itself, significant that creative practices are being widely recognised for their distinct ability to communicate environmental knowledge in both emotionally and cognitively engaging ways. However, I suggest that the recognition of the creative arts’ capacity to convey information in this multifaceted way does not *fully* account for why ecologically-inspired creative projects are meaningful modes of communication. This is because creative projects are also particularly well-suited to communicate with broader audiences (see: Opermanis, Kalnins, and Aunins, 2015; Curtis, 2009). In doing so, they are uniquely well-placed to stimulate an increased diversity of voice and experience within current ecological debates. To elucidate, a distinctive aspect of many of the creative projects I studied was that they were taking knowledge of the bee decline to audiences that, for reasons such as accessibility, interest, or age, might not have otherwise engaged with this environmental narrative. It is important to clarify that I do not intend to suggest that all creative projects will manage or even seek to overcome these potential barriers to ecological knowledge. Moreover, I do not make this suggestion in disregard of wider debates around, for example, the potential elitism of gallery or arts-based spaces (see: Mason and McCarthy, 2006). Rather, I demonstrate that a significant number of the creative projects I examined had the aim of making the

decline of bees visible to audiences beyond the already environmentally minded: beyond those individuals who might already seek access to the scientific journals, academic books, policy notices, and news bulletins that typically convey environmental news. I further observed how creative projects are a realm of environmental knowledge which does not confine itself to the expert scientific voice, but which encourages people from all levels of expertise to become engaged with environmental issues. This section therefore illustrates how the creative practices I came to engage with throughout my research are not only deeply effective forms of communication, but expertly placed to facilitate input into environmental discussions from a diversity of perspectives.

One creative practitioner who explicitly emphasised the role of creativity in communicating environmental issues was the textiles and mixed-media artist Lydia Needle. Lydia began creating work inspired by bees when, in 2016, a headline on one of her social media pages caught her eye. It was an article about the various struggles honeybees are up against. Intrigued, Lydia began investigating bees further, becoming inspired to purchase the book *Field Guide to the Bees of Great Britain and Ireland* by Steven Falk (2015). Lydia described to me how, when reading through Falk's (ibid) book, she was shocked to discover that the UK is home to approximately 270 species of bee (Needle, 2019). This knowledge excited Lydia and she knew that, somehow, she wanted to do something with the information. Thus, whilst Lydia's interest in bees and ecology had already begun to germinate, Falk's (2015) book confirmed her desire to bring this into connection with her creative work: a desire that Lydia would soon come to fulfil through a project called *Fifty Bees*.

Soon after reading Falk's (2015) book, Lydia Needle met fellow artist Donna Vale, who would come to collaborate with Lydia on her idea for the project *Fifty Bees*. At its heart, *Fifty Bees* seeks to communicate about the ecologies and plights of British bees. More specifically, each year Lydia and Donna invite 50 artists to apply to contribute to an annual exhibition that showcases 50 different British bees through 50 individual pieces of work. The successful artists are each given the name of a different bee, all taken from Falk's book, and asked to create a piece of work inspired by that specific bee. These annual exhibitions will be running until all the bees identified in Falk's book have been explored.

The very act of using *Fifty Bees* to inspire 50 different artists to research and create work around bees each year is, in itself, a way of communicating about the bee decline. Lydia spoke to me of how the project brings knowledge of bees to a whole crowd of creatively-minded individuals each year, educating them about both bee ecology and extinction (Needle, 2019). For instance, Lydia reflected how each year there are always a few artists that "still think that they are [going to] be doing something about a honeybee. Because we all know the honeybee. This is why every year there is a

honeybee in it, despite the fact that the project isn't about honeybees" (ibid). Reflecting on this, Lydia commented that the honeybee could be considered a gateway bee: inspiring people to research into the world of bees, gaining greater knowledge of the diversity of bee species living in the world. More pertinently, however, this highlights the degree to which the *Fifty Bees* exhibition serves to not just educate its audience about the ecology and decline of bee species, but actually also serves to educate the myriad creative practitioners who are called upon to contribute to the *Fifty Bees* exhibitions.

It is particularly important to Lydia that the artists who contribute to the *Fifty Bees* exhibition do not just depict or visually illustrate the bee they have been given in their creative piece. Lydia explained how:

That's one of my quite strict rules. It is because we want the artist to really research about ecology [and] what a bee looks like isn't necessarily relevant. So one of the rules [...] I say is you're not producing a picture of a bee. You're not producing a sculpture of a bee. You're thinking about the wider aspects of that bee and how it fits into ecology (Needle, 2019).

Lydia wants people to truly get to know their species of bee, understanding their experiences and relationship with the wider world. Through inviting a broad range of artists to engage with the stories of individual bee species, Lydia's work invites a wider diversity of voices into this ecological conversation and act of storytelling. Moreover, Lydia further told me that, after doing *Fifty Bees* some artists have continued to work on the subject. She recounted how people:

say how it's changed their practice. So we have several printmakers who now focus on bees. But also because of the work that we do on social media we've also now got artists who are saying they're not just looking at bees, they're looking at other insects, other pollinators, you know, thinking about the birds and everything (ibid).

As such, through her *Fifty Bees* project Lydia seeks to extend the story of bees to other creative practitioners, encouraging them to both contribute to a shared act of storied-mourning for bees and potentially participate in further ecological conversations.

However, the *Fifty Bees* project does not only engage other artists with the story of bees. Through hosting public exhibitions, the *Fifty Bees* project also encourages the general public to engage with the knowledge and stories behind each piece of creative work inspired by bees. Lydia stressed to me that she is mindful of this communicative role of these exhibitions. For instance, when speaking about the curation of the exhibition, Lydia emphasised how she is careful to consider the accessibility of the pieces, ensuring that each piece of work speaks to as many visitors as possible. Reflecting on some of the pieces produced through *Fifty Bees* Lydia described how:

one artist did a fantastic bee piece about the plants that her bee would forage on. So she got two seasons worth, three seasons worth of plants into her stitch piece. That was fantastic because that [...] was very accessible for people. And then we have other artists who've made work that is very art-based and is not quite as accessible. Which is why we always have written pieces next to it. So we ask the artists to explain, [...] to translate their work if needs be. We've had artists who've used paint and they've done [work] about the air quality around the bee. And we've had people who've used photography to capture different weathers that a bee has to survive in (Needle, 2019).

Each piece thus tells a story about the bee in question: using artistic expression to take the audience on a journey through their worlds and ecologies, whilst also ensuring the story behind the species is clearly told through its corresponding explanation.

Ensuring that the work - and the story behind it - is accessible to the audiences of the *Fifty Bees* exhibitions is emphasised by Lydia precisely because she recognises how creative projects can communicate in emotionally engaging yet still deeply informative ways. Lydia described how she believes that creative practitioners have the tools to translate traditionally scientific or ecological information in ways that people can connect with: Lydia expressed the understanding that “as artists or writers or you know creators of any type, what we have to [...] offer is that we give people a different conversation. So we speak in a different language” (Needle, 2019). For instance, reflecting on Steven Falk’s (2015) work, Lydia commented that creative practitioners have the opportunity to filter through the information and translate it into a language that is, in her words, both “challenging and [...] interesting”. This viewpoint was similarly expressed by Curtis, Reid, and Reeve (2014) in their work on art-based environmental communications, who suggest that creative practitioners are uniquely “able to synthesize complex ideas and present them to a lay audience in an engaging form”. Filtering ecological information through an artistic lens provides an opportunity to not just regurgitate facts to people, but to transfer information through a more sensory channel (Opermanis, Kalnins, and Aunins, 2015).

Lydia further spoke of how, as arts-based events, her exhibitions bring knowledge of bees’ stories to people who might not have necessarily known them otherwise. Lydia reflected on how many of the people who attend the exhibitions initially come because of an artistic interest and, through the stories and conversations they engage with during the exhibitions, unexpectedly learn of an ecological issue: Lydia spoke of how she witnesses that many of her visitors have “taken on an awful lot of stuff and they're trying to process it” (Needle, 2019). Indeed, it has been previously suggested by Opermanis, Kalnins, and Aunins (2015) that ecologically-inspired arts-based events will typically be able to attract a larger audience than ‘science-only’ events, thus broadening the scope of who will

engage with the topic under scrutiny. As such, the *Fifty Bees* project not only bears witness to bees' stories, but also seeks to inspire many others - whether they are artists, art enthusiasts, or conservation experts - to do the same.

Lydia actively seeks to connect the work of *Fifty Bees* to as broad an audience as possible. However, as aforementioned, a natural limitation of creative projects executed predominantly in gallery spaces is that they primarily reach out to people that either feel comfortable in art-based spaces or that have, for whatever reason, specifically chosen to come and engage with the work. This is a widely recognised drawback of work displayed in museum and gallery spaces. As Mason and McCarthy (2006, pp. 20-21) suggest, "cultural institutions [...] maintain the illusion of democratic access, while in fact catering mainly to the interests of particular social groups and unintentionally excluding others". This is not to deny that galleries are unquestionably spaces that are vital for maintaining and showcasing creative projects. Rather, despite many concerted efforts to expand audience diversity (see: McLean, 1999), specific social groups tend to dominate gallery and museum spaces.

Despite their limitations, however, gallery spaces are necessarily depended on by many creative practitioners as places in which to exhibit their work. Yet, perhaps in recognition of this potential limitation, I found that a number of the creative practitioners who are reliant on gallery spaces also spoke of seeking to combine their exhibition work with community projects or public artworks. Printmaker Laney Birkhead, for instance, spoke of how, alongside exhibiting her prints in gallery spaces, she has also run free drop-in public workshops which offered people the opportunity to learn how to print bees on fabric. Another creative practitioner who expressly spoke of the limitations of gallery environments, and who predominantly creates public artwork - defined as "permanent or temporary artworks on sites that have open public access and are located outside museums and galleries" (Zebracki, 2011, p. 2953) - is the artist Louis Masai. Louis is best known for his graffitied works of bees that can be seen flying across the walls of predominantly urban locations, such as the one depicted in figure 28 which is located in Shoreditch, London.

Likewise to Lydia Needle, communication is at the heart of Louis's creative work. Indeed, Louis considers public communication to be the fundamental role creative practitioners play within a society. In his interview with me, Louis Masai (2018) expressed the opinion that, if we look through all of human history, we can see that "the artist was the storyteller. It was the person who, before literature was understood and before handwriting was understood, would depict a scene, a scenario and story, a memory, a piece of history". Furthermore, Louis believes that an artist's role as the storyteller and communicator of society has not fundamentally changed. Louis suggested that,

although the modern world is rich with myriad modes of communicating, the work of creative practitioners remains unparalleled due to their distinct ability to communicate in a way that is “open to interpretation, and [...] open to the identification of an emotion that you experience and you feel” (ibid). Essentially, creative works do not only tell a story, but also motivate audience engagement with the dialogue. Louis further stated that he therefore considers it a matter of urgency that artists utilise their skills to engage with current affairs, telling me that:

I think that if you can [...] have a story with your work, whether it's about the environment or about humanity or about war, or whatever it is, I think there's a lot of power in that and I think that artists should embrace that more (ibid).

However, for Louis, a creative project does not fill its full potential as a mode of communication if it only impacts a limited or specific group of individuals. Talking specifically about the reach of contemporary environmental narratives, Louis expressed the opinion that they tend to only be circulated amongst certain demographics. For instance, Louis exemplified how one of the pitfalls of environmental charities is that they are only:

reaching the same demographic again and again and again and again. It's the people that care, [...] and it's not reaching the right demographic that are having impacts on the planet in the greatest form. So you might be raising thousands of thousands of thousands of pounds because this person has a lot of money but you're not changing the fact that people are still carrying on in the same way in which they have always done (ibid).

As such, Louis specifically emphasised to me that the accessibility and reach of his work is as important as the work itself: he seeks to use his creative interests to communicate with people that would not necessarily engage with extinction narratives through other mediums.

One of the vital limitations Louis seeks to overcome through his work is that of physical and social barriers to the artwork. To be more specific, Louis actively works to take his creative pieces outside of gallery spaces, bringing them to locations and environments where they *might* be observed and engaged with by a whole spectrum of people, regardless of age, social class, language, or intention. Louis spoke of how, for example, a lot of people “don't feel that they're allowed to enjoy art because they can't afford it. That's not the case. Everyone should be allowed to enjoy art. And that's why it's important to put it in the public domain” (Masai, 2018). This is precisely why Louis makes public artwork, a type of artwork which has indeed become recognised for its rich potential to draw attention to and educate about current environmental issues (see: Kuchinskaya, 2018; Schneller and Irizarry, 2014). In the UK, Louis's bee-inspired pieces are mostly dotted around his home city of London (Jobson, 2015). However, during his project called *The Art of Beeing*, in which Louis travelled

to the USA, Louis painted murals of bees and other endangered animals in cities such as Austin, Sacramento, Miami, and Detroit. Louis spoke of how, for him, “it’s so important just to remain as [...] a public artist because then that way the story which I want to talk about is going to be taken on by a wider demographic” (Masai, 2018). Moreover, Louis seeks to make his work as accessible as possible, by creating both visually arresting and direct pieces of art. As Louis described:

I can put a painting into a community, in a public community in another part of the world who can't even speak the same language as me, and they can see that painting and they can understand it and they can relate to it and they can start to have their own experience through it (ibid).

