The Weather Diaries

Exegesis

By Kathy Drayton

Exegesis submitted in partial fulfilment of the requirements
for the degree of Doctor of Creative Arts
Faculty of Arts and Social Sciences | University of Technology Sydney | March 2022

CERTIFICATE OF ORIGINAL AUTHORSHIP

I, Kathleen Drayton, declare that this documentary film and accompanying exegesis is submitted in fulfilment of the requirements for the award of Doctor of Creative Arts, in the Faculty of Arts and Social Sciences at the University of Technology Sydney.

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

Neither this film nor this document has not been submitted for qualifications at any other academic institution.

This research is supported by the Australian Government Research Training Program.

Signature: Production Note: Signature removed prior to publication.

Date: 11 March 2022

FORMAT OF SUBMISSION

There are two components of the work here submitted for examination.

1: The documentary film: *The Weather Diaries*

Duration: 91 minutes

The film can be streamed from these platforms:

Fanforce

Ronin

Kanopy

2: This exegesis.

ACKNOWLEDGEMENTS

I would like to pay my respects to the First Nations people as the original inhabitants and Traditional Owners of the lands on which this project was created, and all Elders past and present. I recognise their continuing connection to land, waters and culture, and that sovereignty has never been ceded.

It is only because of the persistent encouragement and support of my primary supervisor, Dr Jeremy Walker, that both film and exegesis exist. He has consistently defended the project's worthiness to me, as my own belief in it went through periodic implosions. The compassion and intellect that Jeremy brought to the work, his insight and nuanced feedback which drew out deep underlying themes in both the film and writing, has enriched both elements immeasurably. I am very grateful to have had him on my team.

Dr Andrew Taylor took over as primary supervisor while I was producing the film and was especially invaluable in post-production. His advice and notes on the film as it developed, his excellent co-ordination of test screenings and moderation of feedback sessions afterwards was generous and supportive. Andrew's talent for script editing along with his feedback on both the writing and delivery of the narration was incisive, occasionally hilariously brutal, but always for the best. Later when I was wrestling with how to approach the writing of the exegesis, Andrew's encouragement to incorporate the personal voice I'd developed in the narration of the film was enormously helpful.

Also thanks to Dr Timothy Laurie and Dr Bhuva Narayan for the injection of energy, advice and kindly support that helped me over the final hurdles. This project was made possible with the support of two scholarships awarded by UTS; an Australian Postgraduate Award and the Professor Alison Lee Doctoral Top Up Scholarship. I am very grateful for the opportunity they have given me to make a film more adventurous in both form and content than would have been possible through any other Australian film funding body. Support for this kind of work is a significant contribution to documentary film culture in Australia.

I couldn't have made *The Weather Diaries* without the co-operation and support of Imogen, who as a fifteen-year-old was the first person to commit to being in the film. They put their trust in me and stayed a very long course, watching various cuts, encouraging me onwards when I was flagging, donating their wonderful music to the film, and afterwards doing interviews and attending Q&A's with me. I'm so proud of this work we've made together. It's been very special. Also massive thanks to Imogen's schoolfriends and bandmates; Nathan Moas who made the dark electronica that accompanies the scenes at the whole tree chambers, and Mara Schwerdtfeger whose

touching and delicate music accompanies the flying fox scenes and the 2019 fires at the end of the film. They both watched edits and contributed feedback and encouragement along the way too. These three talented young musicians each provided around 20 minutes of music for the film, which they all made when they were still in their teens.

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Many thanks to Producer Tom Zubrycki who came on board in the final stages of editing. He secured the funding needed to mix and grade the film for the screen, create original animation, and pay licensing fees for public screenings. He also contributed notes and oversaw the final polish of edit and narration and found distribution for the film. And big thanks to Peter Johnson, Annie Breslin and Andrew Belletty for the soundtracking and mix, and Roen Davis for grading and online services. Also to Melody Li for the beautiful animation she made for the film in a wonderful collaboration with Imogen and I. Thanks also to distributors Danny Lachevre and the team at Fan-Force who made the trailer and publicity materials for the film, and helped organise and co-ordinate the screenings, a tough job during the pandemic. And many thanks to Andrew Pike at Ronin Films who has taken the film on for educational distribution.

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ABSTRACT

Drawing on traditions of feminist ethnographic documentary making and recent work in the environmental humanities, *The Weather Diaries* explores how autoethnographic filmmaking, working within the intimate, local realm of everyday life, can engage audiences around the catastrophic global unfolding of anthropogenic climate change and the sixth mass extinction. Both film and exegesis explore the potential of engaging audiences in the painful relinquishment of the familiar form of hope - as the projection of current conditions into a future imagined as progress - that we bear for our children and companion species at this devastating moment in human and Earth history. Seeking to promote constructive dialogue about the irreparable erosion of the more-than-human world as witnessed locally, the work represents a search for a realistic vision of the future that inspires and sustains urgent action to confront the interwoven crises of extinction and global heating. Focusing on the beauty to be found in everyday life and our interconnection with the natural world, the power of dreams and stories and music in our lives, and the inspiration to be found in people working directly or indirectly with climate change, *The Weather Diaries* supports a modest hope, one that doesn't shy away from grieving the losses we're already suffering, but a realistic hope that with creativity, determination, and contributing in our various ways to the care and protection of the lives we love, we can make a difference.

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1: INTRODUCTION

This exegesis represents an investigation of the scholarly research about the social forces underlying the silence, denial and minimisation surrounding the global existential threat of climate change and the sixth mass extinction and strategies by which they might be addressed. It reflects on the way those forces have shaped my own life and responses to the crisis and outlines how I drew from these ideas to shape *The Weather Diaries*, the personal essay documentary I have made as the creative component of the doctoral project. I have made the film in the hope that it might contribute to momentum for the social and economic change needed in Australia to better counter and address these threats.

It wasn't until the early 1990's that the awareness of global warming as a new environmental threat began to seep into my consciousness. Already overwhelmed with concern around industrial pollution, the relentless deforestation and environmental destruction in Australia, and the resulting rapid decline in biodiversity I looked away, assuming that a few degrees of warming might even be pleasant. In 1998, the birth of Imogen, my first and only child, acutely heightened my anxieties around the social and environmental issues threatening the lives of future generations. That year the global temperature suddenly spiked by 2°C, making it the hottest year on record.

This rise in temperature had jettisoned humanity beyond the 10,000 years of stable climate of the Holocene, which supported the birth of agriculture and the flourishing of human culture and knowledge throughout the world. It was hotter than it had been for 130,000 years, during the warmest interglacial period of the Pleistocene epoch, known as the Eemian, when sea levels were five to seven metres higher than they are today. It quickly became apparent that climate change would accelerate species extinctions and threaten global food security, and this in turn would increase conflict in a militarised world already hostile to the plight of refugees and bristling with nuclear weapons and ageing nuclear power stations.

The first time I raised this growing fear amongst friends, in about 2005, I was met with scepticism. Someone asked if I feared rising sea levels, a ludicrous proposition given we were living in a street perched atop the soaring cliffs of Sydney's Eastern suburbs. When I responded that it was the visions of extinction, the loss of arable land and worsening famine, and the consequent mass migration and war it could bring that I feared, an uncomfortable silence fell and the conversation was abruptly changed. It was my first encounter with climate change as an unwelcome topic of conversation, and I learned to keep my fears to myself.

As Imogen grew, I watched global emissions accelerate as climate science became politicised and the debate around it increasingly polarised, particularly in Australia and other Western countries that had become rich and powerful on the back of fossil fuels. I couldn't believe that our government and business leaders would ignore the worsening predictions from science that climate change could devastate all life on earth during the lifetimes of our children. I clung to the hope they would heed the science, and that the ingenuity of markets and technologies would rise to the challenge that threatened their very foundation, and we'd transition to a sustainable economy in time to prevent irreversible damage to the biosphere.

In 2006 Al Gore's film *An Inconvenient Truth* (Guggenheim, 2006) was released. It was revelatory and troubling in its location of our historical moment on a chart showing current atmospheric concentrations of CO2 sitting on a peak way beyond the climatic boundaries of the deep geological time of the Holocene. The vertiginous upswing in the graph mirrored the birth of industrial capitalism, tracking ever faster, ever higher, with its post-war expansion into global world capitalism. Gore's documentary clarified my understanding and heightened my anxiety about the enormity and profundity of the changes that uncontrolled escalating greenhouse gas emissions would have on the shape of the world as we knew it. Its popularity, the cogency of its scientific arguments, the status of Gore himself as an influential political leader, left me with the hope that the science would be heeded, and that advanced industrialised nations would lead the way in addressing the problem before it was too late. I was in the same state of mind that Imogen expressed years later as fifteen-year-old in *The Weather Diaries*, "I can't

believe the world will die out and fall into some kind of ruin in my lifetime… I just tend to think, 'Someone else will fix it'."

An Inconvenient Truth went into wide release and had an enormous social impact. Research shows public concern about climate change spiking to their highest levels in both the US and Australia in the years between the film's release and the global financial crisis of 2007-2008 (Egan & Mullin, 2017; Kassam, 2021). In Australia 68% of the population viewed it then as "a serious and pressing problem" (Kassam, 2021). Kevin Rudd took over the Labor leadership in December 2006, proclaiming climate change to be "the great moral challenge of our generation" and went on to win the 2007 election on that platform. His first act in office was to sign Australia up to the Kyoto Protocol, overturning the former government's decade long opposition to the first global emissions reduction treaty. It was a moment of relief and great optimism.

But political polarisation around the issue was accelerating. Ignited around Al Gore's status as a former Democrat Presidential candidate, it was fanned by the manufacture of doubt from the fossil fuel lobby and amplified exponentially through the tribalising algorithms of social media. Levels of public concern around climate change and support for emissions reduction began plummeting downwards again. In the face of pressure from the Liberal Party's opposition and poor public polling, the Rudd Government's emissions reduction policy was chipped away with ever greater concessions to the big polluters. In November 2009, a much-weakened compromise negotiated between Minister for Climate Change and Water, Penny Wong, and the Liberal's Shadow Member for Energy and Resources, Ian MacFarlane, was presented to parliament. Tony Abbott had wrested the leadership of the Liberal party from Malcolm Turnbull the day before and his party room had voted in a secret ballot to reject the bill. The Greens refused to support its lack of ambition and massive corporate subsidies at huge public cost and voted with the Liberals to defeat the bill on the floor of Parliament. The following month the UN climate summit in Copenhagen (COP 15) also ended in disastrous failure. It was a devastating blow for climate action in Australia, and around the world.

In the same year as *An Inconvenient Truth* (2006) was released our family watched the Studio Ghibli film *Princess Mononoke* (Miyazaki, 1997b). Whilst the former film had raised my consciousness around the gravity of the problem, it was the experience of watching *Princess Mononoke* with eight-year-old Imogen that seeded the determination to devote the last part of my working life towards action on the twin threats of climate change and mass extinction. I recognised this film as an extinction story for children, the first I'd seen, and as a mother it devastated me. It had finally forced me to confront the reality that the anonymous globalised forces of thermo-industrial capitalism were highly likely to obstruct the cascade of change to economic and political systems urgently necessary to address this overwhelming threat, pushing life on Earth over the cliff of the sixth mass extinction.

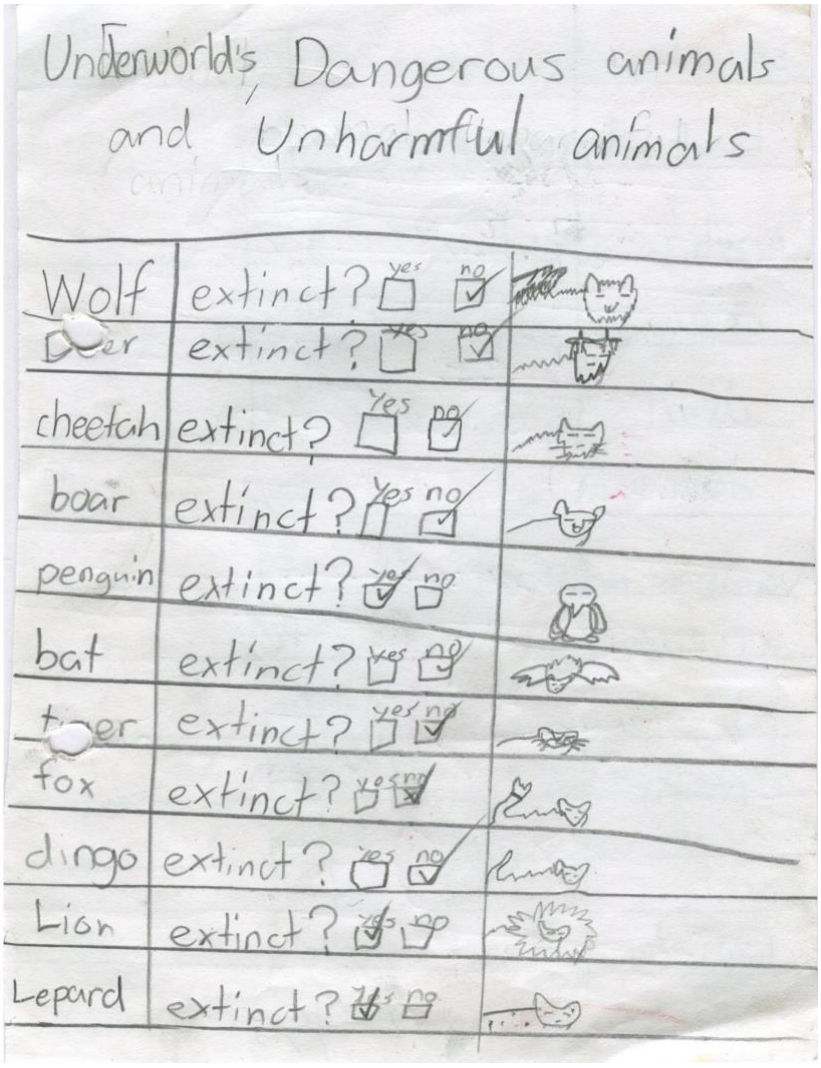


Fig 1.1 A remnant of Imogen's Mononoke inspired childhood play. circa 2008.

It was a film that would have a lasting impact on both Imogen and myself. Imogen begged me to make her a Mononoke costume, and she wore it at every possible moment over the next four years, embodying the fierce little wolf girl fighting humans to save the forest and all of its animals. As I watched her play and repeatedly re-watching the film, I wondered if this obsession was a response to her intuition that she was growing up in a dying world. It left me pondering the social, psychological and developmental impact on children growing up with this bleak comprehension of the future unfolding before them. I supported and encouraged Imogen's impulses that we need to fight to protect what remains of the natural world, to restore it and to change our way of life to reduce our collective environmental footprint. We attended many climate demonstrations together. But as the years ticked by global emissions kept accelerating and the turnout at the demonstrations dwindled.

In 2010 I began to explore the possibility of making a documentary about climate change. I was repeatedly met with the industry wisdom that television networks saw stories about climate change as ratings killers and there was no market for films about climate change unless they offered substantial grounds for hope. This was despite the severe erosion of those grounds for hope that was represented by the failure of the international community in Copenhagen to agree on the reduction of emissions necessary to meet their already dangerously unambitious target of holding global temperature rise to +2°C. It seemed to me that making a hopeful film about climate change in these circumstances would, in itself, be a perpetuation of the denial and the silence that I found to be so frighteningly irrational in the face of imminent ballooning climate chaos, and the ensuing social and environmental collapse it would trigger.

In mulling over ideas for a climate documentary that might attract and hold an audience without shying away from the bleak and fearful reality of the imminent catastrophic changes that global capitalism was bringing down upon us, I often found myself reflecting on the power of *Princess Mononoke* in galvanising my own commitment to urgent action around climate change and the sixth mass extinction. In Japan it had been an enormously popular film, the highest grossing film in its year of release, and the

seventh highest grossing film released there to date. It encouraged me that if I could make a documentary with a narrative focused on engaging characters in settings featuring the beauty and wonder of the natural world that was so under threat, I might be able to engage an audience around the bleak reality of the environmental trajectory we are on.

By 2012 public concern about climate change in Australia had dropped to 36% (Bolsen & Shapiro, 2018). In September 2013 Australia elected a government who had campaigned on a platform of climate denial and the promotion of the fossil fuel industry. Their first actions upon taking office were to strip funding away from climate science and communication, and renewable energy research and infrastructure development. They even removed the words "climate change" from every government website. A hate campaign against prominent climate scientists was unleashed in the Murdoch press and they were subjected to a wave of public hostility and death threats. A month later as we endured the hottest Spring on record, the worst bushfires in the history of the Blue Mountains since colonisation erupted. They destroyed 136 homes, swathing Sydney and Wollongong in thick smoke for days. Prime Minister Abbott publicly ridiculed Christiana Figueres, the executive secretary of the UN Framework Convention on Climate Change, when she pointed out the link between rising greenhouse gas emissions and forest fires.

The anger, anxiety and despair of this ignominious moment in Australia's climate politics drove me to commit to *The Weather Diaries* project. I filmed the smoke enshrouded vistas around our home as a start for the film I was setting out to make and in 2014 I enrolled in the Doctoral program at UTS. I hoped to make a film that would draw attention to the climate induced changes already impacting upon Australian life, both human and non-human, to counter climate denial and to reawaken a sense of the human enmeshment with the natural world. Even if it could momentarily puncture the deadly pall of silence and denial that had settled over the discussion around climate change and imminent mass extinction by sparking some collective conversation around the terrible consequences of a continuing reliance on a fossil fuels, I would consider the film a success.

The Prognostication of Climate Science

In 1788 when the colonisation of Australia began, shortly after coal began to fuel the industrial revolution in the 1750s, the atmospheric concentration of carbon dioxide was around 279 parts per million, which is where it had settled for most of the Holocene. By the time I was born in 1960 it had risen to about 316 ppm and when Imogen was born in 1998 it had jumped to 366 ppm. Despite the bleak warnings that are being issued with increasing urgency by the world's climate scientists, the rate of global carbon dioxide emissions from combustion of hydrocarbon fuels continues to escalate. As I write in April 2021 it's trending 148% higher than Holocene levels at 415 ppm. This is higher than it's been for 2 million years. (The Climate Council, 2021).

When I first started the research for *The Weather Diaries* in 2014 scientists were predicting that failing drastic action to mitigate emissions, humanity was on track to see temperature increases of more than 4° C and rising by 2060 or 2070, which would bring social, economic and environmental chaos (Betts et al., 2011). Although the seven years since have brought about a dramatic uptake in renewables and seen a decline in the global use of coal, there has been increased demand for oil, with the biggest driver of increasing emissions being the expansion of fossil methane gas production and consumption (Hausfather, 2020). The trajectory of rising greenhouse gas emissions is still rising steeply.

The recently released Sixth Assessment Report from the IPCC shows that widespread, rapid and irreversible changes to the Earth's oceans, ice and land surface are occurring. The rate of these changes, and "key indicators of the climate system are increasingly at levels unseen in centuries to millennia" (IPCC: WG1, 2021, p. TS 8). It warns that "abrupt changes and tipping points – such as rapid Antarctic ice sheet melt and forest dieback – cannot be ruled out" (Evans, 2021). They warn that biggest threat of an abrupt change in global climate in the 21st century is posed by the Atlantic Meridional Overturning Circulation. Because of warming oceans and Greenland ice sheet melts it will continue to weaken, and IPCC scientists have only medium confidence that there will not be an abrupt collapse before 2100. If this were to occur, it would bring about abrupt and devastating shifts in regional weather patterns and water cycles across the globe. The

probability of this occurring rises with higher rates of human caused greenhouse gas emissions and increased global warming this century (IPCC: WG1, 2021, p. TS 38).

The most hopeful aspect of the report is its certainty that with near term substantial cuts to emissions and offsetting residual emissions by enhancing carbon uptake, i.e. reaching "net-zero" as soon as possible in order to limit warming to well below 2°C, preferably to 1.5°C, as proposed under the Paris Agreement in 2016, surface temperatures will be stabilised or even reduced. To meet the 1.5°C target, global emissions need to fall 45% from 2010 levels by 2030 and reach net zero by 2050. However, the combined pledges currently agreed under the Paris Agreement are too weak and will lead to an estimated 3°C of warming by the end of the 21st century. Even so, many of those pledges have not been implemented in practice or policy, so we remain on a pathway that will see global warming of 4°C and rising by the end of this century (Evans, 2021).

The idea of net-zero is quietly controversial in the scientific community. In the months before the IPCC report was released, three eminent climate scientists published an article presenting a detailed argument showing that the removal of carbon dioxide from the atmosphere at the planetary scale necessary to counterbalance projected ongoing emissions is a physical impossibility. There simply is not enough available land or water to grow the billions of trees necessary to draw down excess CO2, and after decades of research and billions of dollars of investment carbon capture and storage technology has proven to be an inordinately expensive failure. They concluded the concept of net-zero is a dangerous absurdity supporting policy driven by the need to protect business as usual, not the climate. Shockingly they reveal,

> We struggle to name any climate scientist who at that time thought the Paris Agreement was feasible. We have since been told by some scientists that the Paris Agreement was 'of course important for climate justice but unworkable' and 'a complete shock, no one thought limiting to 1.5°C was possible'. Rather than being able to limit warming to 1.5°C, a

> senior academic involved in the IPCC concluded we were heading beyond 3°C by the end of this century (Dyke, 2021).

To put the notion of 4°C warming into perspective, recent data shows that even the politically palatable parameter of 2°C warming above pre-industrial temperatures is not the safe and appropriate threshold it was once held to be. In fact, in light of palaeoclimatological evidence showing that sea levels will increase by about 20 metres for every degree Celsius of warming, at rates of about 2 metres per century, Hansen warns that "such a target is not only unwise but likely a disaster scenario" that will be "devastating for the world's economic well-being and cultural heritage" (Hansen, 2012 p.44). A climate 4°C warmer than the global mean temperature of the preindustrial era has not been experienced on Earth for 15 million years (Hansen, 2012 p.23). This predates the branching of the hominid line from that of the great apes, which occurred 6 million years ago, eventually leading to the appearance of ape-like humans, Australopithecus, about 4 million years ago. It dramatically predates the evolution of modern humans who appeared about 200,000 years ago (Hetherington, 2012).