Naturally, public artworks have limitations as a form of environmental communication. For instance, their lack of emphasis on audience participation can allow for the work to be easily overlooked by those individuals which come into visual contact with it. Yet, as a form of communication they break down many of the barriers which so often exclude people from both arts-based events and ecological narratives. Fundamentally, Louis’s work - and, indeed, much public artwork more generally - does not rely on his audiences paying an entrance fee, having the ability to understand the same language, or even having an interest in environmental art. Thus, Louis uses his creative tools to tell a story in a visually engaging, public, and accessible manner.



Figure 28: Graffiti of bees by Louis Michel (aka Masai) in Pedley Street, Shoreditch, London (MsSaraKelly, 2013).

A significant trend I came to observe across my research was that a number of creative practitioners are creating work that is aimed at children. One of the creative projects that focuses on communicating with children is a show called *Me & My Bee*, produced by a theatre company called ThisEgg. I had the opportunity to watch a performance of *Me & My Bee* in June 2018, when they were touring around UK theatres. The premise of the *Me & My Bee* show is that, after meeting a bee one day, two politicians decided to start a political party to help save bees. To clarify, the show opened with two of the three cast members introducing themselves to the audience as being a political party leader and foreign secretary who, together, are writing a manifesto for a political party centred around bees. These two characters, played by actors Josie Dale-Jones and Greta Mitchell, explain to the audience that they recently met a bee, played by fellow actor Joe Boylan. This bee had fallen in love with a beautiful flower, which it frequently visited. Yet, one day, the bee flew to the spot where its flower lived only to discover it had been turned into a concrete block of flats. Greta and Josie's characters explained that, after hearing this bee's story, they were inspired to begin their political party for bees: a political party with the manifesto 'Save the Bees, Save the World'.

Through narrating an imagined love story between a flower and bee, *Me & My Bee* implicitly told the audience of the dire implications of habitat loss for bee populations. Whilst the love story between the bee and the flower is purely symbolic, the message of the show was entirely clear: bee species are in peril, and they need our help to recover. However, whilst this show told of an upsetting reality, it skilfully employed creative tools to make this narrative engaging and accessible. In an online article, producer and cast member Josie Dale-Jones (2018a) describes how, in producing *Me & My Bee*, the cast and crew:

wanted to take on the challenge of creating a show for families that delivers a big idea to small people. Our focus is on how to tell the story, get the message across so that [children] can engage in the subject in a positive and active way.

Me & My Bee thus employed a number of creative tools to ensure the show spoke to audiences of all ages. One of the major ways that *Me & My Bee* achieved this was by adding humour into the dialogue and performance of the show. Heise (2016) points to how cultural narratives that portray endangered species tend to typically take on a solely elegiac tone: one that would likely prove challenging for children. *Me & My Bee*, however, took a serious and arguably distressing matter and conscientiously converted it into a playful and humorous show. One of the ways the *Me & My Bee* team accomplished this was by making the fictional characters of the story engage with each other in a humorous manner. For instance, during the show the different characters on stage were

constantly but light-heartedly bickering with each other, fighting for attention from the audience. Moreover, each character was amusingly flawed: the political party leader was self-congratulating, the foreign secretary was charming but scatter-brained, and the bee gave the impression of being confused, even naïve. During the performance I attended, the dynamic between this trio of flawed characters was undoubtedly amusing to both the younger and older members of the audience, providing some light relief to the underlying message that was being communicated. In this way, *Me & My Bee* managed to break away from the doom-and-gloom narrative which typically shrouds extinction stories and, as pointed to by Heise (ibid), can actually thus serve to dampen the power of the story being told due to people's reluctance to engage with the narrative. Furthermore, by using their creative license to anthropomorphically portray the bee as a perplexed but generally hard-working citizen of the ecosystem, the show was able to help its younger audiences understand bees as being living, experiencing creatures.

The overall comical liveliness of the show was heightened by the bright and upbeat aesthetic of the performance. This is demonstrated by a photo of the *Me & My Bee* cast in figure 29. Indeed, because the characters in the show were starting a political 'party' the cast donned colourful party hats, danced around in flashing trainers and glittery outfits, and even played party games. The cast also encouraged interaction from audience members. For example, as audience members came into the performance area, before the show starts, they were each handed a slip of paper with the name of a species of bee written on it. During the show the audience members were asked to check which bee species they had written on the piece of paper, and stand up whenever their species name was called. Yet, through all of the comical excitement, the show kept returning to the story of bees. For instance, each time a bee species name was called out, and the audience had to stand, we also learnt some individual facts about those bees. Indeed, the dialogue of the show was intersected with facts about bees. We were told a variety of bee facts, from how many times a bee flaps its wings in one second and the processes involved in pollination, to the reasons for bee population decline and the actions people might take to help bees. Thus, the reality of the plights facing modern bees were constantly communicated to the audience. More pertinently, the story told through the show was a deliberate confrontation of the struggles facing bees; whilst it is a purely metaphorical story, through witnessing Joe's character - the endearing albeit pitiful bee - mourn for the flower it had once loved, the audience was encouraged to bear witness to the struggles that an anthropogenically changed world has caused bees to endure. Thus, the humorous aspects of the show paved the way for the communication of a much more serious and genuine message. As Josie Dale-Jones (2018b) explained to me during a group interview I conducted with both the cast and crew of *Me & My Bee*, by telling the story in a comical manner they hoped to be "educating people in an engaging way and

in a way that is slightly different [...], it's about having fun and having a laugh, but then realising that there is an impact".



Figure 29: *Me & My Bee Production Shots, IMG_5702 (Elletson, 2017).*

By adding the element of fun into the mix, *Me & My Bee* pushed the boundaries of an act of storied-mourning. The show brought the grief of bees' stories into connection with a more upbeat narrative. And yet, the show confronted and communicated the story of bees' struggles as powerfully as any other narrative I observed during my study of creative responses to the ongoing loss of bees. Whilst seeking to tell an extinction story through a comical narrative might seem contradictory, adopting a humorous and fun tone actually provided *Me & My Bee* with the opportunity to engage a younger audience with the extinction narrative that this show examines. Thus, the show *Me & My Bee* is not only a creative project that bears witness to the plight of bees, but one that actually allows for a much larger audience to join in this act of confrontation. Indeed, when I went to watch a performance of the show, I was one of a few adults amongst an audience of school children. The show was therefore extending the narrative to a demographic that might otherwise be excluded from extinction narratives; it is an act of storied-mourning that allows for - even encourages - inclusivity.

When I questioned the *Me & My Bee* crew on why they had specifically written a show for children, they explained to me that the idea to make a show aimed at children was developed in conjunction with their idea to make a show about an environmental topic. Josie stated that the two ideas “came hand in hand a little bit because actually it’s that generation that need to learn about how to respect the environment better” (Dale-Jones, 2018b). Cast member Joe Boylan (2018) agreed with Josie, and spoke of how the *Me & My Bee* theatre project was really about trying to help communicate the issue of the bee decline to the audience whose lives will be most critically affected by it. Joe expressed that:

Our generation, we can make a difference or however you want to phrase it, but it’s actually the next generation that are going to have to inherit that world. And giving them those good environmental practices early is really important for them, really, because they will inherit a bit of a mess. It’s our job as well as theirs to try and change things now (ibid).

Moreover, Joe Boylan, Greta Mitchell, and *Me & My Bee* crew member Lucy Adams collectively discussed how they believe that, because bees are a flagship species, engaging children with bees will pave the way for further ecological benefits (Boylan, 2018; Mitchell, 2018; Adams, 2018). The intention of *Me & My Bee* was to therefore open up environmental dialogues - both around bees and wider environmental issues - to younger generations, in the understanding that this is the demographic that will be most critically affected by the sixth mass extinction.

The need to communicate extinction stories to younger generations was a sentiment that I found echoed across my research. For instance, poet and performer Anneliese Emmans Deans (2019) stated that:

we can only galvanise people to want to save things that they care about [...] And so explaining that [...] one in three mouthfuls of food we eat, [...] we have pollinators - bees - to thank, it’s an important message to get across. And if you can get it across to children so much the better [...] ‘cos then you’re enriching their life from the ground up.

Likewise to the cast and crew of *Me & My Bee*, Anneliese draws on creative tools to make her work, and the information she conveys through it, accessible and engaging for children. Anneliese specifically creates poems that can be read in a rhythmically upbeat way, telling me that if you embed “information in rhythm and rhyme then it’s easy to embed that in your head. You can learn a poem and then you’ve the information locked in. So I’m hoping that’s a way that children can retain the information” (ibid). Anneliese considers poetic rhythm to be a form of storytelling that is not only accessible but also memorable. It is her hope that if children and adults alike are given that

spark of interest in a memorable way, they will be more likely to engage in positive environmental behaviours.

In her interview with me, Anneliese also touched upon the idea that, as an individual who did not have specific scientific training related to matters of nonhuman extinction, her creative practice offered her the platform to still participate and amplify her voice in extinction dialogues. Anneliese spoke to me of how she sees her role “as enthusing. Cos’ I’m not a scientist [...] well anyhow I’m not a scientifically trained [...] entomologist. But I aim to impart fact” (Emmans Dean, 2019). Through using her creative skills to explore topics around insects, Anneliese carved out the opportunity to not only develop her own expertise in this area, but to participate in the act of disseminating it to others. Moreover, Anneliese’s creative venture further provided her with a reason to directly converse and collaborate with entomologists researching insect declines. For instance, to ensure that the knowledge she imparts is truthful and scientifically accurate, Anneliese told me that she sometimes corroborates her poems and songs around bees and insects with the entomologist Dave Goulson, an individual famed for his work with wild bee species across the UK⁵⁹. Anneliese reflected on how positive this engagement was, telling me that “[entomologists are] so willing to share their expertise and their information and their knowledge, because they’re [also] enthusiastic” (ibid). Essentially, therefore, Anneliese’s creative work served to - sometimes literally - offer her a platform through which to input her voice into dialogues and communications around insects.

Collective awareness and action is perhaps the most powerful tool for enacting genuine change for environmental concerns. By using creative tools and platforms to make environmental communications more accessible and inclusive, these creative practitioners are attempting to encourage the type of collective response and action that is needed to help protect bees’ futures. However, the significance of this observation goes well-beyond the issue of the bee decline. In the current environmental climate we urgently need to stimulate an increased diversity of voice and experience within current ecological debates (Gould et al., 2018). Accordingly, this section points to how creative practices, whether they be centred around literature, music, visual art, or performance, are a significant avenue through which we might seek to foster more inclusive

⁵⁹ I noticed that, across my research, it was relatively common for creative practitioners to collaborate with scientists in the creation of their works. Lily Hunter Green, for example, has worked in conjunction with numerous scientists on her bee-inspired projects. Likewise, Megan Powell also drew on the expertise of scientists. More broadly, across the environmental arts there is a visible trend of encouraging collaborations between scientists and creative practitioners. This is, for example, the central aim of the environmental arts organisation Invisible Dust, which works with both scientists and artists to help produce creative environmental projects.

environmental conversations. This suggests, therefore, that creative responses to extinction crises need to be both supported and expanded.

7.4 Tangibly Transformative: Engaging Directly with Ecological Action

Over the course of my PhD I have been frequently asked to describe the purpose of the creative works which are the focus of my study. Typically, those that ask this question are challenging me to provide some hard evidence that the environmental arts have a purposeful worth or impact. Yet, as pointed out by Curtis, Reid, and Reeve (2014), this can prove difficult in a context where the impacts tend to be relatively intangible, impermanent, and typically centred around contributing to wider cultural shifts through engaging individual imaginations and encouraging debate. This is a difficulty which is particularly problematic for creative practitioners that are, for example, reliant on funding grants to sustain a living. Indeed, one need not look far to find work which addresses this issue of justifying the existence of the creative arts: a justification which has evidently long been demanded of people who work across this sector (see: Edgar, 2012; Fleming, 2006; Beardsley, 1966). In light of this, it is perhaps unsurprising that across my research interviews creative practitioners commonly spoke about how they use their creative platforms to achieve tangible outcomes, typically by undertaking pro-environmental actions and/or encouraging their audiences to do the same. Thus, this section proceeds to consider how some of the creative practitioners I worked with voiced how they combined the communicative aspects of their work with more measurable strategies of change. In doing so, I suggest that the final avenue through which individual creative practitioners can bear influence upon extinction crises is by using their platforms to both demonstrate and encourage pro-environmental actions. I thus add weight to the argument that in leading by example - through both engaging with directly positive actions and by embedding their work in sustainable practices - creative practitioners might establish themselves as leading influencers of change (Julie's Bicycle, 2020; Leach, 2016; Curtis, Reid, and Reeve, 2014).

One of the most common ways that the creative practitioners I worked with engaged directly with the decline of bees was through the planting of wildflowers. The commonality of this act across my research relates directly to people's focus on bees, a creature whose survival is, of course, interlinked with the existence of flowers. The first way this act was pursued by creative practitioners was by their handing out of packets of wildflower seeds to their audiences. The *Me & My Bee* team, for example, handed out packets of wildflower seeds to each audience member as they exited the

performance venue. Their intention was to leave people with the idea that we can all individually engage with bees' crisis by taking small, everyday actions. *Me & My Bee* crew member Lucy Adams (2018) explained that "one of the main messages that we've tried to leave people with is that the movement for change for the bees starts in your own back garden". Producer and cast member Josie Dale-Jones (2018b) further elaborated on this, telling me that giving out seeds may be "a small thing, but it makes a big change". Indeed, Josie went on to tell me that "A lot of people tweet saying they have planted their seeds" (ibid). Whilst this is a small act, it contributes to a collective sphere of everyday rewilding actions which is vital for supporting pollinating insects (Blaauw and Isaacs, 2014). Through handing out packets of seeds, the *Me & My Bee* team sought to offer their audiences - children and adults alike - knowledge of how one can engage in small actions that will have broader positive consequences.

In a similar vein, performance artist Laura Ryder also used her performance as an opportunity to give people packets of wildflower seeds. For Laura, this action was directly linked to her desire to combine the seriousness of her message with the sense that one might engage in positive, tangible action. As Laura explained to me, she felt "it was important to give audiences some kind of sense of hope. So we give them little bee friendly seeds at the end" (Ryder, 2018a). This simple act communicates to her audience that they can feel hopeful for the possibility of change and renewal. Moreover, it also communicates how people can individually contribute to the changes in behaviour and culture that are needed. Whilst the shifts needed to achieve a pro-environmental society goes far beyond the everyday behaviours of individuals (Fahlquist, 2009), Laura expressly stated that she wanted to "give people something that felt attainable, what they could do" (Ryder, 2018a). Laura went on to tell me that she has "had loads of people since sending us pictures and planting flowers [...] which is just really lovely, to see that people are taking steps towards that" (ibid). In directly giving people the tools they need to plant flowers Laura used her creative platform to help people feel that they might input their voice into the story they had witnessed, thus engaging in a small but certainly not insignificant act of everyday resistance.

Another way that the creative practitioners I studied sought to use their platform to support wildflower planting was through actually planting flowers themselves. As previously mentioned in section 5.5, artist Lily Hunter Green planted up the gardens of the outdoor exhibition space where her work was being displayed. Lily reflected on how the planting of flowers in this space not only "brought it alive, but it also got people talking and I think that's the [key] [...], you need to take something [...] out of context and give people the chance to [...] connect emotionally with it" (Hunter Green, 2018). The impact of this planting is thus multifaceted; Lily pointed to how, as well as having a directly positive impact upon the bees in that space, her planting of flowers drew her audience's

attention to the delicate relationship between bees and flowers. Moreover, her planting acted as a symbol of hope: hope that this delicate relationship can be protected and renewed. A similar tactic was employed by the artist Wolfgang Buttress, who is the creator of *The Hive* at Kew Gardens. *The Hive* is a 17 metre-tall metal installation made of 170,000 pieces of aluminium. From afar, it is evocative of a swarm of honeybees. Up close, it more clearly imitates a hive: a perception that is furthered by sounds of humming bees, recorded in nearby research hives, being played throughout the installation. Bee enthusiast and expert Alison Benjamin (2016) describes how a “one-acre wild flower meadow planted with 34 native species, including clovers and cornflowers, and a few later flowering cultivated varieties surrounds the Hive [sic] at Kew, along with 65 metres of native hedging”. Likewise to Lily’s meadow, this feature not only serves to have a direct and tangibly positive impact, but it also succeeds in drawing attention to the importance of wild flowers for sustaining bee populations; to visit *The Hive* installation one must necessarily walk through and around this meadow environment.

The hands-on conservational aspect of *The Hive* project was discussed in my interview with the leader of *The York St John Pollination Project*, Professor Abi Curtis (2018). Abi commented on how Wolfgang Buttress combined the abstract and artistic elements of his work with the conservational elements, telling me that “it’s almost like the two things had to go hand in hand, you couldn’t have one without the other” (ibid). Indeed, in her running of *The York St John Pollination Project* Abi specifically combined the creative elements of the project - which involved encouraging the students participating in the project to develop a broad range of creative projects inspired by the topic of bees - with practical workshops. For instance, Abi told me that she “loved the idea of bee hotels from very early on and [I] thought, brilliant, I can get some art students to design something and make something” (ibid). Abi also drafted in expert help, teaming up with an employee of the charity Buglife to run wildflower planting workshops. Reflecting on her choice to marry the creative elements of the project with conservational efforts, Abi Curtis (ibid) described how she felt that:

[by] actually getting people to engage and make something, [...] [it] is more likely to make something stick in terms of raising awareness and change. I think ask someone, tell someone, about the decline of the bees, it will horrify some people but others will go “oh yea whatever, that’s just another thing on my Twitter feed”. But if you say to someone, “let’s go out and plant some wildflowers and then let’s write a poem or do a drawing or take some photos” [...] there’s an emotional and physical connection to the awareness raising that’s gone on. And I think that’s more likely to have more of a profound change.

Certainly, directly inspired by their work with *The York St John Pollination Project*, a number of Abi’s students would go on to apply for their own funds to run bee hotel workshops with local York

residents. It is also pertinent to mention that Abi was not the only person I worked with who sought to combine their creative interests with practical educational workshops. Artist Amy Shelton (2019a), for example, ran beekeeping workshops with school children, taking them to see honeybee hives and create artworks inspired by their experiences.

For predominantly practical reasons, creative practitioners are not always able to specifically follow up on the direct impacts that their creative projects might produce or inspire; they put the wheels in motion, but are only able to guess the outcome. For instance, printmaker Laney Birkhead (2018) explained that:

at every workshop and every exhibition I do I make people make a pledge to promise to help the bees. So they just write on a little tiny hexagon what they're going to do. That might just be helping at an allotment, it might be adopting a beehive through British beekeeping association. It might be buying wildflower seeds, it might be buying more local honey, it might be planting more for bees, and [...] all these little pledges are getting sewn into an ongoing installation. So I've got hundreds and hundreds of them. So I've just come home from the last exhibition with a carrier bag full of pledges from everybody that came to that exhibition, which will get sewn into the pledge quilt, and that's getting longer and longer and bigger and bigger. And all these people are promising to go and take individual action, to do something in their lives as a result of coming to an exhibition.

Thus, whilst Laney has little knowledge of the degree to which her work has made a tangible difference, she channels her desire for ecological transformation through the act of pledge-making. Laney commented that, through connecting people with knowledge about what they can individually do, she hoped for her work to be “developing a legacy of change and action to people” (ibid). Indeed, the pledges, whilst not guaranteeing a direct change, ensure that people leave with at least an awareness of the small actions they can do to tangibly engage with the issue in question. Thus, there is a greater chance of people acting on the knowledge they received through engaging with Laney’s work. Furthermore, whilst Laney did not explicitly discuss this in my interview with her, collecting pledges in this way would still help Laney to evidence the reach and impact of her work, even if she is unsure of how many people actually acted on their pledges; as I previously mention, it is not uncommon for creative practitioners, particularly those reliant on external funding, to feel under pressure to demonstrate how their work is creating impact.

In a slightly different vein of thinking, another mode I observed through which creative practitioners sought to engage directly with positive ecological change was by embedding their processes of creation in sustainable practices. This has perhaps become one of the most widely recognised and popular ways that creative practitioners can directly engage with environmentally-positive

behaviours. Partially, this trend has grown through an unwillingness to be contradictory in one's message. As Demos (2009) makes clear, creative environmental work that relies on unsustainable practices and processes becomes an easy target for criticism. People will, expectedly, be far more likely to criticise creative practitioners who are considered to not be practicing what they preach. However, the move towards sustainably created work is also because it is one of the clearest ways that creative practitioners, or individuals involved with the arts, can ensure that their work both resonates with and justifies its focus on ecological goals (Blanc and Benish, 2017).

Correspondingly, a number of the creative practitioners I studied mentioned ways that they intentionally sought to lessen any negative environmental impacts of their creative work, even if they could not mitigate them entirely. Lily Hunter Green (2019a), for example, mentioned sourcing recyclable materials for one of her installations. Similarly, performance artist Laura Ryder, who uses glitter as a prop in her show *The Bee Project*, stated in an interview that her performance crew only uses "biodegradable glitter made from eucalyptus in the show so that we aren't contributing to the microplastics harming our oceans" (Ryder, 2018b). This mode of directly engaging with ecology through creative processes was specifically drawn attention to in my interview with the artist Carrie Foulkes. My first introduction to Carrie was during a honeybee-inspired creative writing course that she organised, and which I attended as part of my research. Carrie has also participated in a Bee Time artist residency, and uses her artistic interests to engage with a range of ecological debates. This question of process and sustainability is particularly important to Carrie. Carrie explained how the:

role of process in artistic practice [...] is [...] extremely interesting. It's a place where you can actually embed those principles that you're exploring. So, for example, if you're working as an artist, working along ecological themes, thinking about how your processes can reflect your values, and so what materials are you using and [...] where are you purchasing things from (Foulkes, 2019).

Carrie went on to say that, although these are not necessarily visible in the final product, embedding one's creative work within sustainable practices not only lessens or diminishes the ecological damage of the creation, but provides an example of how one's ecological values might marry with their creative work. Indeed, by adopting sustainable principles creative practitioners might seek to lead by example, helping build a world in which ecologically conscious decisions are considered the norm. As outlined in a recent report by the environmental arts organisation Julie's Bicycle⁶⁰,

⁶⁰ Julie's Bicycle is a charity that supports individuals and organisations working in the creative sector to engage with sustainable practices and related environmental issues.

sustainable practices in the arts are helping to reimagine the cultural and creative sectors, ensuring their contribution to strategies of environmental change (Julie's Bicycle, 2020). Thus, adopting sustainable goals in one's work contributes to a culture of change that goes beyond the individual creator.

This chapter is revealing of how creative practitioners can play an integral role in connecting people with stories of extinction, opening up new dialogues and drawing attention to urgent crises.

However, as this specific section shows, the impacts that creative practitioners make can also be tangible and direct. As I establish, it is likely that people's demonstration of these direct impacts relate to a variety of decisions, ranging from the - arguably problematic - demand from others to justify the existence of their practices, to the desire to inspire ecological actions in their audiences, to the consideration that they should marry the message of the work with the practicalities of it. However, despite the varied reasons for these direct actions being undertaken, they are an important factor to consider when examining the role of the arts in ecological crises. This is not to propose that individual actions carry the responsibility for enacting the wider societal and environmental change that we need; environmental problems cannot be solved by voluntary individual actions alone, but must go hand in hand with wider cultural, social, and institutional changes (Corbett, 2019). Rather, it is to suggest that the direct engagement of the creative arts with ecological action actively contributes to the building of a better world. However, I further suggest that each small action of change made or encouraged by creative practitioners represents and engages with feelings of hope. This is fundamentally needed, for, as has been widely suggested, presenting the possibility for hope is crucial for encouraging continued ecological action (Kretz, 2017; Swan, 2017; Cunsolo and Landman, 2017; Ojala, 2012). I propose, therefore, that by engaging with and demonstrating tangible actions through creative work, people can further contribute to the teaching of hopefulness in the face of ecological loss.

7.5 Conclusion

Nobody can, with genuine conviction, say for certain what the fate of bees will be. Perhaps bees will survive for many more ecological eras. Perhaps they will diminish entirely over the course of this very century. However, whilst it is not possible to determine the direction of bees' futures, through examining the stories, actions, and outputs of the creatively-minded individuals who contributed to this thesis I witnessed how people are using creative tools to try and influence the replotting of bees'

extinction story. More particularly, my research shows there to be three avenues through which the creative practitioners I worked with sought to have a role in bees' futures. These centre around my participants' use of creative methods to tell stories about the struggles facing bees, their use of creative platforms to encourage engagement with this issue from a greater diversity of people, and their engagement with ecological actions that both directly and indirectly help bees.