Extinction rates are the highest they've been since the last mass extinction 65 million years ago (Howard, 2013). According to Johan Rockström's formulations for a safe planetary operating space for humanity, (Rockström & Klum, 2015) they are now 1000% higher than they should be and are the greatest environmental threat to humanity. Climate change, as signified by atmospheric CO2, exceeds the safe operating space of 350 ppm by 169%, nitrogen and phosphorus loading from fertilisers by 217% and 229% respectively, and land use change (i.e., deforestation and land clearing for agriculture) by 152%. Ocean acidification is at 78%, and freshwater diversion for human activities and consumption is at 61% of their safe boundaries. Both are trending in the wrong direction and rapidly worsening, with ocean acidification occurring faster than it has in the past 300 million years (World Meteorological Organization, 2014).

In 2011, climate scientists Will Steffen and Paul Crutzen together with historians Jacques Grinevald and John McNeill, published a paper arguing that the Earth is entering a new geological epoch which they formally proposed should be known as the Anthropocene,

in acknowledgement that the human species "has become so large and so active it now rivals some of the great forces of Nature" and has become a "geological force in its own right" (Steffen et al., 2011, p. 843). Their nomenclature and dating of the epoch has been controversial and heavily contested. The Anthropocene thesis perpetuates the human centred thinking that has generated the crisis. Freighted with the binaries of Eurocentric thought; culture and nature, humans and non-humans, reason and emotion, it supports the notion that humans are separate from nature and have the ability to control it. The diverse multitude of cultural knowledges which have never made such distinctions are erased and subsumed by its globalising logic. It carries the inference that individuals of the human species are equally responsible for the grossly inequitable distribution of environmental and social harms this era represents. The role of the systemic structures of industrialism, capitalism, colonialism and patriarchy in the extraction and burning of fossil fuels and the destruction and pollution of ecosystems is obscured.

However, it remains clear that the momentous changes underway in the Earth system will severely impact upon the quality and the security of the lives of children born in the 21st century. They and their descendants will grow up in a world radically changed from the one previous generations have known. The chasm between the urgency and the enormity of these environmental threats so cautiously relayed by science, and the inertia and tokenism of the social response to them is puzzling and frightening. It exposes the hollow heart of the Western belief in the power of reason to light the way towards peace, progress and liberty.

An accumulating body of research links collective denial and complacency with ideological and emotional dynamics (see Feygina et al., 2009; Hart & Nisbet, 2012; Norgaard, 2011), and a perception of climate change as a phenomenon distant in space and time from high emitting Western countries (Leiserowitz, 2006). These tendencies are readily manipulated by the petrochemical industry in league with a global cabal of corporate, financial and media elites. To prevent or delay the curbing and eventual closure of industries that generate significant greenhouse gas emissions, they fund conservative think tanks to manufacture and promote uncertainty in the public sphere

about climate science, and pour massive resources into lobbying and maintaining a stranglehold over governments (McCright, 2011). Their success can be measured in rising government subsidies for fossil fuels, which encourages more production and use of the product. In Australia subsidies have risen by 72% between 2010 and 2020 (OECD, 2022). At $11.6 billion in 2022, it is the sixteenth largest area of expenditure in the 2021-22 Federal budget (Armistead, 2022).

Psychologist Renee Lertzman points out that

> environmental dilemmas involve industrial and ideological dilemmas – but also crucially psychic and emotional ones too… (They are) ripe for deeper, more nuanced understandings and approaches; work that can incorporate conflict and anxieties; losses and melancholia; reparation, creativity and the desire to make reparation in the world (Lertzman, 2012, p. 99).

Given that film is uniquely suited to engage viewer's emotions, an "emotion machine" as film scholar Ed Tan famously describes it (Tan, 2013), and my intention was to make a documentary that would engage its audience emotionally around climate change, the body of developing research into the role of the emotions in motivating or supporting climate denial or climate action became central to my work.

The Question of Hope

It is well established that the ravages of a heating climate are falling earliest and most heavily upon those living in the Global South, and the least wealthy, most disadvantaged peoples living in advanced economies. Both sides of my family are white, comfortably middle class, and privileged to be living in the advanced economy of the Global North. As I describe in greater detail in Chapter Two, my family's accumulated wealth is directly associated with the profits generated by colonisation, extractive capitalism, and in particular the fossil fuel industry. As such, I feel the weight of the moral imperative that those who have benefitted from such profits must bear the greatest economic and social

responsibility for global action to address the unfolding climate and extinction crises. However, it is precisely this privileged status that makes people more prone to the denial and minimisation of these threats, and the acceleration of harm being inflicted on the human and non-human lives supporting their comfortable lifestyles.

Even so, the affluent classes of the Global North cannot be protected from what Ulrich Beck describes as the Risk Society; the society whose technologies have created the risk of unpredictable or accidental consequences that are beyond reparation. As he points out, climate change is an egalitarian threat, "produced by a 'truncated democracy' in which questions of the technological change of society remain beyond the reach of political-parliamentary decision-making" (Beck 1992 p118). Its dangers transcend race, class and national boundaries. Beck suggests that this threat has the best hope of being overcome through an 'ecological extension of democracy' (Beck 1992 p119). He argues that we need to invigorate a strong competent public debate, armed with scientific arguments, opening up a concert of public voices. Furthermore, "... Culture 'sees' in symbols... Making the threats publicly visible and arousing attention in detail, in one's own living space – these are the cultural eyes through which the 'blind citoyens' can perhaps win back the autonomy of their own judgement" (Beck 1992 p 120).

This is the terrain of my project. The local is becoming an increasingly significant focus in relation to climate change. Climate models have developed in sophistication to the degree that they are now able to model change at the regional level with increasing granularity and precision. It is here that the reality of climate change is experienced and recognized, and it is here at the local level that mitigation and adaptation projects are most likely to be initiated. The failure of international climate negotiations to bring about change from top down has brought about recognition that most of the world's mitigation and adaptation is occurring at the state or city level. As Ulrich Beck stresses, it is in the transnational cross-cultural recognition of the local impacts of climate change that our greatest hope lies in forging alliances that can awaken the enthusiasm for the greening of modernity.

Beck's thinking aligns with Guattari's writing in his final essay, *Remaking Social Practices,* published two weeks before his sudden death in August 1992 (Guattari, 1996). He argued that the culture of global capitalism could be reconfigured to awaken its citizenry from their passivity, using existing technologies to re-engage people in the creation of a liveable and equitable planetary future. It would require a shift from thinking based in a reductive scientism, which seeks to develop solutions that privilege the rich and the powerful, to an approach based in the conjunction of environmental, social and mental ecology, which he named ecosophy. Guattari called for the future of human activities and their objectives to be determined, not by the hegemonies of the State or capitalist markets, but through the establishment of a planetary dialogue. He imagined it would be founded in a complex global network of coalitions and alliances, built on the promotion of a new ethic of difference to create a politics based on the desires of the people.

> The reality is no longer one and indivisible. It is multiple, and marked by lines of possibility that human praxis can catch in flight. Alongside energy, information and new materials, the will to choose and to assume risk place themselves at the heart of the new machinic undertakings, whether they be technological, social, theoretical or aesthetic. The "ecosophic cartographies" that must be instituted will not only assume the dimensions of the present, but also of the future. They will be as preoccupied by what human life on Earth will be in thirty years, as by what public transit will be in three years. They imply an assumption of responsibility for future generations, what philosopher Hans Jonas calls an "ethic of responsibility". It is inevitable that choices for the long term will conflict with the choices of short-term interests. The social groups affected by such problems must be brought to reflect on them, to modify their habits and mental coordinates, to adopt new values and to postulate a human meaning for future technological transformations. In a word,

> to negotiate the present in the name of the future. (Guattari, 1996, p. 271)

Negotiating the present in the name of the future is the orientation of most parents, and particularly mothers. There has been voluminous research showing that transnationally, women, compared to men, are more concerned about climate change and "demonstrate heightened perceptions of risk across a broad range of environmental hazards... The strongest differences are generally observed when worrying about specific environmental issues, especially localised problems with obvious health risks" (Pearson et al., 2017, p. 19). This research reinforced my decision to focus locally and to embrace and foreground my perspective as a parent, as a mother, in *The Weather Diaries*.

As Clive Hamilton points out in *Requiem for a Species* (Hamilton, 2010a, p. 210), our hopes for our children and grandchildren

> depend on the expectation that the world will unfold as an enhanced version of the world we have now. In the face of the evidence of climate disruption clinging to hopefulness becomes a means of forestalling the truth. Sooner or later we must respond and that means allowing ourselves to enter a phase of desolation and hopelessness, in short to grieve.

Hamilton's book was one of the first I read as part of my research and I found these words devastating, and as a parent, almost impossible to accept. I had embarked on the project with the impression there was a closing window of time left to avert the catastrophic impacts of a heating climate. As I continued researching and set about making the film, the growing understanding that the environmental damage I was witnessing was irreversible came in a series of painful shocks. The work became my own process of grieving the losses already happening, and those to come, and this is reflected in the film I have made. Drawing on the work of deep ecologist, Joanna Macy, Hamilton discusses healthy grieving as "the withdrawal of emotional investment in the hopes,

dreams and expectations of the future" (Hamilton, 2010a, p. 213), arguing that we need the courage to descend into hopelessness in order to construct and attach to a new future. The question at the heart of both film and exegesis crystallised around the possibility of engaging audiences in the painful relinquishment of more traditional form of hope that we bear for our children at this devastating moment in human history, and the search for new visions of the future that might support its inextinguishable flame, ones that might inspire and sustain more urgent and appropriate action to address the climate and extinction crises.

Methodology

Both film and exegesis utilise the ethographic approach as described by Deborah Bird Rose and Thom Van Dooren. They define ethography as

> an approach grounded in an attentiveness to the evolving ways of life (*ethos*) of diverse forms of human and nonhuman life in an effort to explore and perhaps restory the relationships that constitute and nourish them… a mode of knowing, engaging, and storytelling that recognizes the meaningful lives of others, and that in so doing, enlivens our capacity to respond to them by singing up their character or ethos (van Dooren & Rose, 2016, p. 77).

Ethographies are always multi-species stories that focus on entangled becoming in the more than human world. Storytelling as an ethical practice is key. Rose and Van Dooren see stories as "powerful tools for connectivity thinking" arguing that

> Unlike many other modes of giving an account, a story can allow multiple meanings to travel alongside one another, it can hold open possibilities and interpretations and can refuse the kind of closure that prevents others from speaking or becoming (van Dooren & Rose, 2016, p. 85).

Because of the complex webs of relationships between human and non-human others, ethology is inherently multidisciplinary. My research draws from the fields of climate science, climate communication, ecology, sociology, history, philosophy, psychoanalysis and film theory. This exegesis embraces both storytelling and analysis as I explore cultural manifestations and personal experiences of climate denial, anxiety, despair and hope, the history and significance of the flying fox both personally and culturally, and how this developed into *The Weather Diaries*.

There are three main hypotheses underpinning the project. The first is that it is necessary for people to engage with the climate and extinction crises at a deep emotional level to find the motivation to demand and embrace the social and economic change necessary to slow the course and extent of its ravages. Chapter Two explores this idea by examining the social and individual psychology of denial, and its underpinnings in trauma, shame, fear and alienation. It discusses the powerful role shared mourning can play in reinvigorating care and connection between people, communities, and the places and the non-human lives with which they are enmeshed. This is considered in the context of colonisation, the rise of extractive capitalism and the dominance of patriarchal Western culture, with its privileging and splitting of reason from emotion, culture from nature, and the coincident violent othering of species, races, genders and sexualities. I reflect on my personal and intergenerational family history in relation to these ideas. I wanted to better understand the causes and consequences of these emotions in relation to climate heating so as to devise a different kind of climate documentary that might shift people from denial or complacency to demand.

The second hypothesis is that multispecies story telling can enliven the understanding that the well-being of humans and non-humans is enmeshed, thereby undercutting the myth of the human mastery of nature. The film employs this idea in its focus on civic attempts to control the location of flying fox colonies in the urban environment and the tragic impact this, in combination with their vulnerability to the extreme weather of a heating climate, has on the species. These sequences are focused around the reproductive cycle of female flying foxes, the birth and maturation of their pups, and the impassioned work of wildlife carers to protect, rescue and nurture individual animals

despite the odds stacked against their survival as a species. This material mirrors sequences showing my care and concern for Imogen and her development from teenager to young adult in the face an uncertain and increasingly grim future.

Both film and Chapter Three of the exegesis begin in the setting of Sydney's Royal Botanic Gardens, the location of Imogen's high school and of a large resident flying fox colony which is about to be evicted. Building upon the arguments laid out in Chapter Two, the exegesis focuses on the history of the Gardens as the original site of European dispossession of Aboriginal land, the wanton destruction of their profound connection with the web of life that sustained them physically, culturally and spiritually. The land was cleared, replanted with species from far flung corners of the Empire, and enclosed within walls to demarcate garden from wilderness, Culture from Nature. Since the earliest days of settlement, colonies of flying foxes have repeatedly transgressed that boundary, returning to roost in the Gardens where they were slaughtered in huge numbers or frightened away by shooting parties. As creatures of the night, flying foxes were reviled by their Christian persecutors with a loathing and fear that grew ever more fervent and brutal across the following two centuries. Their population has been decimated. Recognition of their status as the primary pollinators and regenerators of native forests, an important keystone species, has been slow to filter into the consciousness of modern Australian. Prominent climate deniers and fossil fuel advocates such as former conservative radio broadcaster, Alan Jones, have been some of the loudest voices vilifying the species, persistently calling for culling, sometimes for their extermination (e.g. Jones, 2018). Yet flying foxes are crucial to the health of forests, a significant element in the effort to draw down CO2 from the atmosphere and to maintain biodiversity. As such their plight is emblematic of the short-sightedness of the war waged against nature by Western culture, the self-inflicted damage of its unintended consequences, and the mutually reinforcing impacts of extinction and a heating climate.

The third hypothesis is that contemplative personal documentary has a unique power to immerse audiences in the slow violence of loss and death that quietly erodes the quality of life and the future for young and future generations of humans and their

companion species. This is counterpointed and made all the more poignant by the leisurely and intimate engagement it allows; following the peaks and troughs of Imogen's development as musician and young adult in an atomised and highly pressured culture. Slow pacing allows viewers to be immersed in the complex, lively, often comic social world of the flying fox, providing insight into their sparky intelligence and impish charm as individuals, their ready capacity for trans-species bonding with human carers and their intense vulnerability to heatwaves and heavier and more prolonged rainfall. My hope is that the concern and sadness that the film arouses in its audiences will spur discussion and help to air the climate anxiety and grief that many people carry alone and in silence. As discussed earlier shared mourning can strengthen communities and help to develop a greater commitment to act despite the certainty of even greater losses to come.

Chapter Four examines climate documentaries preceding *The Weather Diaries*, highlighting the rarity of this form within the genre, and in the Australian documentary tradition in general. It explicates the power of three key films that inspired and supported my craft as writer / director / cinematographer and editor; the multispecies world and its collapse caused by human efforts to exploit and control nature as depicted in Hazao Miyazaki's *Princess Mononoke*; *The Gleaners and I*, Agnes Varda's free roaming, artfully chatty forage into the wastelands of global capitalism at the dawn of the 21st century; and the formal rigour, the stillness and long silences, the emotional heft of the unsaid in Chantal Akerman's domestic autoethnographies *La Bas* and *No Home Movie.* It concludes with the clarification of the contribution *The Weather Diaries* makes to climate documentary and documentary culture in Australia.

The final chapter of the exegesis surveys the reviews and personal messages the film has collected following its premiere in June 2020 at the Sydney Film Festival and considers them in relation to the question of climate hope. It seems that those who were already concerned and anxious about climate change and the rapid deterioration of the natural environment were very moved by the film and keen to discuss it at the screenings. Those who are hopeful that new technologies will quickly ameliorate the effects of pollution and environmental destruction, anticipating their lives will be

relatively unchanged by it, were more likely to interpret the film as one of resignation and despair.

2: EMOTION AND AFFECT

The Interface of Individual and Social Life During the Global Environmental Crisis

Fatal Passivity: Alienation, Fear and Denial

In 1989 Félix Guattari posited that we need to approach our understanding of ecology through three lenses; the biosphere, social relations and human subjectivity, an approach he called ecosophy. He saw that the erosion of individual and collective life was coincident with life threatening environmental degradation, all driven by the rapacious consumerism and competition of international world capitalism.

> The increasing deterioration of human relations with the socius, the psyche and nature is due not only to environmental and objective pollution, but is also the result of a certain incomprehension and fatalistic passivity towards these issues as a whole, among both individuals and governments. Catastrophic or not, negative developments are simply accepted without question (Guattari, 2000, p. 28).

In the development of a film looking at climate change from a local and personal perspective, I have been drawn to the psycho-social analysis of the emotions underlying climate action and climate denial. It is one of four main orientations in the research exploring more effective ways of communicating and mobilising individuals and communities into taking action on climate change. The second orientation is behavioural science which emphasises the power of behavioural economics in shifting behaviours with the use of incentives and penalties. The third focuses on framing and messaging; finding the right language, phrases and words that will resonate with the values of the specific communities, sectors and populations being targeted. And the fourth orientation is largely influenced by the design sciences sector, focusing on innovation, solutions and system level change (Lertzman, 2017).

The communication of climate science to the public has been long founded upon an information deficit model, which assumes that the complacency in the face of the warnings and recommendations from science is due to a lack of knowledge or understanding about climate change (see Bulkeley 2000; Doan, 2014; Morris et al., 2019, p. 154; Norgaard, 2011, p. 2). The assumption is that once this deficit in knowledge is corrected, people will respond rationally, embracing the mitigation and adaptation necessary to avert impending disaster. After more than thirty years of scientists issuing information and warnings with increasing frequency and urgency, and backed by exponentially increasing amounts of evidence and analysis carefully crafted into easily digested statements, public concern about climate change has waxed, then waned again, despite the repeated message that the window of opportunity for human intervention to avert runaway climate change is closing. It is a clear indication that reason is not the powerful driver of decision making in Western societies that we have long believed it to be, even, or perhaps especially, when our survival as a species is at stake.

To delve more deeply into the emotional terrain underlying denial, apathy and complacency towards climate change in Western countries, Kari Norgaard (Norgaard, 2011) conducted a detailed ethnographic study in a small Norwegian community dependent on ski tourism during a winter when the snow fell unseasonably late. She found that its people simultaneously know and not know that climate change is a looming threat. Norgaard rejects the information deficit model of denial, because it cannot account for the inaction based on the suppression of knowledge that she observes in this community. Some citizens admitted in private that they although they did fear the future consequences of a changing climate, the overwhelming nature of the problem made it easier to ignore to focus on everyday life instead.

Psychoanalyst Robert Lifton explored this kind of fear in relation to the nuclear threat triggered by the bombing of Hiroshima (Lifton & Mitchell, 1995). He found that the quality of people's lives in America has been diminished by the awareness that their society has manufactured a threat of extinction. People are forced to bury this knowledge to be able to go about their everyday lives, but it overshadows their daily

existence, creating a debilitating sense of futurelessness. As a coping mechanism, they develop a kind of psychic numbing, which negatively affects their thinking, feeling, identity, empowerment, political imagination and morality. “If at any moment nothing might matter, who is to say nothing matters now?” (quoted by Norgaard, 2011, p. 5). Climate change amplifies and poses an even more pervasive and amorphous threat than the nuclear threat, with rising GHG emissions deeply woven into the fabric of the everyday life of consumers living in globalised capitalist economies based on the principle of growth and powered by the burning of fossil fuels.

The calls for economic sacrifice, major changes to lifestyle, and reminders of the immorality of continuing with ‘business as usual’ in the face of ecological catastrophe are prime triggers for what social psychologist John Jost analyses as “system justification” (Feygina et al., 2009). This is an ideological belief system that justifies and rationalises the status quo. Both advantaged and disadvantaged groups are prone to system justification because it ameliorates guilt, anxieties and stresses associated with their circumstances, it enhances their perception of fairness in the system and their faith in the potential for an individual to exercise control over their circumstances, and it disguises systemic discrimination and preserves hope for a better future. System justification, in combination with the difficulty of imagining alternatives to the current social system, can account for the inertia that we see in the face of climate change, and Jost believes, underpins the partisan divide in climate change politics.

Emotion and ideology does not only undermine the reception of climate science and the commitment to take action to reduce emissions, it distorts the output of science itself. A study by Brysse et al investigates factors underlying the accumulating scientific evidence showing that when comparing earlier projections with actual trends or outcomes IPCC scientists persistently underestimate the rates and impacts of global warming. They find that the privileging of rationality, dispassion, and self-restraint in the scientific community leads scientists to minimise evidence and suppress analyses that are felt to be dramatic or likely to provoke emotional responses from the public. Scientists fear to be found to be 'crying wolf' more than they fear being found to be too conservative in their estimations. Ironically, this desire to be unemotional and objective

in the name of scientific accuracy is introducing persistent bias into the work of climate scientists, a bias which increases the risk to the public, leaving them underprepared and exposed in the face of dangerous and destructive climate change (Brysse et al., 2013). In particular, paleoclimatologists find their work, which reveals patterns of abrupt climate change occurring over a matter of decades, to be subtly suppressed by technocracies and bureaucracies who favour research that privileges models of gradual change, because they suggest greater opportunity for human intervention and management (Clark, 2010).

The rare examples of scientists airing their misgivings about the net-zero targets framed at the Paris talks provide stunning and shocking evidence supporting these analyses. Kevin Anderson, Deputy director of the Tyndall Centre for Climate Change Research, UK wrote,

> In true Orwellian style, the political and economic dogma that has come to pervade all facets of society must not be questioned. For many years, green-growth oratory has quashed any voice with the audacity to suggest that the carbon budgets associated with 2°C cannot be reconciled with the mantra of economic growth. I was in Paris, and there was a real sense of unease among many scientists present. The almost euphoric atmosphere that accompanied the circulation of the various drafts could not be squared with their content. Desperate to maintain order, a club of senior figures and influential handlers briefed against those who dared to say so… (Anderson, 2015).

And in their essay speaking out about the dangerous and destructive concept of net zero which has served only to increase the rate of global deforestation James Dyke and Robert Watson from the UK, with Wolfgang Knorr from Sweden write (Dyke, 2021).

> Instead of confronting our doubts, we scientists decided to construct ever more elaborate fantasy worlds in which we

> would be safe. The price to pay for our cowardice: having to keep our mouths shut about the ever-growing absurdity of the required planetary-scale carbon dioxide removal (Dyke, 2021) .

Their grief, fear and shame is stark. Robert Watson, Emeritus Professor in Environmental Sciences, from the University of East Anglia writes,

> The youth of today and future generations will look back in horror that our generation gambled with catastrophic changes in climate and biodiversity for the sake of cheap fossil fuel energy when cost effective and socially acceptable alternatives were available. We have the knowledge needed to act – the IPCC and IPBES[1] assessments, which I have co-chaired, demonstrate that these issues are interconnected and must be addressed together and now. The most recent assessments clearly show we are failing to meet any of the agreed targets for limiting climate change or loss of biodiversity. I'm ashamed of our repeated failures (Dyke, 2021).

The remarks of these scientists support Norgaard's theory of the social organisation of denial which she developed in her reflection on the dynamics within the community she studied. She develops it from Zerubavel's sociology of cognition, which examines social etiquette as a means of turning collective attention towards some things and away from others, considering it in relation to Gramsci's analysis of power, which shows how social control is enacted through the acceptance of ideas that prevent social change. It's manifested in the attitude that it's impolite for someone to discuss something as troubling as the escalating threat of climate catastrophe at social gatherings, despite their knowledge of the horrific impacts it will have on the lives and the places they care

[1] The Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services

about. This denial is underpinned by an emotional ambivalence. These people admit in private they are concerned and pessimistic about the future and feel helpless and powerless in the face of it. Yet they also understand they are amongst the most privileged populations globally who are disproportionately the biggest emitters of CO2, and that it is the people with the smallest carbon footprints who will suffer the worst effects of climate change; the poorest people in the most underdeveloped countries in the world, the young and the generations yet to be born. There are obvious economic benefits of denial for these people, who feel guilty in the security of their carbon-intensive lifestyles and cannot give them up.

Director of the Yale Program on Climate Change Communication, Anthony Leiserowitz has been extraordinarily influential in the field. In an echo of the reluctance of science to excite too much emotion, he advocates for climate communication to steer away from frightening the public with visions of environmental catastrophe, invoking instead the milder emotions of worry, hope, interest and negative holistic affect in order to garner more support for policies around mitigation and adaptation. The solution, he says, is to increase the sense of threat from climate change, whilst simultaneously increasing the sense that something can be done about it (Leiserowitz, 2013). The propensity for people to retreat into denial when confronted with overwhelming threats inducing fear and loss of agency to some degree validates this approach, but whether it constitutes a realistic and effective response to the crisis we're facing is another matter. I think this approach has led to an enormous body of climate communication that errs too much on the side of hopefulness (see Hornsey & Fielding, 2016). It dangerously misleads its audiences about the enormity of the irreversible damage that past and continuing emissions have already locked in, the limited capacity of vulnerable communities to mitigate and adapt to the impacts of extreme weather and a changing climate, and the cultural economic and environmental losses they will sustain in the near future. As public intellectual Clive Hamilton points out, the scientific facts about climate change are so distressing that, in the face of them, we cannot help but all become climate change deniers (Hamilton, 2010b, p. 4).

The Transformative Potential of Loss and Grief

Suppressing the representation of abrupt or catastrophic climate change to avoid frightening the public neglects its dramatic power to function as a cautionary tale, or as a cultural meditation on the risk that accumulates when we continue with the increasing emissions associated with the 'business as usual' pathway (Yusoff & Gabrys, 2011) . Hamilton goes so far as to argue that we must abandon hope to enable us to confront the reality that we have already forced our climate system into a much less hospitable state for human habitation (Hamilton, 2010a). The shock, anger and grief of this recognition can ultimately inspire the respect and caution necessary to cease the extraction and burning of fossil fuels, and to protect and restore natural carbon sinks in order to slow the geological clock. The Anthropocentric dream of manipulating and controlling nature to our own ends must be relinquished to maximise the chances of the survival of humanity and culture, and the diversity of life that embraces and sustains it.

Hamilton and psychologist Tim Kasser outline three psychological strategies that people are likely to adopt when confronted with an accurate account of the likely effects of global heating in excess of 4° (Hamilton & Kasser, 2009). They are denial, then maladaptive strategies like blame-shifting, diversion-seeking, unrealistic optimism, minimising or distancing the threat, apathy, indifference or resignation, and finally, adaptive coping strategies. The early stages of adaptive coping are similar to early grief responses, swinging between denial and maladaptive coping when overwhelmed by anger, fear and loneliness in the face of loss and future losses. The later stages are marked by anger, depression and despair, a healthy response in the context of climate change. Hamilton and Kasser argue that expressing these emotions and moderating their impact by means of practices like mindfulness, is constructive. But eventually engaging and acting on the basis of these emotions will create the path to manage and transcend them. One does this by finding out more about climate change, then planning more effectively for a different future. The consequent thoughts about vulnerability, mortality, the loss of the conception of the future as progress, are more likely to engender a less materialistic way of life with a smaller environmental footprint. However, at a time when the majority of Western society is caught in denial or maladaptive coping, this can be a lonely and difficult path.

Ashlee Cunsolo Willox (Cunsolo, 2012) notes that the dialogue about climate heating has been strangely silent about the many people around the world who are already experiencing grief and mourning responses to rapid changes unfolding in their environment, and the related deaths of non-human entities. Drawing from Judith Butler's discussion of mourning as both individualising and unifying, connecting the mourner with all of those who are grief stricken, or have experienced loss (Butler, 2004), she argues that recognition of the mournability of other species is an ethical act in the context of climate change. The experience of shared mourning builds communities and can galvanise and mobilise them to action through their shared suffering. It inspires recognition of human and non human others as fellow vulnerable beings for whom we have a shared responsibility. Accepting loss and rebuilding one's life in the shadow of loss is a transformative experience calling the mourner to the responsibility of engaging with that which has been lost. The awareness of loss brings of the finitude of life can inspire the discovery of meaning and freedom.

Defences against shame, guilt and mourning lead to an emotional emptiness which fosters psychological and political immobility. This repression can generate or maintain conditions which allow the repetition of the events which brought about the traumatic loss, and can even drive the compulsion to repeat them (Jones et al., 2020). Witnessing and extolling the emotions of grief and loss surrounding climate change will counter the violence of its derealisation, helping to build psychological resilience to the social and environmental changes it brings, and providing a healthier foundation for political action than those based on the emotions of rage and hate (Cunsolo, 2012).

The conceptualisation of the Anthropocene and climate change as human-centred is inadequate in describing “the multi-species flourishing and destruction within climate change”, and is not properly representing “the biophysical world as an already full space of that which is not exclusively ours to make” (Yusoff, 2010, p. 77). Yusoff argues that when we consign the violence of climate change to the archive, keeping our records of species that are disappearing, we are perpetuating the fantasy of our separation from and control of nature, which underlies and causes the destruction of those species. The

tacit acceptance, the commitment to global warming and extinction is a commitment to violence. The aversion to 'doom-laden' narratives about bio-diversity loss, turning quickly to more positive messaging stressing conservation and careful ecology over destruction, is to turn away from this undirected violence, and to perpetuate it. "Climate change must force new images full of loss and rage that scream through our aesthetic orders to break with the stockpiling of nature in neat categories for extinction" (Yusoff, 2012, p. 94). This was one of the primary challenges I embraced as I devised the film I was intending to make.

Home and Habitat in a Shifting Climate

Sociologist Sheila Jasanoff points out that the science of climate change projects a totalising image of the world, detaching global fact from local value (Jasanoff, 2010). It arises from impersonal observation, whereas meaning emerges from embedded experience. Tensions arise when the universal imaginary of scientific climate change comes into conflict with the situated imaginations of human actors engaging with nature in their everyday lives: "Living creatively with climate change will require re-linking larger scales of scientific representation with smaller scales of social meaning. How at the levels of community, polity, space and time, will scientists' impersonal knowledge of the climate be synchronised with the mundane rhythms of lived lives and the specificities of human experience?" (Jasanoff, 2010, p. 238). Adaptation is an outcome of people acting at a local, rather than a global level. The solutions for mitigating and coping with climate change vary with local geology, geography and climate related risks in combination with the resources, skills and needs of its human and non human populations. As Rosi Braidotti puts it, "Local and perspectival solutions to universal crises, developed contextually through human ingenuity in pragmatic relation to specific materialities, can be mobilised in innovative ways towards the development of practical measures with an emergent effect, potentially bringing general benefit" (Braidotti, 2018).

After centuries of indifference and contempt, there is a growing awareness amongst settler Australians that there is much to be learned from ancient Aboriginal practices to sustain life and manage the highly combustible landscape in a changing climate. The

knowledge and experience of the First Nations peoples extends back to the Pleistocene, preceding the relatively stable climate of the Holocene by tens of thousands of years. In recent years the increasing threat of bushfires in the Australian landscape has led to a resurgence of interest in Aboriginal people's management of fire, with indigenous people conducting workshops to teach their practice to the Rural Fire Service. Bruce Pascoe's book *Dark Emu* (Pascoe, 2018) has led to an explosion of interest in the potential for the application of the regenerative practices of Aboriginal culture to produce food whilst simultaneously enhancing biodiversity and enriching soils and water systems, even in country so dry it's regarded as marginal and unproductive within the frame of European agriculture.

The catastrophic loss of cultures and biodiversity are entwined with the acceleration of global warming, which in turn is amplified by the soaring growth in world population immersed in global consumer culture. When I was born in 1960, the world population was about 3 billion and humanity's consumption as a fraction of Earth's regenerative capacity was 73%. As I was filming *The Weather Diaries* in 2016 the population was 7.7 billion, with consumption, predominantly in the Global North, exploding to 170% of the Earth's regenerative capacity. This has been enabled by the increasing use of fossil fuels, particularly for commercial production, fibres and food production, which allowed this decoupling of human demand from biological regeneration. Since the rise of agriculture 11,000 years ago terrestrial vegetation has been halved with a corresponding loss of 20% of biodiversity in that period. Oceans, rivers and wetlands and the life they support have been equally devastated. This immense loss of life in its myriad forms contributes to rising greenhouse gas emissions and reduces Earth's capacity to sequester them (Bradshaw et al., 2021).

The brutality of Australia's history since colonisation is a microcosm of this trajectory condensed into a two centuries, held in the collective memory of its First Nation peoples and documented in its archives. As Deborah Bird Rose says "Settler societies are built on a dual war: a war against Nature and a war against the natives. Each has been devastating" (Quoted by Birch, 2016, p. 1). It's a war seeded by the emergence of agriculture in the benign climatic conditions of the Holocene, enshrined in monotheistic

religion and the doctrine of the separation of Man from Nature, a war which exploded in extent, momentum and power with the emergence of modern industrial economies, colonisation and global world capitalism. The dangerous hubris and bankruptcy of this orientation towards Nature, with the coincident violence of its othering of women, races, and sexualities becomes increasingly evident in the harsh dawn of this new geological age. It brings the growing comprehension that humans are enmeshed in a complex web of becoming in a multi-species life world, the health of which feeds back in mutual and reciprocal processes which are continually reshaping the geography, the geology, the atmosphere, the climate, even shifting the poles and changing the axis of the Earth (Deng et al., 2021). Traditional disciplinary specialisations and insularities in the academy impede the development of knowledge and understanding of complex adaptive systems, creating a blindness to emerging problems and their potential solutions.

It is evident that global warming is changing, and will change the character of places everywhere, culturally as well as biologically. Although it is all part of the same planetary phenomenon, the rate and scale of extreme weather events, rising temperatures, rising sea levels, and changing rainfall patterns varies between one place and another. But as Clive Hamilton warns,

> Local worlds still matter, of course; but Earth System science tells us that we live on the Earth, which is not merely a collection of many local worlds but a dynamic, evolving total entity above and beyond the local, and increasingly deciding the fate of all locals (Hamilton, 2017, p. 76).

Across Australia managers of National Parks are shifting from conceiving of their responsibility as the maintenance of an ecosystem as it was at an idealised moment in the past, to supporting it as part of a series of transforming corridors that will enable species to move poleward, or to higher altitudes, in their bid to survive climate change. Always fundamentally untenable, the delineation between wild, urban and agricultural spaces is collapsing under the environmental pressures of our times. Human

communities and their infrastructure encroach ever further into forested and other formerly uninhabited landscapes, and exotic and native animals are migrating into populated and urban areas. In order to sustain and protect biodiversity in the 21st century managers and communities need to envisage and enable ecosystems as places and complexes of interspecies relationships that are changing and evolving more and more rapidly. The challenge lies in distinguishing between this and the disruptive changes that might lead to ecosystem collapse and failure. Philosopher Olga Cielemęcka stresses the need for an adaptable interdisciplinary multicultural care-focused approach to the decisions and actions taken to support life in all of its forms as local populations respond to the global phenomenon of climate heating.

> As more and more human and nonhuman populations flee their homes due to climate change, we need to reorganize our concepts, theories and policies to be able to host them. We envision practicing posthumanist sustainability as an intergenerational, interdisciplinary work of care. Care, as Puig de la Bellacasa teaches us, is 'a manifold of doings needed to create, hold together, and sustain life and continue its diverseness'. For this we need all hands on deck: the complexity of Anthropocentric phenomena in their ecological, political, economic and affective dimensions requires ecologists and scientists, social scientists and humanities researchers, activists and communities to work together (Cielemęcka & Daigle, 2019, p. 16).

Having established the complexities and tensions between the impact of global heating as experienced and responded to in a place that is rapidly changing, I will now turn to my own family history to within this larger human story to shed light on the personal and global narratives interwoven in my film.

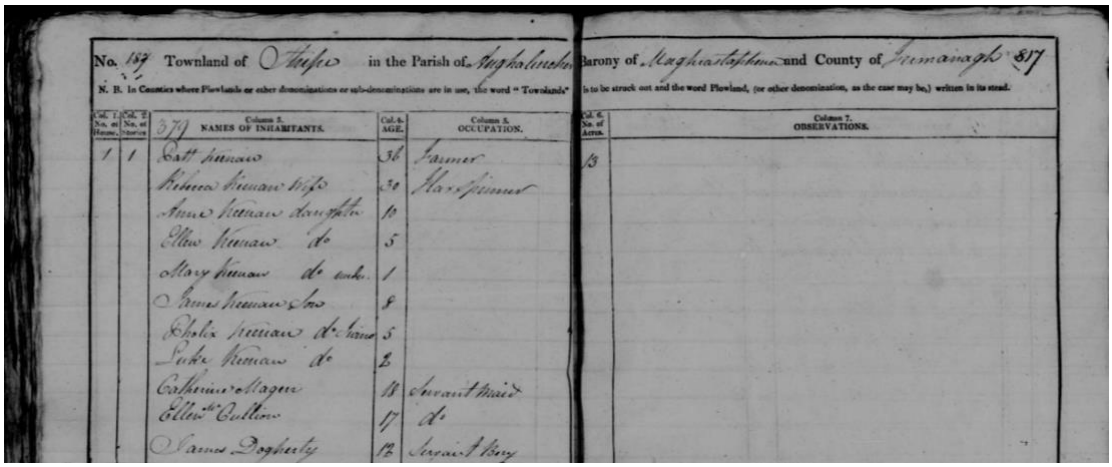
Colonisation: A Family History

I was born in 1960 in the mining town of Broken Hill, into a family whose alienation and economic survival has been intimately bound with the extractive economy at the heart of industrial capitalism and colonialism. I arrived six months after my parents were married, just before their twenty-first birthdays. My conception ended my mother's nascent nursing career. The Barrier Industrial Council systematically excluded married women from the workforce, disempowering them and inflaming existing gender inequalities (see Ellem & Shields, 2000, p. 132). Single mothers like my paternal grandmother and my maternal great grandmother were subjected to the monthly humiliation of obtaining a temporary work permit from the union office with a signed statement attesting their status.

The tedium of his work as a fitter and turner for the Zinc Corporation mine drove my father to sign up for night school to qualify for entry into an engineering degree. Two years later he was accepted, and we left for Sydney with my newborn brother. My parents worked hard to save money, repeatedly sacrificing the comfort and security of a network of family and friends to move to new towns with better paying jobs for my father. My schooling spanned three primary schools and three high schools in Wollongong, Broken Hill, Narrabri and Wagga Wagga. Compounding the stress and sadness of recurring dislocation for my brothers and I was the tension and anger that surged through our home. As the oldest child and the only girl I became the focus for it. The extent and frequency of the violence inflicted on me intensified and grew more out of control as I got older and more rebellious. The longing to find somewhere safe, a place I could stay, became consuming. I ran away when I was sixteen.

As an adult I was overwhelmed with the need to understand what had caused my parents to treat me this way. It was shocking for me when both parents denied, and continued to deny, all of the events that are burned into my memory. A long-held suspicion that intergenerational trauma was a contributing factor led me to research our family history. I discovered the origins of my mother's family, the Keenans, in the province of County Fermanagh in Northern Ireland where they had lived for centuries (Muraíle, 2005). Its mountains, lake systems and rivers made Fermanagh difficult to

traverse so despite centuries of British rule it remained a stronghold of Gaelic Ireland. In 1609 Fermanagh was selected for inclusion in The Plantation of Ulster, an early laboratory for British imperialism. The land was confiscated and redistributed to English Protestant settlers with less than a quarter of it allocated to native Irish people. Government and other institutional powers were held only by members of the Protestant class. Census data and land records (Griffith, 1847) show the patrilineal line tracing back to Patt Keenan and his family who were farming thirteen acres of land near Lisnaskea in Fermanagh at the time of the 1821 census in Ireland.



No. 187 Townland of Stripe in the Parish of Aghalurcher Barony of Magherastephana and County of Fermanagh 817

N. B. In Counties where Plowlands or other denominations or sub-denominations are in use, the word "Townlands" is to be struck out and the word Plowland, (or other denomination, as the case may be,) written in its stead.

Col. 1. No. of House.	Col. 2. No. of Stories	379 Column 3. NAMES OF INHABITANTS.	Col. 4. AGE.	Column 5. OCCUPATION.	Col. 6. No. of Acres.	Column 7. OBSERVATIONS.
1	1	Patt Keenan	36	Farmer	13	
		Rebecca Keenan Wife	30	Housekeeper		
		Anne Keenan Daughter	10			
		Ellen Keenan do	5			
		Mary Keenan do under	1			
		James Keenan Son	8			
		Phebe Keenan do Scholar	5			
		Luke Keenan do	2			
		Catherine Maguire	18	Servant Maid		
		Ellen Mc Cullen	17	do		
		James Dogherty	12	Servant Boy		

Fig 2.1 Ireland Census 1821 documenting the Keenan Family
Townland of Stripe in the Parish of Aghalurcher, Barony of Magherastephana, County Fermanagh

The next generation of Keenans lost everything in the course of the Great Famine which began in 1845. It's often attributed to the emergence of potato blight, but it only became a catastrophe in the context of the preceding British colonial policies which had progressively uprooted and impoverished the Irish population, bringing them closer to a point of collapse (Nally, 2008). The British continued to export Irish grain and beef as the Great Hunger deepened, doing purposely little to intervene as one million Irish perished. Instead they exploited it to dislodge the hostile and largely agrarian workforce for use as a mobile labour pool desperately needed for the acceleration of their industrial revolution, and to consolidate British control in Ireland through the establishment of a punitive welfare state (see Walker, 2020, p. 106). The Keenans joined the exodus of two million Irish and migrated to Workington in Cumbria in the late 1840's where for two generations they laboured in the coal and iron ore mines and the

steel mills. The work was dirty, dangerous and hard, but well paid in comparison to agricultural labour mostly occupied by the English working poor.

Of all the different nationalities settling in Britain at the time, the Irish Catholics were subjected to the most intense and violent racism. In 1846 an editorial in Cumbria's Whitehaven Herald declared "The Irish are by nature and habit, dirty, proud, lazy beggars, and so they will remain until this country sees the expediency of making them shift for themselves…" (MacRaild, 1998, p. 33). They were regularly attacked by mobs of Englishmen who falsely claimed the immigrants were undercutting their wages. Protestant preachers toured Cumbria, railing against them as heathens and terrorists, inciting hatred and contempt for their religion. They were driven out of towns by mobs, their houses burned behind them. Between 1864 and 1903 there were four extended outbreaks of anti-Irish Catholic rioting in Cumbria in which people on both sides of the conflict were killed (MacRaild, 1998, pp. 171-203). In 1924 the Keenans migrated again, this time to work in the mines of Broken Hill. Under the auspices of The White Australia policy, they became 'white' (Hall, 2014), escaping the virulence of the racism they had endured, and looking for better economic opportunities in Australia. But this opportunity came with their unconscious participation in the same violent dispossession, dehumanisation and destruction of Aboriginal people and culture as their own people had suffered through the colonisation of Ireland.