Through interrogating how people have drawn on their creative practices to try and positively influence bees' futures, this chapter demonstrated how people might use creative methods to impact upon and potentially change extinction stories more widely. To be precise, this work revealed how creative projects can, first, offer a way of connecting audiences with the lives and experiences of endangered species in such a way that is stimulating of debate and empathy, second, reach out and connect with people who may not have a chance to engage with environmental debates through other means, and, finally, demonstrate how people might engage with ecological actions or sustainable practices. These three fundamental pathways of change give insight into the ways that creative practitioners might seek to use their creative platforms to influence the lives and futures of species whose worlds are becoming ever more precarious in the modern-day. However, it is not my intention to suggest that creative practitioners who engage with extinction crises should always, or can always, engage with these particular avenues of change. For instance, one might find it hard to suggest simple or relatively affordable ways their audiences might help endangered porpoises. Moreover, I stress that my work is not reflective of all the ways that creative practitioners might seek to have influence upon matters centred around current mass extinction⁶¹. Rather, I propose that these three avenues of influence are reflective of some of the central ways that individual creative practitioners can hope to use their creative platforms to positively impact the lives of lost or dying nonhuman species.

In recognition of the fact that my findings are centred around people's creative work in connection to bees, I propose that the observations developed through this research might be built upon in future, comparative literature. Future research might, for example, seek to apply these observations to a study of creative works inspired by different endangered species, considering how the creative arts can deepen people's connection with species that are not so commonly engaged with or easily influenced by individual action. Indeed, I not only suggest but actively hope for this further, comparative research: studies of the role of creativity in engaging with extinction stories remains a

⁶¹ For example, whilst this was not an area touched upon by those creative practitioners I worked with, organisations such as Creative Carbon Scotland, which works to connect the creative arts with sustainability, are helping to build connections between the work of creative practitioners and green policy initiatives.

young area of research, but one that is increasingly pertinent as we delve further into the sixth mass extinction.

Conclusively, this chapter spoke to the rich potential of creative responses to draw people into connection with - whether it be emotionally, cognitively, or directly - lost or threatened species lives. Creativity can help breathe life into the stories of threatened nonhuman species, making the plights they face visible and encouraging people to become invested in their fates. In doing so, creative explorations of extinction crises open up possibilities for ecological change. This is not to de-emphasise how important other modes of responses are to extinction events, such as those rooted in documentary or scientific study. Indeed, creative practitioners which choose to respond to extinction crises are often reliant on these less traditionally artistic responses to guide the focus and messages of their creative work. Rather, it is to propose that creative explorations provide a fundamental avenue through which to communicate and inspire action over the lives of threatened nonhuman species. Thus, creative explorations of the experiences of nonhuman species are *vital* to encourage in an era that is increasingly defined by anthropogenically driven nonhuman loss.

8 Conclusions and Reflections

The future of endangered species and of biodiversity conservation is not, in the end, just a matter of science, but also and mainly one of histories, cultures, and values.

Ursula Heise, 2016, p. 237

And next time you see a bee, don't forget to thank it.

Brigit Strawbridge Howard, 2019, p. 254

8.1 The Final Chapter

I struggle to remember a time when I could sit and watch a bee move from flower to flower without thinking about - indeed, imagining - their potential loss. I, like many others, first heard that bees might be threatened in the mid-2000s with the arrival of a syndrome that caused honeybees to disappear from their hives. In the years following this outbreak the potential loss of bees sustained and spurred on media attention (Portus, 2020). Today, it has become common knowledge that numerous bee species are threatened with extinction. Consequently, the last decade has seen our relationship with bees significantly shift. Bees may once have brought to mind the taste of honey or the smell of wax; today, they conjure imaginings of loss and extinction.

This thesis told a story attentive to the shifting relationship between humans and bees. Specifically, my investigation delved into the stories of creative practitioners, examining how the ongoing loss of bees has been responded to across the creative arts. The thesis therefore followed two central research inquiries: first, I examined why and how the loss of bees prompted creative responses and, second, I explored how these creative responses might bear influence upon bees' futures. In following these two central lines of inquiry, this thesis spoke to greater questions around value, care, responsibility, and, of course, creativity in an age of extinction. Moreover, this investigation into the loss of bees' lives was directly inspired by the newly established approach of extinction studies, which advocates for multidisciplinary, narrative-based accounts that consider ecological, social, and

cultural dimensions of extinction processes. Thus, the work drew on a combination of multidisciplinary literature and rich empirical qualitative research to critically examine why and how the potential extinction of bees has been narrated, attended to, and influenced through the work of creative practitioners. Through doing so, this thesis contributes to knowledge regarding people's attitudes towards the decline of bees, the unique role that creative practices play in responding to and communicating biodiversity challenges, and the value of taking a storied approach to examining current extinction crises. This, in turn, means that the thesis contributes to ongoing discussions regarding the role that human history, culture, and society plays in shaping extinction events.

This concluding chapter weaves together the threads of the preceding chapters to outline the findings and contributions made by this thesis, as well as offering suggestions for future research. I open by considering the central argument of my research, illustrating how this is supported by my multiple research investigations. Following this, I specifically reflect on the process of adopting an extinction studies perspective, considering its value as a genre of researching and writing. Finally, I end this chapter with a closing reflection on the stories and experiences which have collectively resulted in this thesis.

8.2 Stories of Extinction: Research Findings and Conclusions

This thesis concerned itself with stories: stories which unearth how the process of the bee decline has been identified, narrated, imbued with meaning, and directed by human actors. In my search for these stories, my attention was drawn to the narratives of those whose lives are entangled with the bee decline through their choice to creatively respond to this topic. Yet whilst my research specifically concentrates on the stories of people who have engaged with bees' lives through creativity, my research with this particular creative community provides insight into the wider question of how human histories, cultural values, and social dynamics insert themselves into the lives of threatened nonhuman species. To elaborate, my research with creative practitioners illustrates that how people construct meaning around the loss of nonhuman species - by which I mean, how people choose to recognise, narrate, engage with, and take action over threats to nonhuman species - is rooted in the wider social circumstances and cultural values associated with said species. Thus, through my investigation of how the ongoing loss of bees has simultaneously inspired and been shaped through creative action, I follow in the footsteps of authors such as Heise

(2016) and van Dooren and Rose (2011) to proffer the central argument that the fate of nonhuman species is inherently a matter of society and culture, as much as it is a matter of biological science.

This central argument is woven through the myriad narratives that formed this thesis, which are revealing of how meaning is constructed and action is generated around extinction crises.

Specifically, the stories gathered and examined through my research have led to three key findings.

In isolation, these individual findings respond to separate inquiries and proffer different knowledge regarding the human and bee relationship. Collectively, however, they point to the broader understanding that extinction processes are ultimately and inherently entangled with human society and culture. I therefore proceed to examine each of these key findings individually, considering both the specific knowledge associated with each finding, as well as the broader relevance of the findings for the central argument of this thesis.

8.2.1 *Key Finding One: The Grievability of Bees*

As we find ourselves living through the sixth mass extinction on Earth it has become apparent that we are the core drivers of the loss of thousands of nonhuman species' lives (IPBES, 2019; Kolbert, 2014). Yet, whilst we know that we are inherently entangled with many of the extinctions occurring, the sheer breadth of nonhuman lives under threat means that many of these species are slipping away virtually unnoticed: unknown and unmourned (Rose, van Dooren, and Chrulew, 2017).

Nevertheless, there are a few lives - or, indeed, deaths - which have managed to capture our imagination. These are, I suggest, the few species that have been culturally and socially recognised as grievable. My first finding was born in response to this knowledge, contending that bees are one of the few species that have achieved the status of being grievable. Despite their classification as insects - a group of species which are commonly disregarded or disliked by humans (see: Hanson, 2018) - it has been well documented through this thesis that the ongoing loss of bee populations has inspired a wealth of responses rooted in creative methods⁶². In turn, these bee-inspired creative projects are both responding to and furthering the wider cultural representation of bees as a grievable species; the decline of bees is a subject which is broadly considered to be worthy of our care, our energy, and our lament.

Before I began my PhD, I had some sense of the attention that the potential loss of bees was inspiring. This understanding grew during the early stages of my research, particularly when I began

⁶² Examples of creative responses to the ongoing loss of bees are most closely examined in chapters five, six, and seven.

to observe the diverse creative projects being produced in response to this loss. However, my contention that bees are culturally recognised as a grievable species was fully established during my interviews and fieldwork. In my investigation of how people narrate their choice to produce creative work in response to bees, it became apparent that people's decision to focus on bees was influenced by a wider cultural perception of bees' lives as grievable. My empirical research further led me to understand that the cultural consensus of bees as grievable stems from a number of intertwined social, cultural, biological, and environmental factors.

A significant reason for my conclusion that bees have been culturally framed as grievable relates to their positive cultural representation prior to news of their decline. I most closely examined our shared history with bees in section 4.2 of this thesis. The central contention of this section emulates the assertion of earlier authors (see: Hanson, 2018; Moore and Kosut, 2013; Ransome, 1937; Maeterlinck, 1901), by arguing that bees have long held a unique status of admiration in human culture and society. In chapter five of the thesis I traced some connection between this distinct cultural legacy and a number of my participants' motivations to respond to the loss of bees through their creative practices. Chapter five also showed that bees' cultural standing was partially responsible for the extensive outrage over news of the mysterious loss of honeybees in the mid-2000s, due to outbreaks of CCD (Portus, 2020; Moore and Kosut, 2013). The morbidly exciting nature of the CCD crisis inspired significant interest, an interest which has not only been sustained for over a decade after this crisis, but which also drew attention to the more widespread decline of different bee species (see: McGivney, 2020; Barkham, 2020; Briggs, 2020; Colla and Nalepa, 2019). Drawing on my meetings with creative practitioners, I demonstrated that this sustained media attention on bees was, and continues to be, vital for encouraging the narrative that bees are a species whose loss is worthy of our grief. Another major factor I established for the perceived grievability of bees concerns their literal presence in our lives. As this thesis showed, bees are paradoxically absent and present: simultaneously plagued by narratives of extinction whilst still being active participants in our everyday environments. Moreover, bees are typically understood as an aesthetically pleasing and welcome part of our environments. Thus, their visibility not only has a hand in inspiring people's interest in bees, but also provides an incentive for people to try and protect them.

Fundamentally, the narratives and actions born in response to the potential loss of bees have simultaneously responded and contributed to the framing of bees as a grievable species. The significance of this finding, however, goes beyond understanding how and why bees have inspired this wave of creative attention. It speaks to the broader contention that how we care and grieve for nonhuman species' lives is inherently linked to cultural understandings of who, or what, is acceptably grievable (Heise, 2016). Certain species, certain lives, gain far more cultural traction than

others. These species, in turn, are far more likely to be on the receiving end of strategies of protection which might actually - and perhaps ironically - offer said species a future. This, therefore, speaks to the crucial role of human cultural values in determining how a life might be considered as mattering and, thus, whether it might be considered as eligible for responses rooted in care and concern. In my examination of people's choice to respond to the bee decline, I further highlighted how distinctly unusual it remains for a nonhuman species to become so profoundly mourned; as Cunsolo and Landman (2017, p. 16) write, more often than not, the lives of nonhuman species are "derealized from the realm of grievable". At the same time, however, my finding suggests that, whilst it may be unusual, it *is* possible for nonhuman species to enter into this realm of grievability. Thus, I propose that future research, instead of only focusing on if and how a nonhuman species can be recognised as grievable, might also seek to consider how we might extend narratives of grievability to comparatively unmourned and yet still threatened nonhuman species.

8.2.2 Key Finding Two: A Gateway Topic

My second key finding responds to my questioning of whether and, if so, how creative projects centred around the loss of bees might prove valuable for encouraging people to enter into conversations around broader environmental issues. This inquiry was most specifically answered during my experiences with the Bee Time artist residency programme. Prior to my attendance at one of the Bee Time artist residencies I had noted the value of facilitating environmental discussions through the topic of the bee decline (see: Portus and McGinn, 2019). Moreover, a number of the creative practitioners I interviewed indicated that creative work around bees provides a useful gateway topic for inspiring people's broader interest in socioecological narratives⁶³. Yet, it was through my participation in a Bee Time residency that I came to appreciate just how valuable the topic of bees is for bringing people - creative practitioners and the general public alike - into connection with wider socio-ecological discussions. Thus, my second key research finding argues that creative projects born in response to the plights facing bees not only encourages people's initial engagement with the work, but also provides opportunities for engaging people with conversations around broader socio-ecological issues.