My grandfather, Jim, was an eleven-year-old boy when they arrived. When he grew up he joined the labour force in the mines. He married Jean Murphy, my grandmother, when she was seventeen, and, it is whispered, pregnant. Her father Richard, another Irishman whose family had been uprooted during the famine, had migrated in 1906 from Scotland to outback Western Australia where he joined the goldrush in Coolgardie, and then Wiluna. It's there he met Jean's mother Margaret, the daughter of Scottish immigrants. She'd fled an unhappy marriage, but never formally divorced. Richard and Margaret had three children and led everyone to assume they were married. In 1916 they moved to Broken Hill where Richard worked for BHP as an engine driver. He died at the age of thirty-six from lead poisoning, most likely from exposure in the mine. Jean was a toddler at the time. Her mother supported them through long days of drudgery

in the steaming heat of the hospital laundry. She was a tall, wiry and formidable woman, living with the secret fear that her children would be discovered as illegitimate and seized as wards of the state.

My father, Ted, comes from a family with its roots in the agrarian and urban underclasses of Protestant England. His paternal great grandfather, Henry Drayton, came from a family listed as paupers in the 1851 UK census. Henry migrated with his young family to work as a labourer in Richmond in 1857. Ted's mother Babs came from working class London where her father, Frank, worked as a gas fitter. They migrated to Australia in 1911 where they lived in Balmain. With the outbreak of World War 1 Frank joined the army and fought on the Western Front from 1916 - 1918. He came back a shattered man, consuming large quantities of alcohol or cough medicine to get through each day. It was a miserable life for Babs who was dependent on the care of a cold and resentful stepmother. Her decision to marry Edward Drayton was a bad one. He worked away from home a lot, and ultimately, when Ted was a ten-year-old boy, abandoned her in Richmond with their five young children. Babs raised them on her meagre income, often leaning on Ted to fill the man's role in the home. He moved to Broken Hill to take up an apprenticeship in the mines when he was fifteen, with the rest of his family joining him the following year.

The uprootedness, trauma and deprivation that drove both sides of my family to settle in Broken Hill is stark. Working in mining in the semi-arid landscape of this remote dusty town offered their best chance of rising beyond their beleaguered circumstances, just as it had for the two earlier generations of Keenans in Cumbria. The sense that people's existence in Broken Hill was tenuous and temporary, reliant on the exigencies and vagaries of market capitalism was tangible. It was a place people worked, rather than lived. Everyone in my extended family left when they retired. Broken Hill culture was famously hard drinking, hyper-masculine and industrial. Violence was common and union politics ran hot. There was a long-running tradition of threatening scabs, or strike-breakers, with death. People on the wrong side of the unions were run out of town; shopkeepers would refuse to serve them. Every road sign around Broken Hill was riddled with bullet holes. Spotlighting, paddock bashing in a car at night shooting

kangaroos, rabbits and foxes, was a popular recreational activity. As a ten-year-old animal lover I made the unforgettable mistake of accepting an invitation to go spotlighting with my father, uncle and brother, assuming that it would be an exciting and fun-filled night.

Professor Michael O'Loughlin has written extensively on the intergenerational trauma of the Irish, both at home and in the diaspora. At the time of the Famine they were predominantly an Irish speaking oral culture, and 90% of its victims were Irish-speakers only. He argues, "With the rapid collapse of *Gaeilge,* Ireland has had to confront something akin to the *lorelessness* that Atkinson (2002) describes as the tragic outcome of cultural annihilation in Australian Aboriginal communities" (O'Loughlin, 2021, p. 8). The unspeakable horror and suffering of the Famine was amplified by the accelerated loss of their oral tradition and their geographic dislocation. It created a cultural amnesia which has served to perpetuate the long silence about the Famine in both Britain and Ireland. Critical scholarship and official commemoration of this catastrophic event, which many now argue was genocide, only began to emerge in Ireland in the 1990's. Nuala ni Dhnhnaill, a poet who writes exclusively in Irish says

> Famine and the trauma of colonisations is something that we are finally coming to terms with. It is as if we are waking up from a state of zombification, of a waking death where we had no emotional memory of who it was that we were or what it was that happened to us (quoted in O'Loughlin, 2021, p. 10).

The trauma, amnesia and silence has had severe ongoing repercussions on the lives of Irish descendants. Their rates of severe psychological disorders, such as mania and psychosis, are extraordinarily high all over the world. In Australia too they've long been disproportionately represented in admissions to psychiatric facilities (Malcolm & Hall, 2019). O'Loughlin describes Irish existence in the wake of the famine as characterised by a sense of clinging to bare life, stripped of interiority and emotion. The description of the austerity of Irish family life in the 1950's and 60's by leading Irish psychiatrist Anthony Clare uncannily resembles the one I knew.

> The family home in Ireland is a novitiate for violence. Even from the cradle the child is made to feel rejection, hostility, and open physical pain. The infant is left to cry in his cot because his mother does not want to 'give in to him.' Later he is smacked with the hand or a stick…. and in order to invite this morale breaking treatment from his parents, all the Irish child has to do is to be *normal.* It is the normality of childhood that sets parents' teeth on edge. They take no joy in childishness (quoted in O'Loughlin, 2021, p. 12).

My parents moved to Singleton when my father set up a business serving the rapid expansion of the coal industry in the Hunter Valley. He'd seized the opportunity in the early eighties when transnational mining corporations, began to export Australian coal into the Asian economies. Their business grew as the open cut mines exploded a swathe through the valley, consuming and polluting the rich agricultural and forested land in the region, and engulfing entire villages. The gargantuan scale of the growing voids left in their wake was stunning, even for him. But any hesitations he had were subsumed by the culture of the extractive industry he worked in. Melina Ey argues it is pervaded with a particular form of hegemonic masculinity "'which privileges 'emotional restraint', 'hardiness' and often a complete 'lack of emotionality' altogether" (Ey, 2018, p. 2). Emotions are associated with femininity, which in this culture is controlled, marginalised and rejected. The landscape is seen simply as a resource to reproduce society in neo-liberal terms. The attachment of others to its particular places and the social and ecological values they represent, their trauma and distress when these places are damaged or destroyed, are dismissed and marginalised as irrational - rationalising destructiveness as a way of life.

My father worked between sixty and eighty hours a week, sometimes away from home, so my mother's life continued to be characterised by a prevailing sense of isolation and loneliness, as she waited endlessly for him to return. Her role dictated that her frustration, resentment and sadness needed to be contained and managed to provide

him with the relaxing and nourishing environment he needed when he arrived home. His success, and the support she has provided to enable it, have been her primary fulfillment. For most of her life her needs and aspirations have been constrained and shaped by the gendered requirements of extractive capitalism and its work practices and values. Emotions are suppressed and subordinated in order to privilege the workplace over "the emotional requirements of the domestic space and the children and women who are, and continue to be, primarily located in this space" (Pini & Mayes, 2012, p. 83).

My father's ambition and work ethic enabled our family to transcend the impoverished working-class background we came from. His identity and self-worth is wholly invested in the success of his working life and the immediate practical and social benefits he can see that it generates for others. Civil engineering is a profession in which he takes great pride. He has often said that it is the perfect alchemy of maths, science, and practicality. For him the functional beauty of a bridge or a tower surpasses all else. He scoffs at the humanities because there is no single correct answer to be found for its questions. Truth, he says, can only be proven by equations. But his faith in equations has never extended to those of climate science. It irritated him when I began to dwell on the climate crisis and tried to get him to consider them. Over time, as my anxiety rose, our conversations about it became more heated and polarised.

My parents' culture and ethos dictate that one 'focuses on the positives', 'keep moving forward', and refrain from 'dwelling on the past'. In early adulthood I tried to live by those values. But try as I did to forget them, the painful memories of my childhood continued to haunt me, and I struggled to cope with many aspects of day-to-day life. Eventually I found the opposite to be true. Critical reflection on past and present difficulties, allowing the emotions they are infused with to surface and to be expressed in storytelling, and drawn on in my creative life, has been healing. It's a process that has gradually released me from the repetition of the destructive dynamics of those formative family relationships, enabling me to understand and construct better ways of relating to others. My parents' enduring denial of the realities of our past has made our relationship difficult to sustain, and there have been several long periods of

estrangement between us. Guattari's thesis that the health of the biosphere, the social world and the psyche are inseparably entwined is very specifically and concretely played out in my own family and its history.

Raising a Child in the Hothouse of Late Capitalism

When Imogen was born, the desire to protect her, to provide her with the love, stability and security I'd so longed for myself was overwhelming. Supporting her thriving was a far greater priority for me than advancing my career or more material aspirations, and I reduced my work to a part-time basis. The deterioration of the environment accelerated by climate change, and the increasing precarity of housing and income, both symptoms of neoliberalism, quickly became very real and distressing threats for me as a mother.

The rents had been affordable when I'd first arrived in Sydney in the early 1980's, consuming only a quarter of my student income. I found my place amongst a milieu of artists, filmmakers and musicians, and our lives were relatively carefree and culturally rich. There were a lot of vacant houses and warehouses in the inner city, and by the mid-eighties many of us were living rent free in squats. The property boom of the late eighties brought this retrospectively idyllic period to a crashing end. Since then, the trajectory of housing costs in Sydney have risen exponentially faster than wages. In 2000, just after Imogen was born, house prices were more than six times higher than the average annual wage, and by 2010, the average house price was ten times higher than wages (Worthington, 2012). We were continually evicted so landlords could perfunctorily renovate the premises and dramatically hike up the rent. Once again, I was moving home on average every two years, this time with responsibility for a child. We managed to cling to the area amongst our community we'd lived in for decades and avoided shifting Imogen between schools as I had been. However, the quality of our housing was in a steep decline, and the rents were progressively eating up more of our income. We were pushed closer to the poverty line with every move, and the possibility of buying a house slipped well out of our reach.

In 2011, the year Imogen began at the Conservatorium High School, we were evicted again. This time the rents in the inner-city suburb where my partner and I had lived for two decades had risen beyond our means, and we were forced to move far beyond our community. My parents had recently sold their business in the Hunter Valley and offered to invest in a house for us to live in. We found one in Asquith, in a forested area on the boundary of the Ku-rin-gai Chase National Park at the northern perimeter of the city. It finally granted me the stability I'd yearned for all of my life. But the terrible irony that this stability had been granted to us through the profits of the coal industry, which is eroding the quality of Imogen's life is never far from my mind.

The new headmaster at Imogen's school had been hired to raise its HSC ranking, both academically and musically. He often reminded the community that as the best funded public school in the state, they were expected to rank in the top 10 in all subjects. If not, their funding allocation would likely be reduced. The pressure on teachers and students alike to produce these outcomes was unrelenting. No concessions were made for the high proportion of students who spoke English as a second language, which in Imogen's year group was almost half of them. Chronically underperforming students were expelled or pushed out of the school, regardless of their circumstances. Every term was structured around exams, auditions and performances, with student ranking kept under the spotlight. Under the pressure of the huge workload and the demanding expectations at the Conservatorium High School, Imogen's focus on animal and environmental issues began to wane.

Youth sociologist Steven Threadgold found this is to be a common phenomenon in his study looking at student attitudes to their future in relation to their perceptions of environmental stresses (Threadgold, 2012). The students came from three secondary schools in Newcastle representing a diversity of socio-economic backgrounds: an elite private school, a selective school, and a public school in a low-income suburb. Threadgold found that across the board the students were well informed about environmental issues but felt powerless in the face of the large-scale social and environmental catastrophes they anticipated in the near future. Despite this bleak outlook, the students all expressed optimism about their personal chance of realising

their life ambitions. Threadgold attributed this disjunction to the intense pressure they all experienced as they progressed towards their final school exams. The demand for self-discipline to achieve top performances was exerted on them by both parents and teachers, who saw it as their best means to ensure personal security in an uncertain future. The competitive individualism of neoliberal school culture has translated survival and thriving into a personal responsibility. The effort to succeed in this high stakes game left these young people little time or energy to think about the social change that could bring better environmental outcomes for their collective future. At most they were committed to voting green and changing personal consumption. Threadgold argues that this kind of passivity is fostered in a social and political climate where the voices and concerns of the young are marginalised in media and politics.

Fig 2.2: Screenshot of a Facebook post from Imogen in 2014, when she was 16.

Imogen loved playing the violin in ensembles and orchestras but developed a growing and deep aversion to being forced to play as a soloist. She described it as being less about the music and more about the display of technical virtuosity, a violin Olympics. At fifteen, she refused to do it anymore. The combined stresses of school and negotiating early adolescence as a young woman had triggered a personal crisis for Imogen. She found nourishment and relief in the creative pleasures of writing and recording her own songs which captured the experiences of herself and her friends in

light of her awakening feminist consciousness. In a homage to Princess Mononoke, she posted three of them online under the moniker of Lupa. When asked in a Q&A about the significance of her artist name Imogen explained:

> When I was 15 and creating the project, I'd come out of a period of trying really hard to be feminine, and to be heteronormative as well which I've now realised was part of it. When I was first writing songs, I felt like I was reconnecting with myself again, and trying to figure out who I was rather than trying to be what I thought everyone wanted me to be. ... In the few years before making the project I'd lost touch with my passions about anything, especially about with the environment. I was trying to fit in at school and I'd lost touch with what I really loved. So it made sense for me to make the project an ode to my love for that character, reconnecting with that fierceness and with myself. (Jones & Drayton, 2021)

Within a week of the songs going online, a series of influential music websites from around the world shared them with reviews suggesting Lupa might be the new Lorde, and a succession of record labels emailed expressions of interest. At fifteen Imogen had been flung into the rapidly shifting digital marketplace of the music industry. Her decision to enter Triple J's Unearthed High in 2014 further extended the field of competition upon which her life was being played. She had a newfound strength and conviction but was working even harder; managing school, releasing new songs and making music videos, shooting press photos and writing releases, constantly updating her artist social media accounts. In the algorithm and numbers driven music market of the 21st century, it was necessary to keep building attention and support to provide the basis for the career she now aspired to as an indie electronic artist.

I watched Imogen as she worked in her wolf patterned dress, oblivious to the smoke from the burning forests hanging thick in the air outside. Wolves, forests, bats. All I could think about was the signs of accelerating extinction, and the likelihood that one

day the fires would roar into the forest behind our house, annihilating the birds, wallabies, possums, the otherworldly insect life that so bemused us, and leaving us homeless once more. Like the flying fox colonies since colonisation, my life had been characterised by being forced from one home to the next. My family's possibility for thriving had a long history of being eroded by the relentless competition to stay afloat in the surge of economic growth, maintained at the expense of life itself.

3: THE WAR AGAINST THE FLYING FOX

Fig 3.1. *The Flying Fox (Pteropus Poliocephalus)* - Helena Forde (Forde, 1869). The building in the background is now The Conservatorium, locating these animals in Sydney's Royal Botanic Gardens.

The grey headed flying fox is the subject of one of the three major threads of my film. In this chapter I discuss what I have learned about them in the course of making *The Weather Diaries*. They are emblematic of wider themes in the film: cultural indifference to our role in accelerating extinctions of other species and perhaps ultimately our own, the common vulnerability of all living creatures to runaway global heating, and a plea for interspecies love and kinship. I stand with Deborah Bird Rose when she writes, "Here at the edge of extinction, is the place to begin, when the worlds that one loves – including angiosperms and flying foxes – are being trashed" (Rose, 2017, p. 52).

Fig 3.2 Royal Botanic Gardens Flyout 2011 - Still from *The Weather Diaries*

The Conservatorium High School is set on the edge of the Royal Botanic Garden, Sydney. It's a heavily loaded setting, culturally, historically, and for me personally. Close behind the school, in the oldest part of the gardens, was the roost for what had become one of Sydney's largest colonies of flying foxes. When news of Imogen's selection into the school arrived, my excitement had been heightened because of the opportunities it would present to spend more time around these amazing animals who'd brought me so much pleasure since they'd settled there over two decades ago. In the time I'd been living in Sydney they'd become a kind of a spirit animal for me, and it made Imogen's selection into this school at the heart of their realm feel somehow auspicious.

Fig 3.3 *First Interview with the Native Women at Port Jackson in NSW c 1788*, by William Bradley
This painting provides an early impression of the forested pre-colonial landscape on the shores of Sydney Harbour.

Sydney's Royal Botanic Gardens and the War Against Nature

The Botanic Gardens are set upon land that was once a special hunting and ceremonial place for the Cadigal people, known to them as Woccanmagully. Unbeknownst to the colonisers, it offered an abundance of Aboriginal bush foods for the people who had been living here for at least 36,000 years (Williams et al., 2014). Misapprehending the lush bushland setting as a good indicator of rich agricultural soils for European crops, under Governor Phillip's orders it was renamed Farm Cove, and became the first land in Australia to be cleared to make way for his residence and the establishment of a vegetable garden and nine acres of wheat, barley and corn to feed the newly arrived colony. The area around government house and its gardens was fenced to ward off the alien wilderness, later to be expanded and designated as the governor's Domain. The crops failed miserably in the alien soil, and farming for the colony was eventually moved to Parramatta. In 1789 around half of the Cadigal people died during the smallpox epidemic, and by 1791, with the dispossession of and destruction of their country, only three Cadigal people were recorded as still living in the area.

Fig 3.4 *Sydney Cove Port Jackson 1788* by William Bradley

The foundations of the first Government House to be built by Governor Phillip can be seen on the mid left-hand edge of this painting. It is now the site of Governor Phillip tower with the stables, now housing the Conservatorium, situated 300 metres to the east, just beyond this painting's frame.

Fig 3.5 *A View of Sydney Cove - Port Jackson March 7th, 1792* - Artist Unknown

It's astounding to see the extent of the clearing and domestication of the landscape that occurred within only four years of European settlement. Government House is the building in the fenced area on the left side of the painting. The site on which the Stables / Conservatorium would be built would likely be near the top left corner of the enclosed paddock.

Fig 3.6 *Sydney from the North Shore 1827* - Joseph Lycett

This painting is an elaboration of an earlier identical landscape painted in 1822 by Lycett. The Stables/Conservatorium building is in the centre left of frame and the fenced section beside it is The Domain as reconstructed by Bligh and demarcated by Macquarie. Again, the extent of the land clearing in the three decades between this and the previous image is astounding. It's interesting that the edge of the North Shore in the foreground looks so Edenic, with the naked Aboriginal family peaceably going about their day surrounded by lush greens, the softness and grace of the vegetation around them contrasting vividly with the arid denuded landscape on the opposite side of the harbour, dominated by the blockish constructions of state and industry, the windmills and the spire of the colony.

With the intention of recreating the aura of the house with curated parklands that symbolised the power and authority of significant individuals over the land in early nineteenth century England, William Bligh brutally remade the landscape of the Domain during his governorship (1806 – 1808). He blasted away rock, removed early European tombs, erased the culturally significant site of an important Aboriginal initiation ceremony, and cleared all but a few clumps of trees. He rescinded land leases and reinforced the fenced boundary so that it represented the only land in the colony where there was order or control. The surrounding wilderness was a 'no-man's land' where all manner of illegal activities and 'unnatural acts' by lawless members of the colony were concealed (Casey, 2006).

In 1810 Governor Macquarie began work to re-establish the Domain as the Governor's private parkland. By July 1812 he had enclosed it with high stone walls and paling fences to provide 'seclusion from the public gaze' and to prevent the colony from using the land illegally for grazing, or for harvesting stone or wood from the area. It helped to consolidate and reinforce social hierarchies, keeping out 'the Other'; the lower classes and the alien wilderness. Macquarie reserved part of the enclosed land as a botanic garden, and the completion of Lady Macquarie's Rd on June 13, 1816 is now celebrated by the RBG as its 'Foundation Day' (RBG, 2016).

In 1817 Macquarie commissioned convict architect Francis Greenway to design a new Government House, and a building to house offices and stables. Only the "Palace for Horses" was built before Macquarie was recalled to London in 1821. It was designed by convict architect Francis Greenway in neo-Gothic style and is thought to be based on the design of Inveraray Castle in Scotland. One of the largest and most expensive structures to be built under Macquarie's rule, it was positioned atop the rise between Sydney and Farm Coves, designed to prominently stamp a British cultural identity onto the alien landscape (Casey, 2006). The Government House to be served by the stables was not constructed for another two decades, completed in 1843. With the increasing use of the motor car, the stables had fallen into disuse around 1910. The building was eventually refurbished, reopening as the Conservatorium of Music in 1915. The Conservatorium High School, where Imogen studied almost a century later, was established there in 1919.

Like all neo-European gardens in settler cultures, the inception and development of Sydney's Royal Botanic Gardens is the site of a troubled and often violent meeting of Western constructs of culture and nature, garden and wilderness. Botanical gardens developed in the eighteenth and nineteenth centuries from the model of London's Kew Gardens. They functioned as "both the centre of imperial/colonial plant exchange and the seat of authority for the classifying and naming of plants and animals long familiar to indigenous populations" (Tiffin, 2005, p. 4). Kew's collections of exotic plants sent from the colonies function as a display of imperial power, laid out in pleasing horticultural designs that subtly radiate their essence of capture and enclosure.

Conversely, local indigenous flora was unpopular and rare in the botanic gardens of the settler cultures, where citizens were invited to immerse themselves in landscapes populated with the trees, plants and garden designs of the motherland, accented with exotic specimens imported from far-flung corners of the empire. Indigenous fauna, as we see with such startling clarity in the cases of the flying fox colonies who settled in the Botanic Gardens of both Melbourne and Sydney in the nineteen-eighties, are positively unwelcome.

Because of the palpable and alarming rates of extinction and environmental degradation that were precipitated by the imposition of European horticulture and agriculture in settler countries, in the nineteenth century national parks began to be set aside as reservoirs for indigenous flora and fauna, but in accordance with the Western boundaries between human and non-human, indigenous people were excluded from this land as well. National parks are the antithesis of public gardens in that often extreme measures are taken to exclude exotic species from these locales, and human or cultural activities within their boundaries are highly regulated. As temperatures rise with accelerating industrial greenhouse gas emissions, local climate envelopes shift poleward or to higher altitudes. The correlative shift of both humans and non-human species in a desperate attempt to stay within their ideal climatic conditions is creating ever more complex burdens and challenges for park management. It is yet another illustration of the dangerous weight climate change is bearing upon the specious philosophical underpinnings for decisions based on the binaries of culture and nature, humans and animals, economy and ecology, reason and emotion.

Bats, Forests and I

In 1982, as a young adult, I moved from country New South Wales to live in Sydney. It was lonely at first, but even so, the feeling that I'd finally found the place I belonged was overwhelming and heady. I loved the vibrancy and excitement of the city, the milder climate, the beauty of its waterways, and the deep forest that surrounded the city and infiltrated so many of its urban areas. My love of forests, and coincident environmental awareness, had been seeded in early childhood when I could escape the rage and conflict in our family to explore and play in the lush bushland settings around

Wollongong. We'd moved to Wollongong when my father took a job at BHP's Port Kembla steelworks while he studied civil engineering as a part time student. When I was in mid-primary school we moved back to Broken Hill where he worked in his first engineering job, and continued moving to different country towns as he advanced his career. Packed into the small family car and sharing the back seat with two younger brothers, the regular long road trips to visit grandparents in Broken Hill, or relatives in Sydney, were interminable, boring and stressful. Over the years as I gazed out at the landscapes whizzing by, I became acutely aware of the multitude of tree skeletons that dotted the hillsides and fields. Mostly they'd been ringbarked, and I quietly mourned the immense loss of forest I could see evidenced in the remnant pockets in gullies and fringing the roadsides. As we wound through the mountains in the approaches to Sydney, the deep shade of the forests echoing with birdsong, the damp mossy fragrance of the air, was always soothing and fused with the building excitement of our pending arrival in the city.

In the first decade of my life in Sydney, the inner-city suburbs were noticeably and rapidly greening. Gums and other Australian native trees were springing up everywhere, and more and more people were incorporating native plants into their gardens. It filled me with optimism that we were becoming a more environmentally sensitive society, and that the health of the environment could rebound. I was living in Darlinghurst when the bats began to appear, flapping their way in a disorderly stream across the deepening urban skyline every evening. It was a remarkable sight. In the following years the rate at which their numbers were growing was astounding, and it filled me with optimism that our environment was becoming much healthier. The attachment I had to the city I lived in deepened. It felt like a special place where modern urban living could support the thriving of the ancient indigenous fauna and flora of the land. I felt our lives would become immeasurably enriched by this newfound capacity.

Around this time I took a walk through the neighbourhood to the Botanic Gardens and was thrilled to discover the flying fox colony roosting there. It had never occurred to me that the bats I saw every evening might be living close by, all together, in a population density that mirrored that of humans in the area. They were here in their thousands,

hanging in the shady heart of the gardens from the understory of palms and in the trees soaring above them. They were like a ripened crop of strange fruit, twisting and turning with the breeze, comically erupting into little squabbles and punching matches when one moved and disturbed another. I stayed for a long time, marvelling at the bright and lively faces that openly returned my curious gaze, their small thickly furred bodies decorated with coppery collars, the translucent delicacy and enormity of their wings as they stretched and rewrapped themselves before returning to their slumbers. I'd recently spent two years squatting in a warehouse in a prime city location before the real estate boom of the mid-eighties triggered the owners to send in their thugs to evict us, so I admired and identified with the audacity of the bats in selecting the most historic and beautiful garden in the city for their roost. As animals indigenous to Australia, I felt their claim to this place superseded our own. Until then the Botanic Gardens had held little interest for me, but now the bats were there I began to visit regularly. They were beautiful, fascinating and diverting, and I developed a deep love for them.

When Imogen was born in the following decade, I regularly took her there too. It was far preferable for me than the zoo, where the boredom and stress of captivity on the animals was so evident, and the signs on each enclosure so grim in their pronouncement that every species there was threatened or vulnerable due to loss of habitat. Another decade later, in January 2010, Imogen started school at the Conservatorium, and the significance of this part of the city for me deepened. The flying fox colony was still growing and spreading further into the gardens. There were now an estimated 22,000 animals living here, predominantly grey-headed flying foxes. A few months later, in May, I saw the news that shattered my long-held illusions. The Federal Government had approved the eviction of the flying fox colony from the gardens (AAP, 2010). I began to research and develop a proposal for a documentary about their plight.

The Battues

Flying foxes were regarded with fear and horror by the early settlers. Joseph Banks' logs from Cook's 1770 voyage recorded a fellow seaman describing one "as black as the Devil and had wings, indeed, I took it for the Devil, or I might easily have catched it, for it crawled through the grass very slowly" (quoted in Lunney & Moon, 2011, p. 45). An

1871 review of Gerard Krefft's scientific book *The Mammals of Australia* (Krefft, 1871), the book from which the cover image of this chapter is taken, noted that the flying fox "is sometimes called the Vampire Bat, and many dismal but untrue tales are told of its bloodsucking properties" (Empire, 1871). Another piece in a Sydney newspaper from 1880 declared,

> They belong to the lowest order of mammalia — the monstremata — animals possessing but one vent, and their whole appearance is repulsive to an extreme: the odour which arises from their bodies is disgusting, and when captured alive, the fierce hatred which gleams from their lurid eyes, as well as the spiteful manner with which they bite right and left, inspires a sentiment of aversion to them, almost as strong as that produced by snakes and iguanas (White, 1880).

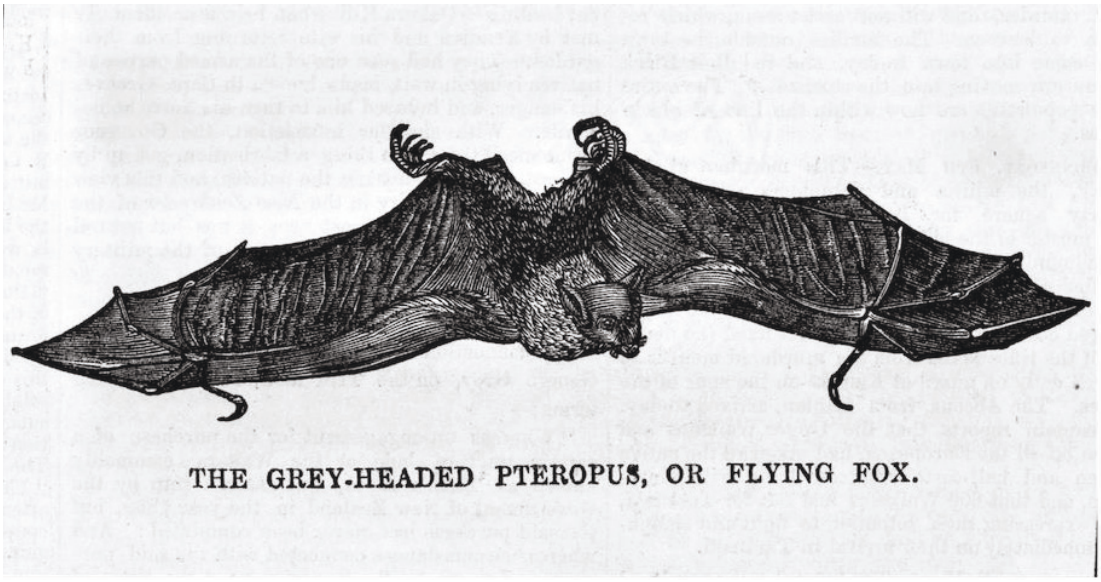


Fig 3.7 **"**The specimen from which the accompanying image was made, was about 3 feet 6' inches from tip to tip of the wings**"** *(The Grey Headed Pteropus or Flying Fox, 1863).*

Early Sydney newspapers recorded large flying fox colonies living around the European ones establishing along Sydney Harbour; in 1791 close to the settlement when the "excessive heat and drought" caused them to perish "in great numbers, their putrid bodies poisoned the atmosphere, and rendered the water almost unfit for use" (Empire, 1866). In Elizabeth Bay in the 1850's "the bats were such a pest that Sir William

Macleay's gardeners spent days in shooting them and carrying them off by the barrow load for burial" (Froggatt, 1932). Throughout the late 19th century and early 20th century there were a number of reports of attempts by the animals establish a colony in the Botanic Gardens. "A small camp was observed by Dr. Z. Bennett in 1858 in the Sydney Botanic Gardens… an unusual sight, as but few specimens had been seen in that locality for some time" (MacPherson, 1889). Helen Forde's illustration for Krefft's book (Forde, 1869), based on a photograph, shows a flying fox roosting with the Conservatorium on the hilltop in the background, which locates it in the gardens. In 1896, under the headline "THE BOTANICAL GARDENS INVADED" it was reported that: "Last Thursday, after their nightly repast of figs in the Domain and Parks, instead of returning to their resorts on the coast, the foxes retired to the trees in the Botanical Gardens, much to the disgust of those whose duty it is to preserve them. An official is now busy with a gun, but without much apparent effect. Very few come down unless shot on the wing, since, like the opossum and native bear, they retain their grip in death" (Evening News, 1896). There were further reports of a flying fox colony in the gardens in 1900, 1904 and again in 1927 (Thomson, 1927).

The settlers declared outright war on flying foxes when they realised that "thousands of midnight plunderers" (The Age, 1863) were descending upon their orchards. In 1873 Krefft, who was Curator of the Australian Museum, wrote

> …the only way to prevent great damage to the orchards is the destruction of these creatures in their roosting places…. Some years ago I frequently noticed them, long before dark, coming across the harbour; they were very plentiful then… A few grand battues on their North Shore haunts appear to have diminished their number considerably (Krefft, 1873).

An account in *The Sun* in 1913 (Wobbegong, 1913), written under the pseudonym of Wobbegong, (a bottom dwelling shark) revealed that

> Lately we have been reading about the slaughter of flying-foxes, and it has been difficult to find anyone in whom the news has aroused the 'dint of pity' for these creatures. If the flying-fox had any special redeeming characteristics it would be different, and man's hand, would not be raised against it so frequently.

The settlers despised the animals, commonly describing them as swarming hordes, useless, cunning, wasteful, destructive, stupidly quarrelsome, incessantly squabbling, cackling, squealing, shrill, objectionably odorous and of repulsive appearance. The descriptions of sorties into flying fox camps were often inflected with despair in the face of the numbers the shooters were up against.

> Standing under the laden trees, they poured volley after volley into the hanging masses till the ground was littered with dead and dying, and the air was black with the rudely awakened horde fluttering sleepily away. Then sticks went to work dispatching the maimed. Altogether 1000 were accounted for. A week after a stronger party, numbering eighteen, attacked the same camp; and another 1000 were destroyed, when the ammunition gave out. The 2000 killed can hardly be missed from the enormous number in the camp, and more determined efforts are to be made by surrounding settlers to exterminate them (E.S.S., 1904).

During and after World War 1, the implementation of industrial weapons of mass slaughter were frequently proposed, leading to government trials employing them against the bat population.

> There are a few gases that suggest themselves for use: chlorine, sulphur dioxide (mustard gas), arsenic trichloride, and hydrocyanic acid (cyanide gas)… Taking into consideration

> the general nervousness of the bats in the daytime, and the difficulty of manipulating poisonous gases in such a way as to be effective, the Biologist thinks that getting rid of them by means of poisonous gas is not practicable (The Scone Advocate, 1917).

Flame throwers and explosives were also trialled, and running strands of thin barbed wire across the tops of orchards or watering places where bats flew in to drink. "The foxes hit the wires and damage their wings, and this frightens them away even more than gunfire. The method is somewhat expensive but seems to be the most effective" (The Scone Advocate, 1917). One orchardist wrote, "I tied apples treated with strychnine to long poles, which were then pushed up through the limbs (of the fruit trees). By this means I secured upwards of 100 foxes or more from the one tree, many more bodies being noted up to two miles away" (White, 1920). This tactic became widely employed in orchards. But these efforts were found to be too costly, time consuming and ineffective for orchardists to sustain.

Searching for a Means of Mass Extermination: The First Study

The search by government scientists for a biological weapon in the hope of "starting a fatal epidemic in a fox camp" (The Scone Advocate, 1917) proved fruitless. Embarrassed and frustrated by the relentless barrage of public pressure for them to shoulder responsibility for the problem, the first ever scientific study into flying foxes in Australia was commissioned in 1929 by the federal and state governments of NSW and Queensland. They engaged British zoologist, Francis Ratcliffe in the hope that his research would uncover an effective means of exterminating or controlling the flying fox population.

Ratcliffe's careful study estimated the numbers of the four species of flying foxes inhabiting Queensland and NSW to be too difficult to ascertain with any accuracy but would be "very large indeed. It would be profitless to attempt a figure, which would run into many millions, and have little meaning for the average man" (Ratcliffe, 1931, p. 23). After looking at historical records and interviewing older settlers he found their numbers

had already markedly declined in the course of settlement. "The reiteration that 'flying foxes are nothing to what they used to be years ago' became almost monotonous…. From the picture I have been given the flying fox population is much less than half its previous strength " (Ratcliffe, 1931, p. 32). He attributed this to their loss of habitat through clearing scrub and ringbarking forest areas for pasture, and the constant harrying of camps in breeding season. "The fact of this decrease is stressed because it is commonly believed that flying foxes have benefited so greatly by settlement and cultivation, increasing their numbers and range, as to be a far greater pest… today than they have been in the past." He postulated that the problem was thereby gradually solving itself, and there was little doubt that the population would further decline (Ratcliffe, 1931, p. 33).

He also found that the predominant species of NSW, the grey-headed flying fox, were not strongly smelling animals (Ratcliffe, 1931, p. 45) and contrary to popular belief, were not infested with parasites (Ratcliffe, 1931, p. 39). His research showed that each individual consumed modest numbers of fruit, (although their activity in the trees knocked a lot more to the ground) and that their extensive depredation of orchards was highly exaggerated, occurring perhaps once in a decade, rather than annually as was so often claimed. Around Sydney, orchards of their preferred stone fruit seem to be "relatively untroubled in normal years", though in some seasons "considerable losses were sustained" (Ratcliffe, 1931, p. 52). Rather, the vast population of flying foxes in Australia were sustained mainly by flowering Eucalypt forests. Serious attacks on orchards were the result of temporary disturbances to their local food supply and inflicted by the tiny proportion of the flying fox population living near settled areas at the time (Ratcliffe, 1931, p. 58). Ratcliffe concluded that little more could be done to mitigate the problem than what orchardists were already doing, mostly poisoning and shooting animals in the orchards, and shooting them in their roosts (Ratcliffe, 1931, p. 77). He added that in the vicinity of fruit growing areas it might help to target a single species and carry out an organised battue in a particular camp once a week every year in Spring, just after the young were born. After three or four years, he hypothesised, the local population could become so diminished it could bring very real relief to the growers (Ratcliffe, 1931, p. 73).

Fig 3.8 Still from Newsreel: (*Menace to Orchardists: Flying Fox Camp Raided, 1949*)

Ratcliffe's study seeded the incremental rehabilitation of the image of the flying fox in Australia. But the deep foundational narratives of Western civilisation of the separation of humans from nature and man's dominion over the beast were slow to shift, especially for these animals so strongly associated with darkness and the occult, who raided the gardens and orchards of a 'civilised' society.

Flying foxes are still one of the most maligned native species in Australia, and this is reflected in their lack of protection under the law. In 1919 when the first Native Animals Protection Act was introduced in Australia, flying foxes were excluded. In fact, until 1986 in NSW, and 1992 in Queensland, they remained listed as agricultural pests in need of control. It wasn't until 2001 that the status of the grey-headed flying fox was finally listed as vulnerable under the Commonwealth's Environment Protection and Biodiversity Conservation Act because their numbers were shown to have declined by an estimated 30% in a decade, from 566,000 in 1989 to 400,00 in 2001 The listing was bitterly opposed by orchardists, and as a politically driven compromise, a quota program "which allowed the continued killing of thousands of animals by orchardists was devised" (Thiriet, 2010, p. 170). However, this protection granted by Federal legislation

is minimal, because primary responsibility for the protection of native wildlife rests with the states.

Grey-headed flying foxes were listed as vulnerable in NSW in 2001 and in Victoria in 2008. However, in Queensland, at the northern end of their range, they are still listed in the category "of least concern". To placate the rural lobbies, shooting the animals to protect crops was permitted in all three states, based on the quotas of the Federal law. Later, research revealed that 27% of animals shot in orchards endure a painful and lingering death, a figure which does not account for the young who subsequently starve when their mothers fail to return to the roost to feed them (Divljan et al., 2011). Consequently, the shooting of flying foxes in Queensland was banned in 2008 on the basis that it was inconsistent with the legislated requirement for the killing of animals under damage mitigation permits to be executed in a quick and humane manner. Even so, compliance with quotas and bans on shooting and other illegal means of exterminating the animals, for instance installing electrified grids over orchards which has been shown to kill many thousands of animals in a single orchard in a single season (Martin, 2011), is not effectively monitored or enforced in any state or territory.

Conflict: The Historical Irony of Community Hostility to the 'Colonisation' of Urban Areas by Flying Foxes

Since the late 1980's flying foxes have increasingly been establishing their roosts in urban areas along the Eastern seaboard, from far north Queensland down to Melbourne, most notably in the botanic gardens in both Sydney in 1989 and Melbourne in 2001. It is a telling and tragic irony that modern urban 'settlers' object to flying foxes trying to re-find habitat and homes, referring to them as 'camps' (invoking the same language used to describe the 'fringe' dwellings of Aboriginal people made landless and homeless by colonisation), or as 'colonies' intruding upon or afflicting the enjoyment of their 'land rights' (their homes as exclusive private real estate, or rather property, which means the right to destroy native animals and plants as 'pests').

Eminent behavioural ecologist, Peggy Eby, who I interviewed in 2011, explained that the changing roosting patterns of flying foxes began with a change in gardening practices, particularly in the inner cities as they became more gentrified.

> Instead of having a backyard with a vegetable patch and a couple of chooks, people in the mid-seventies started planting native trees. There was a big push to appreciate all things Australian and planting native trees was a part of that. A lot of the trees they planted were selected on the basis of being attractive to birds, which meant they secreted a lot of nectar, which meant they were also attractive to flying foxes. In Sydney and in Melbourne in particular, we've created an artificially diverse woodland that wasn't there before and it's wonderful feeding habitat for flying foxes. So the amount of food in urban areas, and the number of animals in urban areas, has increased. And coincidental with that, the amount of food available to the animals in the bush has diminished, so they've come into the city in large numbers (pers.comm).

This initially brought about a surge of public interest in the animals and it set off a wave of scientific research on flying foxes in Australia. Their reputation began to improve, mostly within the scientific community, when they were recognised as long-distance tree pollinators and seed dispersers, a species crucial to the health and regeneration of native forest. The increasing fragmentation of forests due to urban and agricultural development has further enhanced their status as a keystone forest species. But in 1994 the outbreak of the Hendra virus, transmitted from bats to humans via horses, killed 4 people and many horses until 2011 when a vaccination for horses was introduced, and lyssavirus (a form of rabies) has resulted in three human deaths since 1996. As a result, the public image of flying foxes suffered an enormous setback. Lyssavirus can only be transmitted to humans via a bite or scratch from a bat, which has sparked vigilant public messaging warning people not to touch them. It's curable if treatment begins promptly,

and people who work with the animals are vaccinated against it. Even so these incidents reignited age-old fears and antipathy towards bats in the community.

A recent survey of 654 sites across all four species of Australian flying foxes found that 55% of all roost sites were in urban areas, with only 7% of them in protected areas, the remainder being on agricultural (23%), grazing (7%) or minimally used land (6%). An even greater proportion of grey-headed flying foxes live in urban areas; nearly 59%, with only 5% of their roost sites in protected areas (Timmiss et al., 2021). The increasing presence of flying foxes in urban communities along the Eastern seaboard of Australia has given rise to a proportionate increase in conflicts with humans. Public complaints mostly focus on the 'stench' and the noise of the roost site, and the increased likelihood of bat poop landing on cars, freshly painted houses, or washing hung out to dry. The risk to public health they are thought to pose is inflated and employed as a powerful focus in campaigns against local bat colonies and the pressure from communities on their local governments to take action to relocate them is often highly emotive and relentless. Under the law, permits to relocate colonies away from urban areas can be issued, in principle as an option of last resort, when they are shown to be causing economic damage, or to be endangering the health of the community. Whilst protecting the animals from injury or death, the guidelines allow the colony to be repeatedly harassed with noise, lights, chemical agents and smoke in the evenings as they fly out to feed, and in the early hours until dawn when they're returning to their camps. These activities are banned during daylight hours, during late pregnancy and birthing season, and while the young are unable to fly. As with shooting permits, activities to disperse flying fox colonies are often poorly monitored and enforced, and permits that contravene policy guidelines are frequently issued (Thiriet, 2010).

Most attempts to disperse colonies fail. They have never succeeded in completely shifting animals out of an area, or to a location nominated by committees, nor have they reduced the numbers living at the site. At most they succeed in moving a colony a few hundred metres, sometimes causing it to splinter into a number of smaller colonies, thereby directly affecting even more people in the vicinity. Flying foxes display a remarkable fidelity to their roost sites and continue to return over many years, so repeat

dispersal actions are required. These actions cost councils hundreds of thousands of dollars, and in the great majority of cases, fail to resolve or even reduce the conflict that inspired them. Apart from the dispersals which have completely removed all of the trees and vegetation that the colony roosted in, there have been only two successful dispersal actions on record; the Royal Botanic Gardens in Melbourne which cost $3 million, and the Royal Botanic Gardens in Sydney which at the time of the study had cost $1 million. Both sites require ongoing management to keep the bats from resettling there, so costs are steadily rising (Roberts & Eby, 2013).

The reasons for this have become clear with the deployment of radio and satellite technology to track the movements of flying foxes. It has revealed that they are highly mobile, moving individually (rather than collectively) between roosts both regionally and over long distances. Animals were recorded flying distances of up to 576 km within a week, and more than 1000 km in a 5-month period. Their movements are predicated on the availability of food, and long-range movement is associated with the prolific flowering of nectar rich trees in areas throughout their range along the Eastern seaboard. Although many roost sites are permanent, the majority of the animals stay in them for a duration of less than five days (Roberts et al., 2012). Flying fox camps function as accommodation for individuals who spend most of their lives in transit. Since a flying fox can live in the wild for up to fourteen years, it's likely they will attempt to return to places they know as roosting sites throughout their lives. So for a dispersal to succeed in the long term, it is likely to need to be sustained for at least this period of time. And as the recorded history of flying fox colonies in the Sydney RBG highlights, the animals return to roost there over even longer periods, most likely attracted by the microclimate of the site, and the availability of water and food around it.