Chapter six of this thesis, which centred around a case study of the Bee Time residency, detailed how honeybees' plights are both what inspired the residency and what connects the discussions and

⁶³ See, for example, section 5.6, in which I noted Shane Swann's (2019) comment that his bee-inspired creative project provides a useful gateway piece for inspiring his audience to engage with wider discussions around ecological loss.

creative explorations that Bee Time facilitates. However, this chapter further detailed how the co-leaders of the Bee Time community encourage visiting creative practitioners to consider their studies of honeybees as a gateway into further socio-ecological explorations. The fruitful nature of this suggestion is illustrated through both my interviews and my examination of some of the creative outcomes of the Bee Time residencies. Specifically, my research offers insight into how the conversations and creative projects which arise from this residency programme often move away from their focus on honeybees, and address broader ideas around community, landscape, and time. Thus, whilst honeybees may remain the core focus of Bee Time, and are the central reason for people's interest in joining and attending events run by Bee Time, the discussions, creative projects, and exhibitions which Bee Time facilitates often speak to broader socio-ecological themes.

To some degree, this particular finding departs from my central research question. Rather than examining how creative responses to bees solely respond to and help shape the loss of bees, it highlights how they might extend their focus beyond the specific crisis of the bee decline. However, the threats facing bees are not isolated from the wider socio-ecological landscape: the loss of bees is interconnected with actions and processes that go far beyond the most direct factors which appear to shape bees' lives. Indeed, the entangled webs of ecosystem processes mean that positive, as well as negative, ecological actions can amplify beyond their original intentions. Thus, it is not unreasonable to suggest that all positive environmental actions and meaningful dialogues that arise from creative explorations of bees are, to some extent, contributing to the building of a better world for bees.

Although this finding is rooted in my experiences with the Bee Time artist residency, its implications extend beyond this specific creative community. For example, this conclusion is meaningful to consider from an environmental communications perspective. By providing insight into how honeybees are a useful catalyst for broader socio-ecological discussions, this conclusion taps into questions regarding the significance of using gateway topics to facilitate participation in environmental dialogues. Thus, this finding supports the relatively unexplored contention that choosing a clear starting point - such as the loss of bees - in which to root environmental conversations in serves both to encourage people to engage with the discussion in the first place, and to help ground potentially abstract or daunting socio-ecological debate in topics that are both familiar and accessible. This, in turn, speaks to the central argument of this thesis, which concerns the extent to which human cultural values and perspectives insert themselves into the individual choices that people make regarding ecological narrative and action. Indeed, the evident value of using gateway topics to facilitate ecological discussions highlights the degree to which cultural trends influence upon which ecological crises people will willingly engage with.

8.2.3 Key Finding Three: Creativity in an Age of Extinction

The third key finding of this thesis is rooted in my examination of how creative practitioners seek to help rewrite bees' futures. This inquiry is specifically examined in chapter seven, which considered the intentions that creative practitioners have for their work, how they communicate the impact of their projects, and any practical actions they undertake to engage with the crisis of the bee decline. In considering these multiple lines of inquiry I determined there to be three fundamental avenues through which creative practitioners seek to positively influence bees' futures.

Perhaps the most prevalent way my participants seek to shape bees' futures is by employing creative methods to bear witness to the struggles facing bees. I therefore suggested in section 7.2 that these creative practitioners are engaging in what van Dooren (2014) terms an act of storied-mourning: telling considered stories of loss which not only inspire empathy, but which encourage people to question this process of loss. Section 7.3 further demonstrated how creative practitioners use their creative platforms to extend narratives around the bee decline to individuals who might not necessarily engage with this issue otherwise. For instance, my research shows how people are putting their creative work into public spaces or using creative methods to connect with younger demographics. Thus, I argued that creative practices provide a useful tool for making ecological narratives visible and accessible. Furthermore, people are able to use their platforms to amplify both their own and other people's voices in environmental dialogues; this act of removing barriers to environmental conversations is critical for generating the collective action needed to move forward in constructive ways (Gould et al., 2018). Finally, in section 7.4 I acknowledged the significance of the tangible changes that creative practitioners seek to achieve through their creative projects. I observed how creative practitioners engage in activities such as the handing out of wildflower seeds after performances or the running of educational workshops inspired by bees. Furthermore, I paid heed to the efforts of creative practitioners working to marry their practices with pro-environmental choices. Most obviously, these individual actions have direct positive ecological impacts. However, and perhaps more importantly, these individual actions support the narrative that we not only need to, but can, change our everyday behaviours and choices.

Primarily, chapter seven evidenced how creative practitioners seek to positively impact upon bees' futures by using their creative platforms and voices to narrate, question, and, thus, inspire continued action over the ongoing decline of bees. This study therefore led to the conclusion that creative engagements with extinction crises can play a unique role in fostering interest in and empathy for

threatened species. The impact of creative practices for extinction crises is therefore fundamentally rooted in the ability of creative projects to influence and drive particular cultural trends: creativity can be used to draw empathetic attention to extinction stories, encourage debate, break down barriers to environmental narratives, and demonstrate and/or facilitate engagement with pro-environmental behaviours. Admittedly, the influence of creative practices on extinction crises is not always easily quantifiable or tangible, nor is it guaranteed. However, despite this, my research is fundamentally revealing of how creativity provides an avenue through which stories are told and shared, through which conversations are opened and dialogues encouraged, and through which positive ecological action is facilitated and reinforced. Creativity thus provides a site for learning, immersion, re-thinking, and, importantly, intervention.

The creative projects I explored through this work can be considered interventions in several ways. By intervention I mean the act of reconfiguring people's understanding of environmental crises through interruption. This could be a spatial interruption, a narrative interruption, even an emotional interruption, but all intervention is defined by a personal experience which leads to change. Perhaps the clearest example of intervention is through creative practitioners using creative tools as a way of facilitating experiences that engage people both emotionally and intellectually with bees' situation. Indeed, a significant number of the creative projects studied through this thesis married environmental knowledge with experiences that inspired people's compassion and visceral concern for bees; Lily Hunter Green's installation project *Silencing the Virus* brought honeybees' stories to her audience in a sensory and embodied form; Tyler Lewis's Bee Time artist residency project introduced his audience to honeybees' lives through both verbal discussion and an installation which immersed them in the sounds of local hives; and Megan Powell's project *After the Bees* stitched together a story of the human-bee relationship that encouraged personal investment in the struggles facing bee populations. By combining knowledge of the bee decline with emotionally stimulating experiences, these three creative projects sought to intervene in people's personal relationship to bees.

The second way creative projects can be understood as interventions is through their use of creative methods to bring knowledge to audiences. One might reflect here upon the work of the theatre artist and performer Laura Ryder or the show *Me & My Bee*. In both these projects, the creative practitioners involved used theatrical performance techniques to connect adults, young people, and children alike with conversations around the bee decline in relatable, manageable, and, most importantly, accessible formats. These theatre projects intervened *through* their accessibility, educating their audiences through humour and relatable storytelling.

The third major way that creative projects act as interventions is through their physical interruption and subsequent disruption of space. This physical interruption encourages people to react to and take note of the ongoing loss of bees. Louis Masai's graffiti work, for instance, physically disrupts built environments with images of endangered species. Likewise, Wolfgang Buttress's *The Hive* interrupts the landscape of Kew Gardens to draw visitors into an immersive and stimulating experience that connects them with knowledge of the bee decline. Both Buttress's and Masai's pieces use striking visual or sensory techniques to interrupt and confront their, sometimes unwitting, audience members with knowledge concerning the plight of bees. This physical disruption of space can be seen as a physical intervention, a form of active confrontation which interrupts the viewer; forcing them to sit up and take note of what they are being confronted with.

The shared focus on distributing knowledge of environmental crises is the thread which links all of the projects I have studied and denotes them as interventions. Collectively, they intend to disseminate knowledge which will serve as a catalyst for change. Despite the sheer diversity present in the projects I studied, what I wish to highlight is one glaring similarity; each project intervened in some manner, variously narrating, confronting, challenging, and lamenting the ongoing deterioration of bees' lives. Importantly, whilst my observation of creativity as intervention is one that is rooted in my own studies, understanding creativity as a form of intervention has important repercussions beyond this thesis in the realms of both environmental studies and art itself. Whilst the impact of creativity upon extinction crises might at first glance seem to be intangible or even negligible, the role of creative projects in facilitating public narratives and action around ecological problems should not be undervalued.

My contention that creative practice plays a key role in shaping and reshaping extinction stories mirrors consensus in the current literature. As environmental issues take an increasingly central role within the creative arts, it has become widely observed that it is vital to protect and expand the environmental arts (see: Brown, 2014; Curtis, Reid, and Reeve, 2014). However, my specific focus on how creativity might interact with extinction crises sets it apart from this broader literature. Chapter seven gave a particularly detailed understanding of why extinction-inspired creative projects might be considered a valuable mode of engaging with nonhuman loss. The significance of this contention and - as I assert in section 7.5 - the need to build on this work in future studies, must not be underestimated; as the loss of biodiversity becomes one of the world's most pressing environmental crises, it is imperative to emphasise the significance of connecting people with stories of loss through creative methods. Moreover, this knowledge is not only significant for people connected to the creative sector, but also for people working across a spectrum of sectors impacted by or connected with current biodiversity challenges; indeed, the role that creativity can help play in

connecting people with extinction crises is relevant for people working with extinction crises from corporate, business, policy, campaign, marketing perspectives, and more.

Finally, this finding speaks to how the lives which are made visible and offered value through creative and cultural outputs are the lives that will more likely generate sustained and ongoing interest. The extinction stories we tell through creative and cultural means have a genuine role to play in determining which species will come to survive, thrive, or perish in future years. Importantly, therefore, this finding, similar to my first two key findings, adds emphasis to the primary conclusion of this thesis: that extinction events are processes which are shaped as much by human social choices and cultural values as they are by ecological and biological matters.

8.3 Looking to the Future: Telling Stories of Extinction

This thesis was born in response to calls for extinction stories (see: Rose, van Dooren, and Chrulew, 2017; van Doreen, 2014). These calls for extinction stories, which have continued throughout the duration of my writing and research (see: Garlick and Symons, 2020; Chrulew and De Vos, 2019), are infused with the knowledge that we need literature - or, indeed, stories - which go beyond purely scientific documentations of loss, and which raise important questions around how lives are imbued with meaning, how processes of loss are recognised and experienced, and how we are ethically, politically, and morally entangled with nonhuman species lives. In growing recognition of the significance of telling such extinction stories, recent years have seen the world enriched with narratives that explore the lives and losses of species living in a time of ecological loss (see: Evans, 2020; Bastian, 2020; Wrigley, 2020; Kalshoven, 2018). However, despite this growing body of literature, the field of extinction stories remains an emerging one. Thus, this thesis provided me with the opportunity to explore beyond the specifics of my research, and further reflect upon both the process and value of embracing a storied approach.

It is perhaps needless to say that, in constructing a thesis which responds to the calls for extinction stories, I drew on the guidelines proffered by an extinction studies approach: an approach which both responds to and advocates for the need to tell extinction stories (see: Rose, van Dooren, and Chrulew, 2017). Practically speaking, rooting my work within the extinction studies approach offered me guidance into the process of researching and writing an extinction story through my thesis. To elaborate, the core objective of the extinction studies approach - which revolves around the conduction of narrative-based research to explore what a specific extinction means, why it matters,

and to whom - provided the starting point for my study into the ongoing loss of bees. Hereafter, as outlined in section 3.2, my decision to root my work within extinction studies led me to adopt a sociocultural narrative approach to research: a methodological approach which entails journeying through individual stories as a way of ascertaining knowledge around wider social and cultural circumstances. Although my project later evolved into a more concentrated study of how the loss of bees has been interacted with by creative practitioners, the underlying principles of an extinction studies perspective continued to guide the objectives of my research investigation, leading me to conduct a study which considers how the individual stories told by creative practitioners speak to broader questions around how humans value, grieve for, and shape the fates of nonhuman species in an age of extinction. Consequently, this thesis offers an example of how one might carry out research rooted in an extinction studies perspective, embracing a sociocultural narrative methodological approach to examine how cultural values and social logics influence how people recognise, construct meaning around, and interact with particular extinction events.

Yet, this thesis represents just one way of 'doing' extinction studies. As a genre which cuts across disciplinary boundaries, extinction studies embraces the combining of different perspectives, knowledges, and modes of research and writing to produce distinct and explorative extinction stories. How one might 'do' extinction studies, therefore, remains a question to be answered by each researcher that comes to be inspired by this approach. For instance, one might approach the telling of an extinction studies story as I have: drawing on empirical data from a specific community to consider how human stories and values come to shape the processes of extinction events. However, one might equally take a more abstract or imaginative approach to the telling of an extinction story: incorporating, for instance, poetry as a way of creatively engaging with the experiences of and stories surrounding a lost or dying species (see: Hatley, 2017). Indeed, the aim of the extinction studies genre, as presented by Rose, van Dooren, and Chrulew (2017) is not to produce uniform texts which adhere to specific formats or structural constraints. Rather, the fundamental purpose of extinction studies is to inspire a collection of works which draw upon a variety of storytelling and narrative techniques, in order to explore critical questions around the social, cultural, and ecological dimensions of extinction events.