The microclimate of preferred flying fox roosts is a particularly important consideration for efforts to conserve the species given the dramatic increases in the intensity, duration and frequency of heatwaves as the climate warms. Flying foxes die in increasing numbers as the temperature soars above 42°C. A paper published in 2008 estimated the numbers who had died from heat stress in twenty heatwave events since 1994 as being in the order of 30 thousand animals (Welbergen et al., 2008). Roost sites are

usually situated over or close to waterways, often in gullies, and in habitat which includes an overstorey of tall trees, a storey of medium height trees, and a thick understorey of brush, which provides a relatively cool and humid environment. A sanctioned technique for attempts to relocate flying fox colonies is the thinning of vegetation at the roost site. Many colonies of flying foxes persist in sites damaged by failed efforts to relocate them which further reduces protection for the animals during heatwaves, most likely driving up their mortality rate.

Considered against the background of research revealing the ecological importance of the flying foxes and their rapidly declining population, and reflecting on the astounding mobility of the animals across their entire range, human actions to control their numbers in local areas by slaughtering them when they feed in orchards, or by destroying or attempting to drive them out from particular roost sites, thereby increasing their loss of habitat, can only be seen as a myopic and brutal push of the entire species towards extinction. The twin spectres of the Anthropocene, climate change and the sixth mass extinction, are illuminating the human entanglement with other species. Forests draw carbon dioxide down from the atmosphere, and help to cool local climates through shading and transpiration. They are also biodiversity hotspots. Afforestation and protecting the forests that are still standing are key elements in the multifaceted effort to protect and promote life in the Anthropocene. As forest pollinators and seed dispersers, flying foxes are crucial to this effort. Deforestation is one of the primary drivers of climate change, and Australia has the highest rate of deforestation in the developed world. The consequent destruction of suitable roosting habitat in landscapes that offer good foraging for flying foxes is driving them into urban areas. They are becoming more and more dependent on the artificially diverse woodlands in urban landscapes. This, in combination with their plummeting population numbers means they will become functionally extinct within a few decades, no longer performing their ecological role as a keystone forest species (Eby et al., 1999; McConkey & Drake, 2006; Mo et al., 2020; Rose, 2010, p. 124). As Deborah Bird Rose expresses it, "…it is a loss of connectivity and mutuality. Lose the flying foxes and there's no way of knowing just how far the unravelling of life systems will go" (Rose, 2010, p. 124).

The Botanic Gardens Relocation

The flying fox colony in the Sydney's botanic gardens was centred around Palm Grove, the oldest section of the gardens. It is resplendent with heritage trees planted from the 1820's onwards. The action of many flying foxes repeatedly taking off and landing in a tree over a long period damages its growing tips, and after many years supporting roosting bats, the tree will eventually die. When this occurs in their natural habitat, the colony shifts into adjacent healthy trees, and new trees germinate in their wake from seeds contained in their droppings. This natural process is anathema in the controlled environment of the botanic garden. Poignantly, some of the trees the bats were damaging, for instance the Agathis Macrophylla, a kauri pine native to Fiji and planted in the gardens in 1852, (Mabberley, 2002) are themselves listed as an endangered species. In the case of the kauri pine, this is primarily due to overharvesting for their timber, which was particularly prized for shipbuilding, and ongoing deforestation (Farjon, 2013).

In May 2011 I interviewed a number of staff overseeing the preparations for the dispersal of the colony. Brett Summerell, the Acting Executive Director of the gardens admitted,

> It is a significant dilemma because obviously for the health of the forests, and many of the scientists who work here are very passionate about ensuring forests and rainforests and other ecosystems are protected and are able to regenerate, and bats play an important role in that, but obviously this situation is just not sustainable for either the gardens or the bats. Eventually all these trees will die, and the bats will then have to move on, so we need to do something to protect the trees here, as well as making sure the bats are treated fairly.

He said that in the time the bats had been roosting there, the gardens had lost twenty-eight trees and thirty palms, with another sixty trees in critical condition. John Martin, an ecologist working as the Wildlife Management Officer at the gardens whose role was to plan and co-ordinate the dispersal, argued that there were many other roosting sites

around Sydney that the bats from the gardens could easily move to, and stringent conditions and monitoring were in place to ensure the safety of the animals.

> The priority of the Botanic Gardens isn't to manage a flying fox colony, the priority is to manage a botanic gardens." He said that to sustain a flying fox colony the gardens would need to plant regenerative vegetation "something along the lines of bush regeneration… That's not the aim of a Botanic Garden. That would be trying to turn the garden from an exhibit of native and exotic species for educational purposes to a bushland site, which is just not the mandate of the Botanic Gardens.

I asked Clarence Slockee of the Bundjalung Nation, now Education Officer at the gardens, how he felt about the flying fox dispersal, given the trauma and dislocation of his own people under colonisation. He laughed ruefully,

> I guess there is an analogy there between Aboriginal people and the flying fox in so far as our distribution is quite wide but historically where we can and can't camp has been restricted quite a bit as well... Most Aboriginal people are concerned generally with what's happening, not only to animal species but to plant species as well. As vulnerable and as threatened as the flying foxes are, if you look at the threatened plant species list, it's far greater. We've lost a lot of plant species since Europeans arrived in 1788… Forty thousand years of Aboriginal habitation and understanding environmental management and not just going in and 'There's a tree full of flying foxes, we need a feed tonight, they're easy to catch, let's take them all.' Aboriginal people would never do that, and have never done that... Moving the bats is not an overly great issue. There's some Aboriginal people who have a much greater connection

> to the flying fox for a variety of cultural reasons. But it's not about harming them, it's about risk minimisation for the site itself.

All three men were obviously discomfited as they justified the action of the institution they worked for in response to my questioning. The flying fox colony in the gardens was now the second largest colony in Sydney and was acknowledged as an important maternity colony for the species. It was mating season and the trees were alive with the amorous activities of the bats. The colony was to be dispersed in the coming Winter, before the females would give birth in late Spring. It was impossible for them to argue convincingly that the relocation did not represent a further loss of habitat to a species under serious threat, that it really was 'fair to the bats'. The undeniable and piercing irony for a community of scientists focused on botany to be taking this action against an animal essential to the health of the diverse wealth of plant species represented by forest ecosystems inflected their responses.

At the time the Royal Botanic Gardens obtained their approval to disperse the flying fox colony, there were numerous smaller cities, towns and suburbs in Queensland and NSW whose citizens were similarly agitating for approvals to disperse bat colonies from their midst; Maclean, Singleton, Port Macquarie, Cairns, The Gold Coast, and in the Sydney suburbs of Avalon and Kareela. The much greater financial resources and staffing with which the RBG could sustain their dispersal action over a period of many years, outside of visiting hours and hidden from public view, have given it the veneer of success. Their example has made it much easier for smaller communities with far more limited resources to obtain approvals to disperse their colonies. All of these attempts have been unsuccessful, but they have degraded and damaged roost sites, and reignited the negative public image of the animals as unwanted pests, creating more pressures for the population of flying foxes across their entire range.

In defence of the collective decision of their institution, the three men I interviewed at the gardens each resorted to traditional cultural divisions in Western thinking; between animals and plants, between gardens and bush, culture and nature. Divisions that bats, as flying native mammals who are becoming increasingly urbanised under the pressures

of the Anthropocene, so easily and perplexingly subvert. This is a native species whose contribution to the multispecies thriving of flora and fauna, and embedded within that world, humans, is unambiguous and clear. Yet they were viewed as unwelcome colonisers of this site where the colonisation of Australia first took root, a site where the catastrophic deforestation of the country began, a site managed by the Cadigal people for tens of thousands of years to support their people within a thriving multi-species web of life which had been razed to create these gardens which so visibly resonated with power and Empire, and so reduced in their capacity to support life.

During the time I was filming, both the Sutherland Shire and Northern Beaches Councils obtained permission to disperse their colonies; a large colony in Kareela in an overgrown weedy gully near two schools and residences, and a small colony in a gully in a residential area of Avalon. I filmed both dispersals and I included scenes from the Kareela dispersal in *The Weather Diaries*. They were carried out during the wet La Niña conditions of Winter in 2015. Because the rain had washed so much pollen from the flowering trees, a significant starvation event developed amongst the entire flying fox population of Sydney and scenes showing this are also included in the film. The distance that bats weakened by hunger can fly is greatly diminished so the combined impact of food shortage and dispersal caused the colony in Kareela to splinter. A new colony of refugee bats suddenly appeared in the much-loved Camellia Gardens five kilometres away where a population varying between one and five thousand flying foxes still roost to this day. The dispersal in Kareela was cancelled after the splintering of the colony, and a roosting colony of two to five thousand bats remain there as well. Staff at the Camellia Gardens and Sutherland Shire Council are fielding a rising tide of public complaints about their presence in addition to the ongoing complaints the council receives about the Kareela colony. The council continues to lobby on Federal and State Governments behalf of the community to downgrade the protected status of the species (Trembath, 2021). The dispersal in Avalon was successful because the Northern Beaches Council ignored State and Federal laws protecting the animals and setting limits on dispersal activities. They continued to disturb the colony during and after birthing season, and when this wasn't successful in dislodging the animals they removed all of the trees they were roosting in.

4: THE EVOLUTION OF *THE WEATHER DIARIES*

Hope and the Climate Documentary

In this chapter, I analyse and critique the genre of 'climate documentary' with a focus on the films produced in Australia, review works and traditions in environmental documentary making, and identify the original contribution to my chosen field I hope to have made with *The Weather Diaries.*

When I first began to explore the possibility of making a documentary about climate change, I was repeatedly told there was no market for films about climate change and television saw it as a ratings killer. Only films offering a hopeful perspective had a chance of attracting support. But Australia's election in 2013 of a reactionary Coalition government committed to the promotion and protection of the coal and gas industries and steeped in climate denial had left me fearful and anxious about the future my child would experience as an adult. Their open hostility to the IPCC's findings, which had ascertained that human greenhouse gas emissions had already locked in irreparable damage to the biosphere that wouldn't fully manifest for decades, shocked me as a mother. To make a film turning away from the witnessing of accelerating environmental degradation and loss, focusing instead on happy stories and new technologies and techniques to manage the environment, would, it seemed to me, be complicit in maintaining the status quo of the socio-economic system generating the crisis. This led me to question the role of hope itself in the psychology of denial.

This culture of hope, built on a wishful projection of the present into a better future, is conservative and ideological. As Bruno Latour argues, to avert the existential threat to all forms of life posed by the conditions of the Anthropocene, an inversion of thinking is necessary to motivate and guide the urgent and appropriate action that can provide grounds for hope. Society needs the apocalyptic vision of climate catastrophe to be "reoriented by the powerful representation of the future in order to transform the present" (Latour, 2017, p. 218). Like many parents, it was this vision that was keeping me awake at night, finally motivating me to embark on making a documentary through

the doctoral program at UTS in 2014. Since 2018 it is this vision that has powered the rise of Greta Thunberg and the School Strikes 4 Climate movement. "People are suffering. People are dying. Entire ecosystems are collapsing. We are in the beginning of a mass extinction, and all you can talk about is money and fairy tales of eternal economic growth. How dare you!" (Thunberg, 2019).

As I have earlier suggested, the effort to mobilise the public to demand and embrace action on climate change has too often been based on an 'information deficit' model of communication (Norgaard, 2011). Based on the assumption that inaction is caused by the public's ignorance or misunderstanding of climate science, it focuses on the wide distribution of readily digestible scientific evidence showing the dangerous and growing impacts of human greenhouse gas emissions on weather systems, global geography, and the health of the environment. Flawed by its assumption of human behaviour as rational and capable of being changed by increasing the supply of scientifically correct information, this approach ignores the power of socio-cultural and unconscious emotional forces in shaping attitudes and responses to warnings about climate change.

Documentaries embodying the information-deficit approach are science-based rhetorical pieces, usually driven by an authoritative, white, male narration. David Guggenheim and Al Gore's *An Inconvenient Truth* is largely based on this model (Guggenheim, 2006). Essentially a series of public lectures by Al Gore interspersed with personal reflections, it focuses on climate change at the macro or global scale, imagining a dystopian future as projected by science. The film expands upon the information deficit model with the incorporation of an autobiographical thread grounded in Gore's experience of loss; as a politician trying to mobilise action on climate change, as a presidential candidate, as a brother, and a close encounter with it as a father. It's woven together with nostalgic memories of the agricultural landscape where his family grew tobacco and raised cattle, building an emotive and moral argument about acting on climate change. These memories arise as Gore travels across America and around the world with his slide show. He is presented as a modern-day crusading hero, circumnavigating and conquering the world, seeking to save the landscape of his

childhood with the message that the needs of the environment and the economy can be balanced and harmonised with the implementation of new technologies.

The global perspective taken by Gore's film has an inherently masculinist bias, exemplary of what Thomas Demos calls the 'Anthropocene visuality' of mapping, graphing and satellite imagery of Earth, which imbues a false sense of control in its viewers (Demos, 2017, p. 11). It fails to engage with the embodied experience on the ground of extreme weather events and the slow violence inflicted on peoples, cultures and their companion species by changing rainfall patterns and a heating climate. For instance, the film discusses Hurricane Katrina without showing or mentioning that its victims were non-white and poor, ignoring the glaring inequalities embedded in the climate crisis; that its impacts fall most heavily along the fractures of race, class and gender within nations of the Global North, and on the peoples of the Global South, whose greenhouse gas emissions are proportionately tiny on the global scale. Demos argues, "Anthropocene visuality tends to reinforce the techno-utopian position that "we" have indeed mastered nature, just as we have mastered its imaging - and in fact the two, the dual colonization of nature and representation, appear inextricably intertwined" (Demos, 2017, p. 28). Its logic dictates that the responsibility for 'fixing the problem' lies with the technocrats and scientists of the Global North, supported by consumers making the 'right' choices. Towards the end of the film, Gore's lecture culminates with the argument, using the example of the car industry, that what is good for the environment is good for business. "We can't sell our cars in China today because we don't meet the Chinese environmental standards. … If you look at who's doing well in the world, it's the companies that are building more efficient cars. And our companies are in deep trouble." He finishes by warning audiences against succumbing to despair about global heating without taking action. "With the things we buy, the electricity we use, the cars we drive, we can make choices to bring our individual carbon emissions to zero. The solutions are in our hands" (Guggenheim, 2006). It's a solution that ignores the spiralling psychological, social and environmental

devastation inflicted by global capitalism with its economic model of perpetual growth based on consumerism and gross inequalities in the distribution of wealth.

After the failure of an international agreement on a meaningful emissions reduction strategy at the 2009 Copenhagen CoP15 conference, there was an emergence of observational documentaries engaging intimately with families and communities coping with loss, conflict and social and environmental harms of global heating. Two blue chip documentaries from Australia and New Zealand focused on communities at risk because of rising sea levels; *There Once Was an Island* (March, 2010) an intimate and disturbing study of its physical, social, cultural and emotional impacts on the people of Takuu, as storms and high tides sweep away their country; and *The Hungry Tide* (Zubrycki, 2011) showing similar distress in Kiribati as rising sea levels destroy homes, and contaminate the water supply and food gardens sustaining its communities. Zubrycki's film focuses on Maria Tiimon, now a Sydney-based activist, as she fights on behalf of her people for justice and urgent action to reduce emissions at the 2009 Copenhagen Summit. Whilst highlighting the injustice of the existential threat faced by Pasifika communities, these documentaries mine stories and images that are based, from a Western perspective, in exotic and remote locations. It reinforces a sense of distance from the problem of their high emissions, and their own implication in its causes, ultimately making it easier for high emitting audiences in urban Australia to disregard a troubling collective future that stirs fear and stokes a sense of powerlessness.

Two locally focused climate related documentaries were released in this period. *And Then the Wind Changed* (Greer, 2011) offers a remarkable personal account of the 2009 Black Saturday fires that razed the tiny community of Strathewen in Victoria, killing twenty-seven people in a community of two hundred. Greer's mobile phone footage captures her family's desperation and fear as they shelter from the firestorm, and she documents the heartbreak, terrible loss and trauma endured by her community as they unite in the struggle to rebuild their homes and their lives in the following years. However, the film doesn't touch on climate change, nor the patterns of fossil-energy based consumption responsible for the severity of the fires. In 2012 the ABC produced the ignominious *I Can Change Your Mind About Climate* (Hodges et al., 2012). It pitted

conservative politician Nick Minchin against Anna Rose from the Australian Youth Climate Coalition in a combative journey of inquiry into the reality of climate change, misrepresenting the science as an even-handed debate, ultimately supporting the efforts of the skeptic movement to manufacture doubt around the scientific consensus on climate change.

Under the pressure of funding cuts implemented by the climate denying, fossil fuel supporting national government of Tony Abbott, between 2014 and 2017 there was no production funding from Screen Australia for climate documentaries. After a yawning absence from our screens, climate heating and its looming impacts re-emerged as a documentary subject in 2017 with *Can We Save the Reef* (2017) a one-hour television documentary made for ABC Television's science program, *Catalyst*, and *2040* (2019), a feature documentary that went into wide release. Both documentaries are solution focused, offering hope grounded in scientific research and innovation. The reef documentary is presented and narrated by marine ecologist Professor Emma Johnston, a scientific advisor to the board of The Great Barrier Reef Marine Park Authority. It follows her as she investigates and weighs the decision as to whether they should risk intervening in the evolutionary ecology of the reef to help it survive the next three decades of rising ocean temperatures. She visits and interviews scientists documenting the massive scale of its dieback after consecutive mass bleaching events, and others working in laboratories in a race against time to breed super corals which might survive the hotter ocean temperatures anticipated between now and 2050, the date when according to global emissions agreements, temperatures will stabilise and begin to fall. All of them acknowledge that the reef as we know it will be dead before then. The hope is that more heat tolerant hybrid corals bred in the laboratory could replace and maintain the structure and function of the reef, formerly held by the corals that have been growing and evolving there for the past eight thousand years. It carries the risk that the laboratory hybrids will out compete any naturally surviving and evolving species, thereby creating a new dimension to the unfolding ecological catastrophe. Weighing human intervention against the loss of the entire reef which will lead to a cascade of extinctions rippling out into the greater oceans, a sequence that will degrade and erase human livelihoods and cultures all over the planet, Johnston ultimately

decides to support the strategy and finally approves the cautious release of the hybrid corals onto the reef.

Damon Gameau's documentary *2040* (Gameau, 2019), which was in production in the same period as my own, is built on hope-based messaging. It attracted generous funding from a combination of government film funding bodies and philanthropic support, raising a budget of $3 million dollars. Somewhat similarly to *The Weather Diaries*, Gameau's film was constructed around his imagination of the future for his young daughter. Like Gore's film, the perspective is techno-scientific and global. Gameau travelled the world interviewing scientists and filming their research projects. This material was integrated with computer generated imagery to create a sunny vision of how the world might look like in 2040 if society embraces the climate solutions already in existence; installing locally scaled renewable energy systems, and employing regenerative farming practices and revitalising oceans to re-enhance their diminished capacity for drawing down carbon dioxide from the atmosphere. It was a popular (if not profitable) film with most of its reviews praising its cheery positivity. For instance, the byline in the New York Times review stated "Damon Gameau's documentary is an accessible, informative and optimistic look at solutions to the climate crisis" (Kenigsberg, 2020). To be sure, in the current political climate any film drawing public attention to climate change and inviting discussion about how it can be addressed deserves support. The planetary environmental crisis requires diverse modes of address in environmental documentary to invigorate the thinking and motivation of the broadest possible spectrum of audiences, encouraging them to demand and support corporate and governmental change adequate and proportionate to the challenges of this historical moment. However, as discussed earlier, the oft prescribed adoption of an optimistic tone in climate documentaries is an approach I find problematic.

The Weather Diaries: research and production

I came to this project with the primary goal of making a film that would intervene in the silence, denial and apathy so prevalent in Australia at the time, in the hope it would stir conversation and thinking about the building environmental crisis, contributing to momentum for timely action to avert the horror and despair of catastrophic climate

change. My research supported the intuition that the intimacy of an autoethnographic documentary grounded in my everyday life as a mother might help to break down the sense that climate change is a phenomenon distant in space and time and help to forge a more tangible and emotional connection with the complex abstractions of climate science. It was mothering Imogen, who had a deep fascination and love for animals and vivid dreams for her future as a musician, that had developed my building sense of urgency around the issue. Watching her adopt a persona and play in an imaginary world shot through with the theme of extinction had galvanised me into action. I thought a film that encouraged other people who loved children (potentially a large audience!) to identify with our relationship, in the context of local evidence showing the deterioration of the natural world, might inspire the same feeling of urgency in them, ultimately contributing to more social pressure for change.

Autoethnographic Documentary in Australia

Autobiography with a focus on everyday life has long been an important feminist form of experimental ethnographic filmmaking. It's a tradition well represented by the documentaries of Agnes Varda and Chantal Akerman, two other filmmakers whose work has been a keystone for *The Weather Diaries*. Since the late 1980's the funding model for Australian documentary filmmaking has been based on a pre-sale to television broadcasters, which then triggers funding from the national and state funding agencies, Screen Australia and Screen NSW. As Gillian Leahy and Sarah Gibson discussed in a paper published two decades ago, broadcasters tend to commission informational documentaries with expert commentary, or biographical documentaries celebrating high achieving men, and less often women. It means that observational and personal documentary are both forms that are all too rarely adopted by Australian documentary makers. Because broadcasters are sensitive to criticism about a lack of objectivity in the work they support, they have been particularly averse to supporting work incorporating the voice of the filmmaker expressed through a poetic or conceptual narration (Leahy & Gibson, 2002).

In the past decade, the advent of streaming online content has drained away free to air television audiences, and this, in combination with the reduction in funding allocations

to broadcasters and national and state screen funding bodies by Coalition governments, has made broadcasters more risk averse. In the past decade broadcast documentaries have become even more generic. As Tom Zubyricki writes, "[w]here once there was diversity in form and content, there's been a narrowing. Single documentaries on television have mostly been replaced by presenter-driven series and factual reality programs" (Zubrycki, 2018, p. 2). In response to these limitations, Mitzi Goldman and Ian Darling established the Documentary Australia Foundation, which helps documentary makers raise funding from philanthropic sources. It has supported more diverse documentary making in Australia and fostered the rise of social impact issue-based documentary making. However, independent idiosyncratic auteur driven documentary makers struggle to survive in this ecosystem too, despite being the corner of the industry where "ambition and innovation are bred – where the art of documentary is thriving" (Zubrycki, 2018, p. 66).

Personal documentary is one of the most vital and interesting documentary forms, one which Michael Renov celebrates as "a vital expression of agency" and "a crucial medium of resistance and counter discourse" (Renov, 2004 p.xvi). With the filmmaker simultaneously occupying the roles of cameraperson, subject and editor, it opens up complex possibilities for the representation of a non-unified self. Inherently reflexive, the position of the author within the text is easy to read in the on-screen relationships between participants and filmmaker. Its subjective voice frees the documentary from its traditional relationship with certainty, a real strength for a climate documentary screening in a polarised political landscape. Because of budgetary limitations, it was obvious from its inception that the documentary I was making would need to be a first-person film and that I would need to work locally and shoot it myself. Given the creative freedom and support offered by the Doctorate of Creative Arts program at UTS, I was excited to embrace the challenge and the rare opportunity to contribute to this genre in Australia.

The Inspiration of Agnes Varda and Chantal Akerman

The key autoethnographic documentaries for me as I set out were Agnes Varda's *The Gleaners and I* (Varda, 2002) and Chantal Akerman's *La Bas (Down There)* (Akerman,

2006) and *No Home Movie* (Akerman, 2015). Late in their careers, both of these women began to use the semi-professional cameras that had arrived with the digital revolution to shoot their own documentaries. The loss of pristine quality in the imagery due to the lower resolution of their small cameras was easily compensated by the intimacy they granted with their ease of use, their mobility, and the relaxed comfort of the people they filmed as they interacted with a woman holding a small camera rather than a two- or three-person crew burdened with more intimidating professional equipment. Each of these women made films that hovered between self-reflexive video diary and documentary essay, an organic and flexible form enabling the greatest creative freedom to the filmmaker.

In the opening sequence of *The Gleaners and I* Varda constructs a stylised self-portrait with sheaf of wheat, modelled on a classical painting of women gleaning. When she exchanges it for her camera, she wittily conveys her creative mode and the vitality of her connection with the people she is about to portray onscreen. As a documentary filmmaker, she is gleaning moments in time, a confederate of the people who appear in her film. She finds them in the wastelands after hours, accompanying and conversing with them as they pick through fields after harvest, or rifle through industrial bins in the backstreets of Paris. Varda is admiring of their resourcefulness, their inventiveness, the quiet radicalism of their ethics. On occasion when their raw vulnerability emerges, she shares it with them, addressing it directly and with great empathy. The people she films are as emblematic of the immorality of the wastefulness of the devouring global economy as the materials they collect to subsist on its fringes.

The inclusion of herself, with an emphasis on the corporeality of her aging body; her lined face, wrinkled hands, greying hair, conveys Varda's feminist positioning as an observer situated, located in a particular historical moment and place. It subtly embodies a rejection of the power tied to militarism, capitalism, colonialism and male supremacy; the power to see and not be seen, creating visions and images deceptively projected as universal truths. This is what Donna Haraway calls "the god-trick of seeing everything from nowhere" (Haraway, 1988, p. 581). It is a power often wielded unconsciously, predominating in the long tradition of documentary filmmaking. In

contrast to the unreflexive 'objectivity' of mainstream documentary, Varda's narration is warm and conversational, slipping between first and second person, as it skips between the philosophical, the poetic and the playful, weaving around her sympathetic and enquiring interactions with others. As Winston et al point out, Varda dispenses with narrative linearity in the construction of her film. She assembles her encounters, her travel between them, her autobiographical reflections, as a kind of bricolage, a 'making do' with pieces left behind or at hand (Winston et al., 2017, p. 131), artfully structuring them to create a gently oblique but powerful critique of global capitalism. The key elements of Varda's work that I drew from as I made *The Weather Diaries* was her conversational narration and relationship with her participants, filming them and herself in the intimate realm of everyday life, and her artful bricolage of multiple threads, which I knew my film would also carry.

Akerman's documentaries are much more rigorous in their form; minimal, slow and meditative, a series of static long takes. For *Là-bas* she sets her camera up inside her apartment facing the neighbours' rooftop apartment on the other side of a street in Tel Aviv. In a frame abstracted by the lines of the matchstick blinds covering the windows, she captures the mundanity of the everyday domesticity of the couple in the flat opposite; appearing and disappearing from view as they tend their balcony garden, sometimes glimpsed as they pass by their windows. Akerman's offscreen presence is intimately conveyed by the occasional sound of her domestic activity in the small apartment; walking about, the clatter of dishes in the kitchen. The distant street sounds and her absence onscreen heighten the sense of her isolation, as does the vision of the couple living across the street. Every now and then the sudden loud ringing of the phone startles when it breaks the ambience and we listen as Chantal responds to her mother Natalia's concerns for her wellbeing. The conversations convey her chronic edginess and unease. We come to understand that she rarely goes out and eats very little. She's teaching in Tel Aviv during a wave of suicide bombings and they are unsettling her more as the film progresses. A long way in there's a fragment of narration:

> I don't feel like I belong. And that's without real pain, without pride. No, I'm just disconnected. From practically

> everything. I have a few anchors. And sometimes I let them go or they let me go and I drift. That's most of the time. Sometimes, I hang on. For a few days, minutes, seconds. Then I let go again (Akerman, 2006).

The stillness and mundanity of the Akerman films demand patience of an audience to settle into the slow and subtle unfolding onscreen. Her intention is to grant them the time it takes to become discomfited by their thwarted expectations of the cinema. Watching an Akerman film demands an acceptance of an awareness of the movement of one's own thought running in tandem with the contemplation of the lives onscreen; sitting with banality, waiting for an understanding of her directorial choices to accumulate. It's a gift easily misunderstood by an audience who expects to be distracted, passively entertained. After her death, her editor Clare Atherton wrote,

> She used to say that she wanted people to feel the passing of time in her films. When someone said, "Oh, I just saw a great film. I didn't notice the time passing," she did not think that was a compliment. She felt that the spectator's time had been stolen (Atherton, 2019, p. 93).

Akerman's documentaries give their audiences the corporeal experience of time shared in the dual contemplation of the life of an other, and of their own. From the outset of filming *The Weather Diaries* I wanted the film to sustain long contemplative moments as Akerman's films do. As John Tomlinson points out "Acceleration rather than deceleration has been the constant leitmotiv of cultural modernity" (Tomlinson, 2007, p. 3). It is inextricably linked with industrialisation, the burning of fossil fuels and the technological and cultural change associated with it. Fast-paced modern lifestyles insulate people from the slow violence that the environmental crisis of a heating climate is wreaking on the natural world. As Rob Nixon writes,

> Maintaining a media focus on slow violence poses acute challenges, not only because it is spectacle deficient but also

> because the fallout's impact may range from the cellular to the transnational and may stretch beyond the horizon of imaginable time (Nixon, 2009, p. 445).

The slow pace and the long-held shots of *The Weather Diaries* is a strategy that seeks to counteract this.

Princess Mononoke, Extinction and the Inversion of Hope

The spark of inspiration for the documentary, and for Imogen's imaginary and creative world, came from animator Hazao Miyazaki's masterpiece, *Princess Mononoke* (Miyazaki, 1997b). In a sharp break from the gentle style of Miyazaki's earlier work, its story is founded in the brutality and violence of the conflict between the extractive economies of modernity and the natural world, as realised in a spiritual vision based on the animism of indigenous Japanese culture. The character Imogen identified with so profoundly is San, a girl raised by wolf gods who refuses to be identified as human. She's a warrior girl fighting alongside animal deities to drive a mining colony from the ancient forest. Fecund with life in all of its mystery and wonder, the forest is being ravaged to mine ore and feed massive furnaces, forging it to produce the guns and ammunition needed for battles against both the forest creatures and raiding samurai. The colony has been established by Lady Eboshi to employ and support an egalitarian community of lepers and social outcasts. The townspeople give San the nickname of Princess Mononoke (which roughly translates as one who is demonically possessed) because of the relentless ferocity of the battle she wages against them. It's a morally complex, beautiful and engaging work.

Shockingly for a children's film, it reaches its climax when Lady Eboshi, the town leader, shoots and decapitates the great Forest Spirit (Shishi Gami), the shimmering mystical embodiment of the cycle of life of the forest and its creatures. Its death throes send the giant headless corpse rampaging across the landscape, black oily sludge oozing down mountainsides in its wake, igniting firestorms which wreak death and destruction on forest and town alike. Peace is restored when San helps return the head to the corpse, allowing the Shishi Gami to finally die, collapsing and disintegrating into the charred

earth. Grasses and flowers begin to sprout forth, but the ancient forest and its creatures have vanished without trace. Watching this scene with eight-year-old Imogen was devastating. The recognition of this film as an extinction story for children brought a visceral awareness I had suppressed with false hope, that global 'thermoindustrial' capitalism was indeed capable of annihilating all life on Earth. That vision of cataclysm mirrored the images that haunted many a sleepless night as I churned over the terrible suffering that a climate changed future would unleash on the life of my young daughter and the human and non-human lives with which hers was enmeshed; nights spent grieving the rapidly approaching extinctions of the animals that had enlivened the books, films and landscapes of my own childhood; nights spent wrestling with what I might best do, as just one person, to help ameliorate this imminent and overwhelming global threat.

When it was released in Japan in 1997, *Princess Mononoke* was an instant box office hit, overtaking *E.T*'s record set in 1982 to become the country's highest-grossing film. Susan Napier writes that rather than being alienated by its lack of happy closure,

> Japanese audiences were provoked to a variety of enthusiastic explorations of issues in the film, including the role of women, the nature of the premodern Japanese people, and the vulnerability of the environment… (Napier, 2001, p. 477)

In part Napier attributes this to the rising acceptance in Japan of a new form of historiography which was stressing the contribution to the culture of conventionally marginal groups like women and labourers, and questioning the Japanese valorisation of the development of rice farming through an exploration of its destructive impacts on its indigenous cultures and its landscape of great glossy forests.

This work was a powerful influence on Miyazaki's screenplay and his translation of it into the film was nuanced and complex. Audiences in the United States struggled with the film's lack of "white hat, black hat" characters and an obvious winner (Imagom,

1999). Miyazaki's approach, illuminated by this exchange in a discussion of the film in a Japanese theatre at the time of its launch, is worth quoting at length:

> Miyazaki: When you talk about plants, or an ecological system or forest, things are very easy if you decide that bad people ruined it. … It's not bad people who are destroying forests … Hard-working people have been doing it … There is actually a dilemma between the issue of humanism and growing a forest. It is exactly the problem of the environmental destruction we are facing on a global scale. … I think that the Japanese did kill Shishi Gami around the time of the Muromachi era[2]. And then, we stopped being in awe of forests. As we gradually lost the awareness of such holy things, humans somehow lost their respect for nature. … this film is just re-enacting what humans have done historically. After Shishi Gami's head was returned, nature regenerated. But it has become a tame, non-frightening forest of the kind that we are accustomed to seeing (Miyazaki, 1997a).

The protagonist of *Princess Mononoke*, a gentle young prince named Ashitaka, is one of the Emishi people. Emishi is a term, written with Chinese characters that literally means "shrimp barbarian". It came into usage in 7th century Japan to collectively designate the Ainu and other indigenous peoples who occupied northern Japan and Hokkaido (de Boer et al., 2020). Still subject to xenophobia and racial discrimination, their history bears the tragic and brutal hallmarks of colonised First Nations people in Australia and across the globe. Many Ainu living in Japan today conceal their identity to avoid discrimination, and a great proportion of Ainu descendants are oblivious to their heritage (Diène, 2006). Between the 17th and 19th centuries Ainu land was expropriated, their men enslaved, and their women raped or forced into marriage with the invaders. From the mid-nineteenth century their languages and cultural practices were suppressed with harsh

[2] The Muromachi era was the period between 1338 – 1573 when iron production led to the widespread clearing of Japan's primeval forests.

punitive measures under a forced assimilation policy. Significantly, the mask and cape that San / Princess Mononoke wears, and the spear she carries into battle with the villagers, are styled on those of the Ainu and the ancient Jomon people indigenous to Japan, associating her with their animist traditions and philosophy.

Ashitaka becomes embroiled in the conflict at the outset of the film when Nago, a giant boar god from the forest bursts into their fields to attack his people. Nago has a bullet lodged into his flesh and his pain and rage against the destruction of his home and kin has transmuted him into a demon, signified by his supernatural strength and the abject aura of parasitic eel-like creatures seething through his body. Ashitaka's arm is wounded in their fight to the death. Realising that Nago's demonic curse has infected him, Ashitaka is forced into permanent exile from his people. He journeys into the depths of the forest in the hope he will find a means of lifting the curse before it corrupts and kills him too. He struggles with pain from the wound that courses through his body when he is stirred to anger, in moments of stress or conflict, and in encounters with the Shishi Gami. It has imbued him with superhuman strength and deadly capability when forced into battle. His is a character infected and displaced by modernity, torn between love and loyalty for San and her unyielding efforts to save and restore the natural world, and sympathy for Lady Eboshi's efforts to relieve the suffering of the poor and disenfranchised. As Miyazaki explained in an interview, "This will tear Ashitaka apart. But this won't stop him because he treasures both, which is why his approach to life has meaning for us, living in today's world" (Imagom, 1999).

An English language version of the film scripted by Neil Gaiman and revoiced by a roster of celebrated American actors was released into the American market in partnership with Disney in 1999. Although well received it didn't do as well there. Reviewers and interviewers were unsettled by its depictions of violence, its moral ambiguity and the darkness of its resolution. In response to the question he was repeatedly asked about the film's appropriateness for children, Miyazaki responded:

> We've made many films which encourage children to be bright and hopeful. We've been making films to cheer them up and

> support them. But given the reality they encounter, that support isn't enough. They instinctively understand the problems. Where is the world headed? Are humans doing the right thing? Unless we address those questions directly our encouragement is useless because we're not addressing the real issues. So even though we had to step outside the boundaries of entertainment, we had to make this movie, or forfeit the right to make any more (Imagom, 1999).

Miyazaki's thinking resonated with my own reaction to the demand for hope based climate documentaries. I had watched Imogen grow up thinking about extinction from a very young age and had long worried about its impacts on her development and her future. I felt that as a documentary filmmaker, to avoid addressing this threat directly would be a form of complicity with the social and economic forces generating it.

This intuition has been supported by accumulating research into the climate anxiety experienced by young people, which has accelerated in response to the rise of the youth climate movement in 2018. The Lancet recently published the largest and most international study to date looking at climate related distress in that section of the population (Hickman et al., 2021). Researchers surveyed 10 thousand young people representing a diverse range of cultures and economic backgrounds from four countries in the Global South and six in the Global North, including Australia. They found that "respondents across all countries reported a significant amount of worry, with close to 60% saying they felt "very" or "extremely" worried about climate change" and 45% of them agreeing that "their feelings about climate change negatively affected their daily lives" (Hickman et al., 2021, p. 5). Even more troubling, 43% of the cohort said they were hesitant to have children of their own (Hickman et al., 2021, p. 6). There was very little variability in results between countries. The researchers presented their findings arguing that climate anxiety in the young is not caused by ecological disaster alone, but its conjunction with the failure of adults and governments to act on its threats:

> Failure of governments to prevent harm from climate change could thus be argued to be a failure of ethical responsibility to care, leading to moral injury (the distressing psychological aftermath experienced when one perpetrates and/or witnesses actions that violate moral or core beliefs), including awareness of and/or failure to prevent harmful unethical behaviour. By endangering and harming fundamental human needs, the climate crisis is also a human rights issue. The distress of climate anxiety could be regarded as cruel, inhuman, degrading or torturous (Hickman et al., 2021, p. 3).

Rationale Behind the Documentary's Production Choices

The popularity and success of *Princess Mononoke*, together with seeing the positive impact it had on Imogen's development, inspired faith that I could find a way to engage an audience around the bleak possibility that they and everything they love are currently on course to an apocalyptic end. I set out to make a film that would be visually beautiful, stirring love and empathy for the nonhuman world with which we are enmeshed, and revealing the unconscious, often invisible cruelties and suffering our culture inflicts upon it. It would need a sympathetic and strong central character and story arc that could engage an audience enough to contemplate the more difficult material I wanted the film to carry. *Princess Mononoke* was foundational to my decision to focus the film around Imogen and her efforts to a establish a career as a musician, alongside the accumulating human and climate- related impacts on the flying foxes and forests of the Sydney Basin.

Belinda Smaill's observations about the function of children in documentary strengthened my conviction that Imogen's presence would be key to the film.

> Hope circulates alongside uncertainty and the figure of the child is an important site for the exploration of this emotion. Children are most often cast as objects of hope, representing the collective's future. Less often they are subjects of hope, performing aspiration (Smaill, 2010, p. 140).

Hope was the problem at the centre of the project, and it would present Imogen in both senses. At the time I began filming, Imogen was overwhelmingly driven by the dream of building a career as a singer / songwriter / producer. Most of the scenes I filmed with her showed her working towards this goal whilst juggling her school commitments on the side. I cast her in the film as an embodiment of passing time and an imminent future compromised by the prevailing social inertia in the face of the urgent call to change posed by the environmental crisis. In doing so I wanted to stir a more tangible and emotive sense in the film's audiences of their collective responsibility for the future as represented by the children in their own lives; the urgency of embracing action in the present in order to shape a future with better possibilities to sustain the dreams of the children they care for and love. Whilst I rejected the form of hope based in the projection of an idealised present into the future, I was searching for another form of hope that could sustain action in the face of the tragic, already manifesting consequences of global capitalism's refusal to relinquish its dependence on cheap fossil fuels.

Smaill goes on to make the point that "the representation of children, particularly those that extend over intervals of time, invoke a heightened awareness of the subject's movement through history" (Smaill, 2010, p. 140). This was another important element to the project. After 200,000 years of human history we are living through a momentous period as human emissions shift the planet into a new geological era. Part of my desire to make the film was to contribute to the historical record of our corner of the world at the end of the Holocene; the beauty and abundance of the nonhuman life around us, how we lived our daily lives and how we were thinking as the changes Western culture had set in motion began to ravage it beyond recognition. I felt compelled to register my protest in the record of this moment, and I hoped that my film would stir audiences to find their own ways of doing the same.

I wanted the film to capture the anguish and dissociation I felt as a mother, as I frantically ferried Imogen from one activity to the next in a fossil-fuelled car. How does one prepare a child, so full of dreams and potential, for the trauma and loss of extreme weather and social and ecological collapse? Around the same time that Imogen became

a student at the Conservatorium High School in the centre of the city, the rising cost of housing had pushed us to its periphery. Our lives had become increasingly hectic with long commutes and the intensive roster of after school tuition, rehearsals and performances that attendance at a selective music school demands, pushing us into driving longer distances more frequently. I was deeply troubled by the knowledge that every time we drove Imogen from one commitment to the next, our emissions were contributing to the destruction of the future we were supporting. All three of these problems, rising transport emissions, the exponential rise in the cost of housing and increasing competitive pressure on children in the education system, are symptomatic of the erosion of everyday life by neo-liberal global capitalism. I bought a small Go-Pro camera to attach to the windscreen to film this aspect of our lives.

When I began *The Weather Diaries*, I had more than two decades of experience as a film and video editor, with occasional forays into writing and directing documentary projects, a short drama and an experimental documentary. I knew how to plan a shoot, but it was only when I began helping Imogen with their music videos that I began to accumulate experience as a cinematographer. Imogen was used to me filming when they were performing as a musician or in music videos, but filming them at home for the project was another matter. Initially resistant, Imogen would promise to co-operate later, saying she just didn't want me to film this particular moment. Adrian my partner was similarly resistant, avoiding me when he knew I had the camera out, or talking to me on camera in a way he knew would sabotage the scene I was filming. I was expecting these reactions after hearing eminent Australian documentarian Bob Connolly talk about his working methods. He'd said that an observational filmmaker must be prepared to discard the first six to twelve months of rushes as this is the period it usually takes for participants to settle into the routine of being filmed, becoming less self-conscious and more relaxed on camera.

With this in mind, I began to film moments of our everyday lives in late 2013, as soon as I knew I'd been accepted into the doctoral program at UTS. It was an important period for me too, as I settled into the unfamiliar role of cinematographer, developing my proficiency in the dual role of camera operator and sound recordist and becoming

more relaxed about interacting with people I was filming. The early material of Imogen and Adrian that appears in the film was recorded about five months after I started shooting. I finally managed to overcome Imogen's resistance to talking to me on camera on Mother's Day 2014, when in the spirit of the day she agreed to fully co-operate as she cooked breakfast for me. After that she regularly allowed me to film with her until the end of the Sarah Blasko tour in mid- 2016.