This leads me to propose that, as death comes to haunt species across the globe, we need extinction stories - and thus extinction studies - more than ever. We need them because it is vital to produce work which carefully and conscientiously attends to the biocultural complexities of extinction processes. But more than that, we need these stories because, along with offering rich case studies of the peculiarities of other ways of life, they are infused with ethical, political, and moral dimensions. Through carefully and critically examining how nonhuman lives have been influenced by

choices and actions outside of their own, extinction stories inherently call into question the ways in which humans are implicated in both driving and mitigating nonhuman loss. As such, these stories open up new possibilities for understanding how we are called into responsibility in this age of ecological diminishment, asking not just what a nonhuman loss means and why it matters, but also how we might responsibly, carefully, and maturely respond to these losses. Thus, I add my voice to the call for extinction stories (see: Chrulew and De Vos, 2019; Rose, van Dooren, and Chrulew, 2017; van Dooren, 2014), and further suggest that future researchers studying extinction might consider the value of embracing an extinction studies approach. In doing so, they will contribute to a growing body of work - some of which is explicitly drawing on the extinction studies approach, but most of which simply happens to resonate with an extinction studies approach - which not only offers detailed and lively insights into the biocultural worlds of nonhuman species, but which opens up imperative questions regarding our role in, and obligations to, the lives of endangered or extinct nonhuman species.

Whilst I advocate for the value of the extinction studies approach, I am not uncritical of the potential limitations of the extinction studies genre. The process of 'doing' extinction studies does, like many other academic approaches and methodologies, place certain boundaries upon the researcher. For example, the emphasis on qualitative research methods in extinction studies texts, which is reflective of a wider emphasis on qualitative research methods across the environmental humanities, can steer the extinction studies researcher away from engaging with potentially valuable quantitative research methods. Certainly, the specific focus on narrative-based engagements in extinction studies writing (see: Rose, van Dooren, and Chrulew, 2017, p. 3) directed me towards focusing solely on qualitative research in my thesis. Indeed, during the early stages of my research I was invited by the organisation Grow Wild⁶⁴ to survey people and gather quantitative data about their experiences of visiting *The Hive* at Kew Gardens. Although I had already made the decision to write a narrative-based text, I decided to take Grow Wild up on their offer and found the opportunity to spend a day speaking with and surveying visitors to *The Hive* to be insightful and thought-provoking. However, due to my focus on producing a narrative-led, extinction studies thesis, I chose not to follow up this experience with further quantitative research or include any exploration of the data in the thesis; in this instance, I felt that including quantitative data would shift the focus away from stories. Yet, it is necessary to acknowledge that the inclusion of quantitative data may have added valuable insights that could have increased the reliability of my research findings. Thus, whilst I consider it critical that qualitative research and analysis is taken

⁶⁴ Grow Wild is a charity associated with Kew Gardens which encourages people to engage with environmental projects that support wildflower and fungi growth.

seriously for the vital insights that it offers environmental knowledge, the focus on qualitative research must be considered as a potential weakness or limitation of the extinction studies genre. However, having discussed the focus on narrative-based engagements in extinction studies literature as potentially restrictive, I should also emphasise that as an interdisciplinary researcher I found the focused guidelines offered by the extinction studies genre valuable for helping me ground my research and validate my production of narrative research. More broadly, despite the potential restrictions one might encounter in their adoption of an extinction studies approach, the emergent nature of the extinction studies genre, coupled with the clear emphasis on exploratory and interdisciplinary modes of research, allows this to be a genre that remains open for creative interpretation. Thus, extinction studies is undoubtedly an approach which is valuable for any researcher who hopes to create vibrant and considered explorations of extinction events.

In adding my voice to the call for extinction studies texts, I would also like to take the opportunity to call for the production of extinction stories which consider species that may be typically overlooked in mainstream extinction narratives⁶⁵. Loss is not confined to those rare species - bees, whales, pandas, to name but a few - whose deaths seduce our headlines and plague our imaginations. And whilst the loss of less visible or uncharismatic species may not typically register on people's radars, the world still suffers with each of their absences: with each faded existence another web of life unravels. As such, it is my suggestion that as we move deeper into the sixth mass extinction academics might seek to actively study those threatened species which have been largely bypassed by academic thought or public interest, attempting to equalise the attention shown to typically well-liked species. Whilst this task of paying attention to typically unloved and overlooked species is one which has begun to receive attention (see: Nagy and Johnson II, 2013; Ginn, 2013; van Dooren and Rose, 2011), it is my personal conviction that this is a meaningful area of study to expand and grow. In narrating and conceptualising these stories we will generate a better understanding of the entangled lives of the endless multispecies communities which sustain the world as we know it. This, in turn, will help guide appropriate actions in resistance to the mass extinction event currently underway. Perhaps more significantly, however, I would suggest that, as the key perpetrators of the sixth mass extinction, we simply have a fundamental responsibility to pay heed to as many of these extinction stories as we collectively can; as Deborah Bird Rose (2013, p. 1) unequivocally tells us, "We live in a time of almost unfathomable loss, and we are called to respond".

⁶⁵ In a pre-emptive response to criticism, it is relevant to note that I am fully aware of the potential hypocrisy of such a suggestion in a thesis dedicated to bees. However, I ask that this hypocrisy be overlooked, in the understanding that it is through the very writing of this thesis that I have come to realise the extent to which a few species dominate both the public and scientific imagination.

8.4 Final Reflections

This is the final chapter of this extinction story. The work captured a tipping point in the story of bees, recording a moment in which their plight has become a key cultural focus, and yet might still result in catastrophe. Thus, whilst this chapter marked the conclusion of the story I write, this is by no means a story that is over. Bees' futures remain uncertain, and the next chapter of their story unfurls even as I write these very words.

The precarity of bees' futures has, on occasion, left me feeling despondent. Fortunately, however, this sense of dejection rarely lasted. The temporary nature of my despondence relates to the fact that, through my quest to engage with the stories of beekeepers, entomologists and, most particularly, creative practitioners, I was constantly reminded of how the decline of bees has led to an outpouring of care for them. And whilst the care that I have witnessed for bees is undoubtedly entangled with wider cultural values and social dynamics that have framed bees' lives as mattering, this does not mean that the worry people express for bees is not genuine. Nor is it insignificant. My work has shown how people's care for bees can be, and has been, cultivated into meaningful and widespread action: I have written of how people have dedicated their creative practices almost solely to bee-inspired projects, created entire artistic communities centred around bees, or used their creative platforms to educate others to engage in bee friendly actions. Fundamentally, therefore, this thesis provides a window into a remarkable display of hope for bees. As such, this thesis gave evidence to the understanding that, whilst humans are involved in the sixth mass extinction as key perpetrators of loss, people also have an enormous capacity to care about, challenge, and mourn for nonhuman losses.

There are those who would criticise the combining of work on extinction with narratives of hope; as Swan (2017, p. 136) evidences, plenty consider optimistic messages of hope to be misleading or naïve. However, in response to this, I take a further lead from the words of Swan, who offers the suggestion that, whilst having hope in the face of ecological loss can feel as though it may obscure the ecological problems we are currently witnessing, holding on to hope is fundamental if we are to keep fighting for the possibility of a renewed future (ibid). Just as I have sought to do through this work, Swan tells us that it is fundamental to balance truths about the loss and devastation currently underway with a necessary sense of hope at what can be collectively achieved (ibid). As such, I conclude this thesis by confidently offering a final message of hope. This is that, although we must

understand extinction processes as events which are driven by biocultural factors, we can also understand them as events which can be reshaped, mitigated, and resisted through cultural, social, and scientific avenues. Thus, whilst there will be many more ecological losses to come, we still have the chance and the means to collectively redirect the future: helping not just bees, but ourselves and so many other diverse and deserving species in the process.

Data Access Statement:

Due to ethical concerns related to the non-anonymous nature of this dataset, full copies of the transcripts and field notes which support this research cannot be made openly available. However, they are safely secured in line with the University of York's research data management guidelines as a closed dataset. Dataset doi: 10.15124/cec599fa-67d3-4ab2-a97d-3519c9a91696.

Please note that, whilst the full dataset has to be stored as a closed dataset, four example excerpts from the dataset can be viewed in the following appendices. To ensure that the participant observation field note examples fully comply with ethical guidelines, any content that might be considered personal or private has been redacted. To ensure that the interview transcript examples fully comply with ethical guidelines, likewise to the excerpts quoted in the body of this thesis, I have been careful to select excerpts that do not include any information I was asked to keep private by my participants.

Appendices:

Appendix 1:

Creative Practitioner Descriptions:

Name and Creative Profession	Creative Bio, Relevant Project(s), and Websites
<p>Professor Abi Curtis</p> <p><i>Creative Writer</i></p>	<p>Abi Curtis is Professor of Creative Writing at York St John University. She has published award-winning poetry collections and, more recently, her debut novel titled <i>Water & Glass</i>.</p> <p>Abi Curtis is the creator of <i>The York St John Pollination Project</i>.</p> <p>Project Website: yorkstjohnpollinationproject.com Personal Website: abicurtis.com</p>
<p>Amy Shelton</p> <p><i>Fine Artist</i></p>	<p>Amy Shelton is a Devon-based fine artist who predominantly works with earthbound materials to reflect on the wonders of the world around her. She is also the Artistic Director of the organisation Honeyscribe.</p> <p>Amy Shelton is the creator of the projects <i>Melissographia</i> and <i>Florilegium</i>.</p> <p>Personal Website: www.amyshelton.co.uk</p>
<p>Anneliese Emmans Dean</p> <p><i>Poet and Performer</i></p>	<p>Anneliese Emmans Dean is a York-based poet and performer who uses language, rhythm, and rhyme to promote sustainability.</p> <p>Anneliese Emmans Dean is the author of the book <i>Buzzing!</i></p> <p>Personal Website: thebigbuzz.wordpress.com</p>
<p>Carrie Foulkes</p> <p><i>Interdisciplinary Artist</i></p>	<p>Carrie Foulkes is an artist who works across collage and painting, site-specific installations and interventions, book arts and poetry. She is also a trustee for the Natural Beekeeping Trust.</p> <p>Carrie facilitated a creative writing weekend in Sussex inspired by honeybees, and joined a Bee Time residency in 2017.</p> <p>Project Website: dark-mountain.net/events/flights-of-imagination-writing-with-the-bees Personal Website: carriefoulkes.com</p>
<p>Fiona Filipidis</p>	<p>Fiona Filipidis is a London-based artist and photographer. Her work explores themes of intimacy, loss, and memory.</p>

<p><i>Artist and Photographer</i></p>	<p>Fiona Filipidis is the creator of the bee-inspired photographic series and book <i>To Make a Prairie</i>.</p> <p>Personal Website: www.fiona-filipidis.com</p>
<p>Freya (Anonymised Artist)</p> <p><i>Visual artist, Filmmaker, and Writer</i></p>	<p>Freya is a visual artist, filmmaker, and writer. Freya has produced creative projects inspired by her interactions with beekeepers and honeybees. Freya also partook in a Bee Time artist residency in 2018. During the open exhibition of the residency Freya screened a short creative film she had created inspired by her relationship with bees. She is a PhD candidate of Creative Writing and Art History at The University of Manchester.</p>
<p>Greta Mitchell</p> <p><i>Performer, Photographer, and Artist</i></p>	<p>Greta Mitchell is a performer, photographer, and artist. She has recently published her first children's book.</p> <p>Greta Mitchell was one of the co-creators and cast members of the show <i>Me & My Bee</i>.</p> <p>Project Website: www.thisegg.co.uk/me-and-my-bee</p>
<p>Joe Boylan</p> <p><i>Theatre-maker and Performer</i></p>	<p>Joe Boylan is a theatre-maker and performer based in between London and Sheffield. He is a founding member of the Barrel Organ theatre company.</p> <p>Joe Boylan was one of the co-creators and cast members of the show <i>Me & My Bee</i>.</p> <p>Project Website: www.thisegg.co.uk/me-and-my-bee Personal Website: joeboylan.co.uk</p>
<p>Josie Dale-Jones</p> <p><i>Producer and Performer</i></p>	<p>Josie Dale-Jones is a UK-based producer and performer. She is the director of the theatre company ThisEgg and co-director of the green theatre company Staging Change.</p> <p>Josie Dale-Jones was the producer and one of the crew members of the show <i>Me & My Bee</i>.</p> <p>Project Website: www.thisegg.co.uk/me-and-my-bee Personal Website: www.thisegg.co.uk</p>
<p>Laline Paull</p> <p><i>Novelist, Screenwriter, and Playwright</i></p>	<p>Laline Paull is a British novelist, screenwriter, and playwright. Her two published novels have both grappled with ecological themes: these being the bee decline and the melting of icecaps.</p> <p>Laline Paull is author of the book <i>The Bees</i>.</p> <p>Personal Website: www.lalinepaull.com</p>

<p>Laney Birkhead</p> <p><i>Painter and Printmaker</i></p>	<p>Laney Birkhead is a Yorkshire-based painter and printmaker. Her work is inspired by the landscape and countryside around her home in Harrogate.</p> <p>Laney Birkhead led the <i>Swarm</i> project, and has created series and exhibitions of bee-inspired paints and prints.</p> <p>Personal website: www.laneybirkhead.com</p>
<p>Laura Ryder</p> <p><i>Performer and Theatre maker</i></p>	<p>Laura Ryder is a performer and theatre maker. She is a co-founder of the theatre company B Team, which is currently working on a theatre project exploring the subject of slow violence.</p> <p>Laura Ryder co-wrote, produced, and performed the theatre show <i>The Bee Project</i>.</p> <p>Project Website: www.derbytheatre.co.uk/news/bee-project-studio-blog</p>
<p>Lily Hunter Green</p> <p><i>Composer and Installation Artist</i></p>	<p>Lily Hunter Green is a UK-based composer and installation artist. She has worked on numerous bee-inspired projects, and is currently working on large-scale immersive collaboration with EdenLAB.</p> <p>Lily Hunter Green's bee-inspired projects are titled <i>Bee Composed</i>, <i>Bee Composed Live</i>, <i>Tuning In</i>, and <i>Silencing the Virus</i></p> <p>Personal Website: lilyhuntergreen.com</p>
<p>Louis Masai</p> <p><i>Visual Artist</i></p>	<p>Louis Masai is a London-based visual artist. He is famed for creating street art pieces which depict endangered species.</p> <p>Louis Masai has visually depicted numerous bee images, and led a project titled <i>The Art of Beeing</i>.</p> <p>Personal Website: louismasai.com</p>
<p>Lucy Adams</p> <p><i>Lighting Designer and Stage Manager</i></p>	<p>Lucy Adams is a London-based lighting designer. She works mostly with devised work and new writing.</p> <p>Lucy Adams was the lighting Designer and Technician for the show <i>Me & My Bee</i>.</p> <p>Project Website: www.thisegg.co.uk/me-and-my-bee Personal Website: www.lucyadamslighting.com</p>

<p>Lydia Heath</p> <p><i>Visual Artist and Gallery Manager</i></p>	<p>Lydia Heath is a visual artist and the gallery manager of ONCA, a Brighton-based gallery. She previously attended a Bee Time Residency.</p> <p>Lydia Heath joined a Bee Time residency in 2016, where she developed her project <i>Be Clean</i>. This was also shown during an exhibition titled <i>Learning from the Bees</i>, in 2018.</p> <p>Project Website: issuu.com/earthspeaks/docs/dossier-lftb-exhibition Personal Website: onca.org.uk/about-us/the-team/staff/lydia-heath/</p>
<p>Lydia Needle</p> <p><i>Mixed Media Artist</i></p>	<p>Lydia Needle is a Somerset-based mixed media artist. Her work centres around environmental themes, and she describes her work as a gentle protest.</p> <p>Lydia Needle is the lead artist and curator of the ongoing collaborative creative project <i>Fifty Bees</i>.</p> <p>Project Website: fiftybees.uk Personal Website: www.lydianeedle.com</p>
<p>Megan Powell</p> <p><i>Artist and Photographer</i></p>	<p>Megan Powell is a Manchester-based artist and photographer. Her work centres around the understanding that creative work is always a form of self-portraiture of the collective self.</p> <p>Megan Powell is the creator of the project <i>After the Bees</i>.</p> <p>Project Website: www.museum.manchester.ac.uk/whats-on/exhibitions/currentexhibitions/afterthebees/ Personal Website: www.megan-powell.com</p>
<p>Morvern Odling</p> <p><i>Visual Artist and Interactive Designer</i></p>	<p>Morvern Odling is a visual artist and interactive designer based in Scotland. Morvern combines her artistic work with community engagement and social justice campaigning.</p> <p>Morvern Odling contributed to an interdisciplinary collaborative project titled <i>Telling the Bees</i>, which explored the folklore, traditions, and contemporary practices of beekeeping husbandry.</p> <p>Project Website: www.tellingthebees.buzz Personal Website: www.morvernodling.co.uk</p>
<p>Pol Parrhesia</p> <p><i>Filmmaker and Photographer</i></p>	<p>Pol Parrhesia is a filmmaker and photographer. She has a strong ecological approach in her work, and is interested in the transformative power of creativity.</p> <p>Pol Parrhesia is a co-founder of the Bee Time Residency.</p>

	Project Website: beetime.net/en/
Sabina Sallis <i>Visual Artist</i>	<p>Sabina Sallis is a visual artist who works with mixed-methods to produce pieces which explore the entanglements of human knowledge and ecological processes. Sabina is completed a PhD at Newcastle University, in the School of Fine Art.</p> <p>Sabina Sallis attended a Bee Time Residency.</p> <p>Personal Website: www.sabinasallis.com/index.html</p>
Shane Swann <i>Artist and Illustrator</i>	<p>Shane Swann is an artist and illustrator based in the Cambridge area. He creates fine art pieces which depict extinct or endangered species.</p> <p>Shane Swann worked on a fine art piece titled <i>Eighteen Extinct Bees of England</i>.</p> <p>Personal Website: shaneswann.co.uk/eighteen-extinct-bees-england/</p>
Sheila Macbeth <i>Composer</i>	<p>Sheila Macbeth is a composer and choir leader based in Stroud, Gloucestershire.</p> <p>Sheila Macbeth produced an album inspired by bees, titled <i>Bee</i>.</p> <p>Project Website: naturalvoice.net/songs/flower</p>
Tyler Lewis <i>Composer and Sound Artist</i>	<p>Tyler Lewis is a composer and sound artist currently completing a PhD at the University of Aberdeen. His work is often informed by the natural world around him.</p> <p>Tyler Lewis attended a Bee Time Residency.</p> <p>Personal Website: www.marxtlewis.com/</p>

Appendix 2:

Participant Observation Field Note Examples:

Participant Observation Example One: Creative Writing Weekend, Sussex

One of the pinnacle experiences for me over the weekend was having the opportunity to share our encounter with a bee that we had all prepared. We were all sat in [REDACTED] beautiful living room, comfily spread around the room on various assortments of sofas, chairs and futons. The sheep living next door added a surreal quality to the space, and made me want to hold onto the memory of being there as tightly as I could. During this activity we went around the room and shared the experiences we had had with bees. The women had all had such different and rich experiences: there was one person who had had an incredible dream when she was at a difficult point in her life, in which the bees had come to her and led her on a journey that helped her realise she was in the right space. I spoke of the time I found a little mason bee living in my door. Already these stories we shared are slipping out of my mind, for I could not write them down [at the time], but I do know that each encounter seemed to be marvellous and miraculous - even the most comical story we were told about a bee-based joke going terribly wrong for one young girl! Bees have this amazing way of inciting our curiosity and drawing us to them.

Carrie, who ran the course said something to me mid-way through the course that really resonated with me. We were talking about the replacement of honey with sugar, and she became so clearly exasperated with the idea of it. She said she cannot understand how people think it is okay to replace honey with sugar when it clearly is making bees ill. Carrie pondered how absurd the idea would be of someone taking away our fruits and vegetables and replacing it with fizzy fruit drinks, then asking us 'why are you dying'?

Another experience that stood out to me was a story told to us by [REDACTED]. [REDACTED] spoke of a breath-taking encounter she had with bees. [REDACTED] friend was very ill, and, towards the end of his life, she was going over to spend time caring for him when his wife needed to sleep. He was nearing the end of his life just as Spring was arriving, and the natural world was [beginning] to wake up again. One morning [REDACTED] left her friend for, what she would soon realise would be, the last time. When she entered into her house she realised that some of the bees had swarmed, and so she set about trying to get them to enter into a vessel. But they would have none of it, and flew back high into the sky. And so [REDACTED] tried again.. and again.. and again. Each time the bees flew away again, dancing in the spring sun. Finally, much later and after seven attempts to try and make the bees settle, they finally rested in an empty hive. It was then that she found out that her dear friend had passed. She knew right there and then that the bees had been responding to this death. Now, whether or not you truly believe in this tale, [REDACTED] expressed how deeply bees can be connected to our emotional psyche. And this is a story that has been told over and over - the custom of telling the bees is based on these same experiences and feelings. But fundamentally, it is her truth.

Participant Observation Example Two: Bee Time Residency, Santa Lucia

Day One:

Today was a basic introductory day. We began the day by meeting at breakfast in the house. We then got in the car and drove up through the town of Barca de Vejer, with the intention of meeting some of the hives. On the way to meet the hives we stopped the car at a point that, according to Karmit and Pol, was a good point to see all around the landscape. They spoke to us about some of the stories of the land. Pol also spoke of her experience catching a swarm. The way she spoke about this was deeply compelling; she talked of the way in which the bees formed a circle when they went into the hole of the box, and of how incredibly special it was to not only be part of such a magical experience, but also to realise that she had a connection to bees and that she could take swarms to their new homes.

From there we went to acquaint ourselves with the land. To do so we drove a bit further [on], stopped the car and walked up a small ridge. We then stood in a circle and listened to and smelt the world around us - we could speak up when we felt inspired, and the entire experience felt very connected. We then went to be introduced to the first hive. This was a beautiful hive that was stood by itself in a clearing - it was painted with a beautiful blue and white pattern, which was done by a previous Bee Time resident. We sat with this hive for a long time, thinking [about] our relationship to it, our relationship with bees, and the world that lives inside of a hive. This introduced us to both each other and the bees. Karmit told us of how she has struggled often to know when is right to intervene. She spoke of a time in which she was leaving to go away, and she came to check on the bees and thought that, maybe, she should try to open the hive. But something deep and unexplainable stopped her opening and encroaching on this space. It felt wrong to her somehow. And when she returned they were thriving, and she is thankful that she listened to her instinct.

We then walked down a small path, to see another hive half way up the valley. This hive felt particularly unique to me because the bees had found it of their own accord - it was a chosen hive. Again, we thought about their world and about our intentions for this residency. We then went to sit back down at the first hive, and discussed each of our questions and intentions for the residency. My question asked how our imagination and creativity could bring both us and others into a closer understanding with bees. There was a lot of talk about finding new ways of regaining a sense of control over choices. Being able to take the time to think through ideas, and turn them into what they might become in our practices. Jorge focused on understanding more about the superorganism, not necessarily just the bee superorganism but all the ways in [which] species are connected into a superorganism. So Jorge spoke of the story about beetles getting into the hive and stealing honey, and he asked if we should not take these beetles out because is that disturbing something? Or are we also part of that superorganism? Each of the discussions about our art, which will be finished tomorrow, took a long time because we allowed each the other the space to really mull through our ideas. I found this unusual, as I find in academia there is a tendency to really be quick about conversations and move through a schedule incredibly quickly.

Appendix 3:

Interview Transcript Examples:

Transcript Example One,

Lily Hunter Green (Interviewed 12 February 2018).

Rosamund: So can you tell me the story again of why bees first came to you as a particular inspiration?

Lily: So basically, again, it was just after I had been changing all of these pianos into art and using the body of the piano as a sort of playground I guess and I was actually playing the piano in my family home on a spring day, some kind of beautiful sunny day, and a bee actually, well I always hear them in the house anyway because they get trapped in the high windows and the sound is always quite elevated in my house cos it's an old church, but yea one flew into the body of my piano and I stopped playing it, but the sound was completely elevated and [...] really really big and beautiful. That's when I decided I was going to change to bees, and I decided I was going to move a load of bees into a piano, and what the ethics of that would be, but also knowing the sound would be amazing and alleviated. So yea, that kind of inspired me I guess, well I started doing research on bees obviously and then I realised how significant the problem was and then I kind of like was really um passionate about raising awareness. And it was almost like a bit of a backwards way of learning, kind of, that sparked my interest I guess. So that's how, I guess, I got into it.

Rosamund: Did you feel that you knew a little bit about bees and the decline beforehand and that kind of struck as your inspiration, or did that come as a secondary thing to just really enjoying the sound?

Lily: It came as a secondary thing, but then it became the primary focus. So it was like, I didn't know previously, well I knew a bit but that's kind of what threw me, because the fact that I had seen these banners, but I had not connected with the information and I didn't know the severity of the subject and the problem and then finding that out then kind of pushed me like very heavily into the subject and learning about the science of the hive, learning about the bees, and obviously once I started creating these installations I began finding more and more about it, not just sound perspective, I realised there was this narrative within the hive, which is when I started working with performers and stuff, developing the hive thing.

Transcript Example Two,**Laney Birkhead (Interviewed 24 July 2018).**

Rosamund: At what point did you starting using [bees] in your work?

Laney: It didn't happen straight away because it actually.. I thought at first I was the worst beekeeper in the world because, um, it was so hard to keep bees because this weather problem at the time I couldn't take any honey from them because they needed it all. I spent half the time feeding them, managing them and just trying to keep them alive. I was too busy with them to think oh I could use them in my work. So it was probably after about three of four years.

Rosamund: okay cool.

Laney: So three or four years later after getting them I suddenly thought it would be quite nice to start studying them a bit more. So I started taking sketchbooks to the apiary when I was doing inspections, and just started doing very very quick loose little sketches of them. And then I was thinking.. and then sort of looking online and you see so many people do things about bees and a lot of them are very illustrative or sort of cartoony, a bit sort of fluffy. A bit like 'oh bees are wonderful, and everything in the world of bees is totally perfect'. Do you know, it gave those sort of messages didn't it.

Rosamund: Oh 100%.

Laney: And I thought oh god I don't want to just start putting bees on my work just to frilly things up, so what can they do. So I did for a couple of years just do that and just enjoy just studying them a bit more really.

Rosamund: Getting to know them?

Laney: But still sort of like, but sort of still getting a bit fed up with the land so it was a sort of gradual feed from landscape stuff dropping off, to bee stuff coming in. Erm, where are we now? That would be about seven or eight years ago. And then I was asked to do a project, that was it. So I am part of a, there is an arts funding group called Chrysalis arts based up at Gargrave and they put together projects. And I had been asked as a print maker to be part of a steering group on an international print-making project that they got funding for. So we were involving Scottish artists, Swedish artists, Norwegian artists and so on. And the idea it was going to be leading into an exhibition. And they were coming over to do workshops and we were going over there and we were sort of writing quite a big bid on how to tour it and it was all to do with taking printmaking to a wider range of people that had no direct experience of printmaking. So I was asked to design as series of workshops as part of that programme that would be easy to do, easy to give basic skills to a wide range of people in sort of indoor and outdoor contexts, how could they do that? And so I designed, I thought of well why don't we just print bees. And because I had been doing lots of little drawings and I started doing some little woodblock carvings and then obviously you can just use those as a stamp and people really liked the carving,

and they really liked the stamping, and they really liked the bees. So I thought, oh why don't I do that. And that is how, really, Swarm started.

Rosamund: Yes, so the swarm collective, I was going to ask you about that in a little bit, but I'll just skip and then go back. So, sorry..

Laney: that's have I gone on too far?

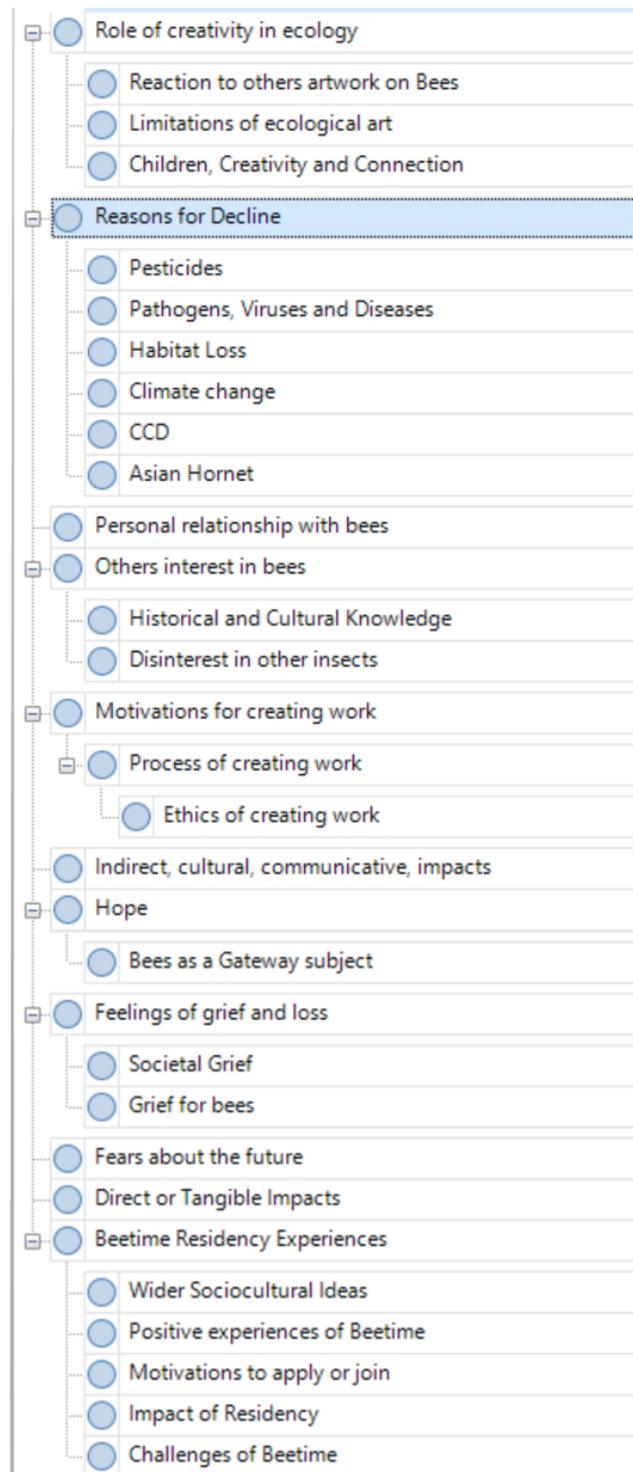
Rosamund: No, not at all I was going to separate to asking you more about your individual work and ideas, and then the swarm project and then your ideas about arts and bees more generally. But um if you tell me a little bit about what swarm is as a wider project, because I knew you got some other artists involved and I was a bit.. I wasn't quite sure.. So if you tell me a bit about that.

Laney: Okay so swarm started out as not swarm at all, it just started out as a series of workshops introducing people to printmaking with bees as the content. And that very quickly took off and I just loved it... And I ended up talking to people, when people found out I was a beekeeper as well, they just wanted to talk to me all the time about bees. By that time, the bee crisis was on the agenda a lot more, erm, and we were coming up to all that business around Brussels wanting to ban neonicotinoids and all of this controversy 'oh well we don't believe it harms bees' and all of this and that. So people were very sort of confused and I found that actually not only could I go and do creative workshops, I actually had a wealth of information about bees which people seemed to be really amazed by. You know, and so I thought why don't I make this into a bit bigger thing. So I then started thinking well maybe I could just make something that was a little bit more of a statement piece. And I had always wanted to do one big project that maybe would be something like that, a very memorable thing. In the world of bees and science there's a lot of statistics, so we have to report back to the British Beekeeping Association, to Beebase, and various other people, who actually ask us once a year how many hives have we got, how many hives did you get through winter, how many colonies have you lost, what state are your colonies.. lalalalala... What is your apiary like and all of this. And I thought, that is actually reported to a wider audience, but very flippantly. Blink and you miss it on the national news. Or you know, so many beekeepers have lost. And that doesn't mean anything to anybody. So I was thinking I would like to try and show people what that actually might mean. That if a beekeeper loses a, one colony, you know, like the size of that hive that's one colony which is a small box that is actually 50,000 bees. And that means 50,000 are taken out of our environment, not pollinating our crops, not pollinating our landscape, not putting colour into our life. And that's just a drop in the ocean of what's going on. So that's where the sort of idea.. and I thought could I print 50,000 bees. Not actually realising what a huge number that was. So there was an opportunity to, a few other things that I was involved with, to sort of take workshops around. So I just started printing bees on calico and then thought hang on a minute I shouldn't waste these workshops, I should start using this for something bigger. So very very quickly I decided I was going to see if I could make this massive print which became hexagonal squares of calico, a metre and a half wide. So each workshop did one hexagon, maybe more, more hexagons. So before I knew it, and then I had a mentoring session with Chrysalis and I said I've got this absolutely bonkers idea to make this huge print. But I don't really know where it is going, or why I am making it, or how I should go about it. And after a session with

them it was suggested that maybe I could contact Guinness World records to see whether or not they would be interested. Because I think at the time Chrysalis thought I might not be able to attract enough people to the workshops to actually get it done. And it would fizzle out, and where would it go anyhow and then what would I do with it.. do you know what I mean. So, so what came out of that mentoring thing was 1) contact Guinness World Records, see what they think and 2) try and get an exhibition for it. Because then you've got something to aim for. Yes so, within a month I'd actually written a paper on where this was going and I'd also been offered an exhibition because I'd actually, as part of the print-making project, I'd done a workshop as part of the exhibition that was at the North York Moors conservation centre. And they thought wow this is going to be about bees, lets have an exhibition about bees, yes we'll offer you an exhibition. So it sort of all snowballed really really quickly so before I knew it I'd one got an exhibition which I thought was going to be in two years time, and it turned out to be in 18 months time. And also I had Guinness World Records going, right, this is how you need to run a big project like that and this is how you have to prove that you've got 50,000 bees in it. So they helped me structure how I was going to count them all. So at every workshop everyone had a little tally sheet and then once they'd made their little blocks every time they'd printed they marked down on the little tally sheet how many they were printing and then I had a big book and they signed the book and they added up how many and they then put in the book. So I knew each, on each hexagon, how many was on that hexagon as a minimum. Cos a lot of people got carried away with the printing and actually forgot to count so I actually, it's going to be more. Do you know what I mean, there was more bees on each piece than was recorded. So I ended up with this six month journey with Guinness World Records, trying to do it and do all the workshops at the same time. And then I thought oh god if I'm going to have an exhibition of this thing which I'm not quite sure what it's going to be, I can't.. I can't actually do one big exhibition on my own. I need to involve other people. And it was about.. after about maybe four five months of doing the workshops around the place, so I just joined various groups or like there's an arts festival in Knaresborough and they set up loads of um workshops for me as part of their programme. I got some funding through North Yorkshire County Council to go into libraries as part of their learning programme. So they offer free workshops to children if they come in and read and borrow so many books. And they had a theme that year about bees and minibeasts so I linked into that so I did loads and loads of libraries around North Yorkshire as part of that. So I got loads and loads of bees printed in a very short space of time. So I know a lot of artists around Yorkshire who do events, a lot of people I've worked with, I know their exhibitions. I thought wouldn't it be lovely to get a collective of people together that would want to make new work inspired by bees and bee decline. But not.. in a range of different disciplines. So I just sought people out and wrote to them or we had a bit of a get together and I pitched them saying look this is what we're going to do. And everybody, apart from one person, jumped at it. Absolutely jumped at it.

Appendix 4:

Full list of nodes and sub-nodes:



Appendix 5:**Consent Form****Consent Form for the PhD project 'Extinction Studies: Imagining a World Without Bees'.**

This is a consent for all participants in the project 'Extinction Studies: Imagining a World Without Bees'. This is a project being led by Rosamund Portus, at the University of York.

Please tick or sign as appropriate:

Taking part in this study, conducted by Rosamund Portus of the University of York, is entirely voluntary. Yes ____
No ____

You have the right to decline to answer any question you are asked, and you are free to end the interview at any time. You may request that audio recording is not used at any time, either for a temporary period or permanently. Any observations, whether in the form of note, drawing or photograph, can be viewed and deleted by you. You may view any materials in which you are identifiable at any time. If you wish to do this, contact rp1072@york.ac.uk. The data gathered in this project is stored in line with relevant data protection legislation and GDPR standards and will be kept for up to ten years in line with University regulations.

I give consent for the data collected from my participation to be published: Yes ____ No ____

I give consent for my real name to be used in any published materials: Yes ____ No ____
(If you do not give consent, all data pertaining to you will be anonymised with immediate effect).

In the case that I may want to contact you regarding the study, do you give consent to be contacted by: email ____ telephone ____

I have read and understood all of the above and I consent to participate in this study:

Yes ____ No ____

Signed:

Date:

Researcher Signature:

Date:

If you have any further questions or concerns, please contact Rosamund Portus. Email: rp1072@york.ac.uk.
Telephone: 07890923964

Abbreviations:

AFB - American Foulbrood

BBCT - Bumblebee Conservation Trust

BBKA - British Beekeeper's Association

CCD - Colony Collapse Disorder

CRB - Criminal Record Bureau

DBS - Disclosure and Barring Service

DDT - Dichloro-diphenyl-trichloro-ethane

EFB - European Foulbrood

IAPV - Israeli Acute Paralysis Virus

IOW - Isle of Wight Disease

IPBES - Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services

RDLS - Remembrance Day for Lost Species

UK - United Kingdom

USA - United States of America

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