The joy I took in the beauty of the forested landscape around our house, the big old trees and gardens, the patches of bush throughout the city, the birds, the possums, the wallabies, the streams of bats flying out every evening across the twilit urban skies, had become tinged with melancholy and desperation at the growing immanence of their demise. It led to the decision to devote a large part of the film to the flying fox colonies living in the urban environment as they were obviously thematically rich for the multispecies story I wanted to tell. As discussed in Chapter Three, their plight is emblematic of the human / nature dichotomy in Western thinking that underlies the environmental crisis now threatening to engulf humans and most of the species with which they co-exist. As keystone pollinators for the forests on the coast and extending inland along Australia's mountainous eastern seaboard, flying foxes are strikingly resonant with the kodamas (tree spirits) of Princess Mononoke, a multitude of tiny magical beings living in the forest treetops who have a vital connection with the Great Forest Spirit (Shishi Gami) the mystical embodiment of the cycle of life. Without the flying foxes, Australian forests and the multitudinous lives they sustain will dwindle and die. Lady Eboshi's decapitation of the Shishi Gami in an attempt to finally win the war against nature for her mining colony, thereby unwittingly triggering the apocalyptic destruction of both forest and town, is mirrored by the actions of Australian settlers and their descendants. As outlined in Chapter Three of the exegesis, a relentless war has similarly been waged against flying foxes for the past two centuries.

The enmeshment of the human destiny with that of flying foxes has become clearly evident to me. The decline of the flying fox population is consonant with the decline of forests. And the decline of forests is consonant with the growing threat to human well-being posed by declining biodiversity and an increasingly hostile climate. The steady

migration of flying foxes into urban spaces over the last few decades well represents the complex challenges to traditional Western thinking and lifestyles at the dawn of the Anthropocene. We can no longer afford to think of humanity as separate from Nature, nor in control of Nature. Multiple failures of civic attempts to relocate flying fox colonies from culturally or economically valuable sites is emblematic of the hubris of this outdated belief. We are called to bear great responsibility for the choices we make as individuals and as a society, burdened as we are by the knowledge that collectively human actions have become a geological force that is reconfiguring the geology of the planet and the complex weave of all life upon it.

I have tried to convey these ideas by breaking with the convention of wildlife documentaries that demands wildlife be framed to disguise any sign of human impact on their environment. I framed the flying foxes as much as possible to show them in the context of the urban environment, showing the duress this often creates for them. In shots or sequences where the environment appears to be natural, I incorporated and highlighted the sounds of traffic or aircraft I'd recorded whilst filming them into the soundtrack as much as possible. In fact, one of the primary strategies when creating the soundtrack for the film was to incorporate sounds from the natural world into human focused scenes and vice versa. During the editing process, as the theme of maternal care came to prominence in the film, I selected sequences of flying foxes that echoed this theme, focusing on mothers and their pups, and juxtaposing them with the sequences of Imogen and I, and reinforcing them when I could with narration that reflected my experience as a mother. I hoped to create a strong awareness of their lives (and those of all non-human others) being lived simultaneously with ours, alongside ours.

The ecologists and wildlife carers who work with flying foxes are representative of everyday people who, against all odds, refuse to resign themselves to the inevitability of extinction. The association with forests is also key to Imogen's connection with Princess Mononoke, the bushland setting of our home, and the scientific work at the Hawkesbury Environment. Supporting and enhancing the flourishing of forests, replacing deforestation with reafforestation, is significant to the effort to rapidly draw

down carbon dioxide from the atmosphere and to support biodiversity. I determined to focus my film on these themes relating to the impacts of climate change on forest ecosystems and the human relationships with them.

An experimental study conducted on the impact of global heating on a locally endemic species of gum tree (the Parramatta Red Gum) by scientists affiliated with the Hawkesbury Institute of the Environment (Western Sydney University), appealed to me as it fitted the objective of the film so perfectly. It would provide visual evidence of the impact of future warming on the Australian environment if we continue to defer action to reduce the rate and scale of human greenhouse gas emissions. Six trees would be controls, growing in the ambient (outdoor) temperatures of the day. The other six were to be subjected to temperatures +3° higher, representing the median range of warming in 2070 as projected by climate modelling. As we hear so much more often today, this is a dangerous level of warming for current life on Earth. It risks triggering a cascade of climate tipping events that will cause runaway climate heating with exponentially faster-rising temperatures, a trajectory that exceeds the human capacity for intervention. The experiment offered a small very controlled window into this future, offering a glimpse of the changes young people of today might experience. I felt that showing the discipline and detail of the work involved in climate science would provide a good antidote to the climate scepticism that was given so much publicity in Australia at the time and would help to substantiate my own concerns.

The sci-fi inflected aesthetic of individual trees encased in clear rocket-shaped chambers strikingly embodied one of the underlying themes to be critiqued in the film, the aspiration to control nature embedded in Western thinking. As Jeremy Walker and Celia Granjou point out, artificial biospheres are usually constructed in an attempt to house self-sustaining ecosystems on a dead planet (Walker & Granjou, 2016). In this instance they were being employed to project life into the future conditions of a dying planet in order to calculate its rate of decline more accurately. This experiment was undertaken to test the assumption used in climate modelling that narrowly distributed tree species like the Parramatta Red Gum were likely to become extinct earlier in the trajectory of

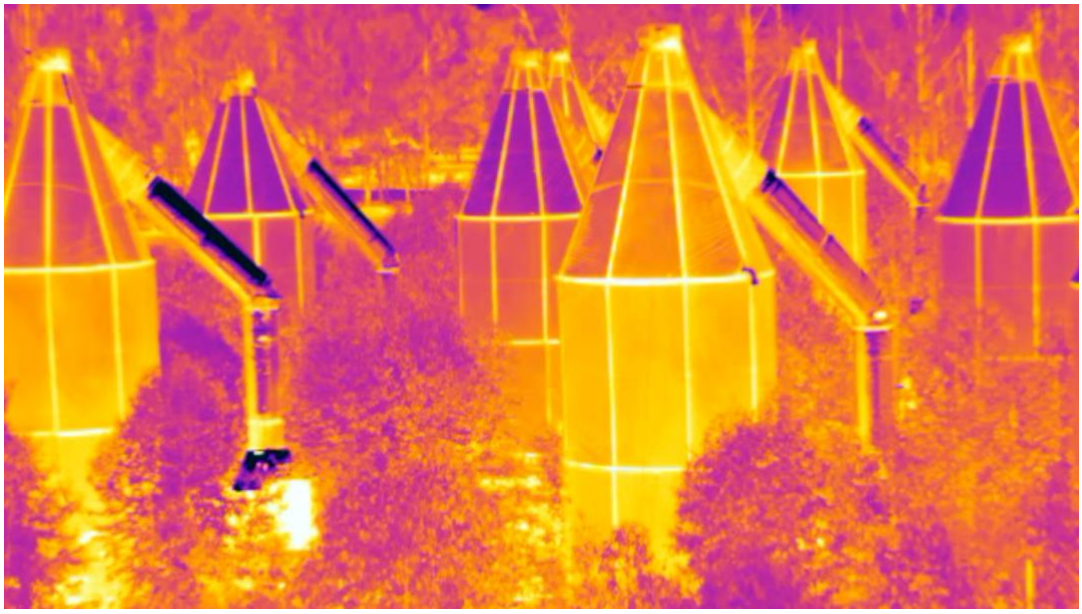


Fig 4.1 Infra-red photograph of the whole tree chambers during the final heatwave experiment Still from *The Weather Diaries* Oct 2017

rising temperatures than widely distributed tree species. The scientists hope the data collected would be absorbed into climate models to enhance their accuracy.

The year the experiment was conducted was the warmest on record with well above average rainfall. The trees were planted directly into the soil, which allowed them to access the moisture it retained, so the vagaries of rainfall influenced the results. As one of the team ruefully remarks in the film, the unusually warm temperatures in winter in combination with the high rainfall contributed to the extremely rapid growth of the trees in the heated chambers. It was disappointing because the experiment had to end when the first tree grew to the top of its chamber. Ultimately an experiment that was expected to be conducted over a two-year period came to a close in thirteen months, markedly curtailing the amount of data the scientists were hoping to collect.

Towards the end of *The Weather Diaries*, Professor Mark Tjoelker speaks excitedly about the surprising capacity of the trees to endure the final heatwave experiment, and the team's discovery of their amazing ability to adjust their leaf biochemistry to increase their thermal tolerance in response to the high temperatures they were subjected to. I understood the moisture levels in the soil from the high rainfall during the year would also have contributed to the minimal damage to the foliage, and that in drought years

the outcome would most likely not have been so heartening. But in the film I was making, such moments of optimism were rare and sorely needed, so I refrained from making this point, and allowed Professor Tjoelker's excitement and positivity to conclude the story of the experiment.

When I set out to film with them, I was curious as to whether this particular group of the scientific community would exhibit the signs of self-restraint and emotional distancing previous studies had shown to create a dangerously conservative bias in climate science. To me it's subtle but detectable in the detached, somewhat blasé manner and tone with which Dr John Drake, at the outset of the experiment, discusses the possibility that higher temperatures will bring about the extinction of the Parramatta Red Gums. As filming progressed, I asked all of the researchers working on the experiment if they were anxious about the future for their young children. Without fail they responded confidently that they weren't, with many of them proceeding to explain that humans are inventive and smart and would find a way to live in the harsher climate of the future. I saw this optimism that humans could survive as other species declined and were extinguished as an expression of the hubris of anthropogenic thought, so endemic to modern science.

Post – Production and the Shaping of the Film

I began filming for *The Weather Diaries* in late 2013. Looking back at my editing logs, I was shooting every month until early 2017. Home video of Imogen recorded in 2011 when she started at the Conservatorium High School was incorporated, as was footage I'd filmed in the same year of the flying fox colony in the Royal Botanic Gardens as preparations began to disperse them. When the megafires broke out in late 2019 I picked up the camera again. All in all, this represented two hundred and twenty days of shooting. I had collected a vast amount of video which made the editing process challenging and lengthy. The decision making was further complicated by the lack of critical distance I had from the material; I'd shot it myself, much of it featured myself and my family, and I was editing in isolation in the same house I'd filmed in. I deeply missed working with a colleague in the role of editor or director and the dialogue that usually accompanies and supports every tiny decision throughout the editing process.

To compensate for this, I screened the film to my supervisors and a select and varying group of colleagues on four occasions as it progressed from rough cut to fine cut. Their generous and thoughtful responses in the discussions afterwards played a crucial role in the evolution of the form of the film. The first draft (or rough cut) of *The Weather Diaries* did not have a narration, relying on the use of text onscreen when absolutely necessary to set up a scene. I liked the slow quiet contemplative ambiance of this version of the film. It had an immersive quality that I felt drew the viewer into the immediacy of the scenes I had filmed. The audience response at its screening was enthusiastic and positive. There was unanimous encouragement to focus on developing the intimate, more personal qualities of the film, which made it unique and interesting. They felt that hearing my voice in the film would enhance this effect, and they urged me to express more of my personal responses to unfolding events, which they found far more interesting than factual exposition about them.

As a somewhat shy person who had always worked behind the camera or in post-production, developing a narration was initially a very difficult and awkward process. It had to carry information necessary to the developing narrative or argument, but in order to fully and actively engage the audience it had to remain open, refraining from telling them what to feel, how to react, what to believe, what to think. This required me to learn to write and perform the narration in character as Myself, forcing me to simultaneously occupy the roles of writer, actor and director. The script had to sound conversational but needed to be condensed and succinct. Despite all of the work I did to deepen the subjective first-person quality of the film, at each of the following three screenings the primary feedback I received was that the audiences wanted me to reveal even more of myself. In response, the final amendment I made to the narration was to introduce a new thread about the persistent transience and fear of imminent homelessness I'd experienced throughout my life. As I worked on the edit, I had gradually come to the realisation that this was the deep underlying theme of almost every element of the film. It was the unconscious connection between my internal life and the planetary emergency that had drawn me to this work. The environmental

impacts of the heating climate are destroying or rapidly eroding home and habitat for every life in this more than human world. It will eventually leave all of us homeless.

Original Contribution of the Project

The Weather Diaries is a hybrid documentary, an essayistic diary film. This is a radical form of subjective documentary rarely made in Australia. Laura Rascaroli describes the essay film as "an open field of experimentation, sited at the crossroads of fiction, nonfiction and experimental film" (Rascaroli, 2008, p. 43). Essay films open up questions and problems, but don't offer clear cut answers. Rather the 'I' of the filmmaker directly addresses the 'you' of each audience member, engaging them individually with the film to reflect upon the same subject matter the filmmaker is musing about (Rascaroli, 2008, p. 35). The slow pacing of the film further enables this possibility. As discussed at the start of this chapter, the question at the heart of *The Weather Diaries* is novel in the field of climate documentary; the questioning of hopefulness as the basis for action on the climate and extinction crises. The film's mournful contemplation of the accumulating loss and damage; of security and optimism for young humans, the suffering and deaths of flying foxes who cannot survive the extremes of heat and rain they're experiencing, and of the forests they renew and regenerate as they feed, draws its audience towards experiencing and acknowledging their own sense of grief and dread, and the suffering of their children and their companion species in the face of the still burgeoning use of fossil fuels.

The observational sequences of large urban colonies of flying foxes, the intimate encounters with individual animals as they nurture their young or are cared for by passionate wildlife rescue volunteers, reveal them to be charming, sociable, intelligent animals. Audience responses to the film have proven this material to be a powerful antidote to the stubborn colonial myth that they are 'flying rats' to be thoughtlessly exterminated or driven from any roost in the vicinity of human habitation. In focusing on native animals in the context of the urban environment these sequences subvert the conventions of wildlife documentary which are predicated on the destructive culture / nature binary of Western thinking. *The Weather Diaries* represents an early attempt to

embrace multispecies storytelling, highlighting the web of interspecies relationships with which humans are enmeshed.

5: CONCLUSION

One of the aims of *The Weather Diaries* was to make a new kind of climate change documentary, seeking to engage audiences emotionally around the issue and heightening the sense of the immediacy of its darkening threat to the lives they love. I hoped it might reach them through their love of children and young people, their love of animals and the natural world and focusing concern for their future well-being. In what follows, I will reflect on the audience reception of the film and timing of its release, which came during the outbreak of the pandemic only the months after the 2019 – 2020 megafires.

In late 2019, Tom Zubrycki, one of Australia's best known and respected documentary filmmakers, signed onto the project as producer to help raise funds to finish the film to cinema standards and to oversee its distribution. He thought the timing of the film was remarkable and that it was capturing the zeitgeist. Shortly afterwards, as I began to finalise the edit and narration with Tom, dozens of fires broke out in drought-stricken forests all over Australia, rapidly escalating into the hellish inferno we now know as the megafires of 2019 / 2020. The cultural salience of *The Weather Diaries* soared in the wake of the horror and grief around the immense devastation left in the wake of the fires. Shockingly, the animated sequences depicting huge fires decimating a forest with people running for their lives, which I'd incorporated into the film to represent the climate future I'd been dreading, were encapsulating the new climate reality in Australia.

On a December day in 2019, as the fires were incinerating vast swathes of forested country around Sydney, we made our way through the choking smoke to meet the director of Fan-Force, a local film distribution company. Danny Lachevre spoke passionately about the uniqueness and beauty of the film, and the importance of opening a discussion about climate grief and immediately offered to take it on. In April 2020, just after COVID 19 had shut down the nation, *The Weather Diaries* was

nominated as a finalist in the feature documentary awards of the Sydney Film Festival. Screen Australia granted us $80,000 to cover the animation, copyright, grading and mixing of the film for cinema screening.

The pandemic was also resonating with the themes of *The Weather Diaries*. Many analysts were hypothesising that human encroachment into forested areas had created the conditions for the crossover of the virus from animal to human populations, and that the virus had originated in either a bat or a pangolin. In Australia fear and loathing for flying foxes re-emerged amongst certain sections of the community. The Liberal MP for Kew, Tim Smith, began calling for a cull of the colony at Yarra Bend, the site the colony had moved to after being driven from Melbourne's Botanic Gardens in 2003 (Perry, 2012). Alternatively, he suggested, there should be an action "to simply move them on" (Readfearn, 2020). Right wing media commentator Prue MacSween was tweeting calling for the extermination of all flying foxes, and Wildlife Victoria reported a spike in brutality towards them with residents reporting them being shot and bashed to death while feeding (Tuffield, 2020). It was another example of the way in which flying foxes so readily become the object of people's fear of uncontrollable nature. As large flying indigenous mammals who congregate together in large numbers and are impossible to contain beyond the boundaries of the civilised world, they are easy prey for the conservative side of politics who use them to win over voters with fear campaigns and their promises to 'put people first'.

Fig 5.1 Bat hater tweet from Prue MacSween Mar 23 2020

The film was launched in June 2020 as part of the first ever virtual edition of Sydney Film Festival. To be unable to watch it in a darkened cinema with an audience was very disappointing and anti-climactic for me, but it was great to have the SFF spotlight on the film and it captured a lot of attention. In the leadup to the festival The Guardian ran a feature article about it, describing the film as "beautifully bleak" (Valentish, 2020). Valentish structured her piece around an interview with Imogen, focusing on the environmental crisis from the perspective of youth writing. "While perhaps older generations have watched and intellectualised the incremental deterioration of the environment, some of Jones's generation is growing up with hopelessness ingrained in their psyche." Her observation was poignantly reinforced when Justine Smillie interviewed me about the film for a community radio station in Hornsby. She mentioned that her daughter, of similar age to Imogen, responded in almost exactly the same way during the 2020 fires, remarking that it seemed pointless to keep working so hard to establish her career in finance, given the grim prospect for the future the scale of these fires represented.

As the film went out further into the world, festivals, organisers of community screenings and journalists were all keen to talk to Imogen. Her story and character captured the hearts of the public far more powerfully than I'd anticipated, and it was touching for me to register the level of concern and interest in her well-being evident at the screenings. However, there were those who seemed to find the parallel threads of Imogen and the film's environmental focus somewhat jarring, though interestingly this response came more from the younger reviewers. Sarah Jasem wrote,

> Though it can be uncomfortable, there is beauty in the film's persistence in documenting climate change. *The Weather Diaries'* efficacy lies in its refusal to romanticise climate change and disaster. Despite the feeling of disjointedness that exists in the structural flitting between climate change reportage and the relaxed filming of domesticity, it shows that two things that should not exist simultaneously regrettably

> do: the promise of the future and the promise of its destruction. (Jasem, 2021).

Almeida Goodall from Roughcut Film made a similar observation saying Imogen's story "sometimes seems incongruous with the rest of the film's grim focus on environmental destruction", but then reflects "How do you hold onto joy when you're afraid that everything's about to fall apart?" She ended her review with, "Drayton has made a film heavy with rage and bewilderment towards humanity's actions, but it is also radiant with love, and full of a desperate hope for the future her daughter struggles to envision" (Goodall, 2020). Although it was somewhat disappointing to hear both reviewers say the film's structure was unsettling for them, it was gratifying to see that they both clearly understood what I was trying to convey with it.

Older reviewers were less critical of the film's structure, perhaps because they came from the generation who had experienced the highwater mark of ground-breaking powerful multilinear films; Chris Marker's famous documentary *Sans Soleil* (Marker, 1983), and Hollywood films like *Nashville* (Altman, 1975), *Short Cuts* (Altman, 1993) and *Magnolia* (Anderson, 1999), all films that had a significant creative influence on me. Jason Di Rosso who reviewed the film and interviewed me for Radio National's "The Screen Show" described it as, "a remarkable film about parenting in an era of climate change." He said that the three narrative threads of the film (Imogen, the bats and the tree experiment) "accompanied by Kathy's voiceover … become a poetic and evocative confronting reflection on the psychological stresses of climate change on everyday lives. The film's interesting because your voiceover really does go there in terms of the darker parts of your psyche in terms of the way you're processing climate change. There's a pessimism there that I think the film quite bravely explores" (Di Rosso, 2020). I was relieved to hear that he saw courage in my narration, as I'd feared audiences might react negatively to a film breaking with the hopeful model of climate documentaries.

Eminent film critic Adrian Martin wrote that it was a film "not to be missed", describing it as "an intimate chronicle of two simultaneous histories: one the one hand, the darkly cataclysmic effects of climate change and, on the other hand, the development of Drayton's daughter, Imogen Jones, from child to adult. Special connections between

these threads are drawn…" He ended with "The film strikes a hard-won balance of optimism and pessimism, fear and hope, melancholia and illumination" (Martin, 2020). I relished those words as it was a balance I'd worked hard to achieve particularly during the editing of the film.

Audiences have responded in very heartfelt and positive ways to the film's story of the flying foxes too, with a number of people messaging me to say that the film had completely changed their attitude to the animals. Although I was very conscious that they are misunderstood and unappreciated species, the number of people who have told me after a screening that they hadn't known they are pollinators and so important to the health of forests has been surprising and gratifying. Many flying fox carers have been in touch to thank me for bringing so much attention to the plight of the animals with the film, with many of them remarking how powerful it was to see the bat story interwoven with Imogen's. For example a carer from Kangaroo Valley wrote, "Although it was great seeing (the bat carers), it was the intertwining story of Imogen's journey that made this something beyond truly moving. The scenes around the 2019 fires were so immediate and relevant to us…. Thank you for this film - it certainly reflects our fears and tells an important story in a unique and interesting way." Another woman sent me a message saying, "I watched the film in the midst of the first lock-down and, although I knew about the bats, your telling of the story awakened me again to my own grief. I wept a lot while watching. I also resolved to act in my spheres of influence, one of which is teaching landscape architecture students at RMIT University." It's difficult to know or measure if and how the film will contribute to changing towards a better future, but her message indicates that the film will have some impact going forward.

Fan-Force launched the film in September 2020 with a screening, showing simultaneously in two Event Cinemas in Sydney and Brisbane and virtually to ticketholders at home through Fan-Force TV. The film was followed by a live-stream Q&A with a panel comprising of myself, Imogen, and three guests of my choosing. I invited Associate Professor Thom Van Dooren, a field philosopher in the Environmental Humanities because his writing on the human entanglements with species extinctions (Van Dooren, 2014), and the writing of his late colleague Deborah Bird Rose (Rose,

2010), has been so inspiring and influential for me as I made *The Weather Diaries*. I also invited Distinguished Professor Belinda Medlyn from the Hawkesbury Institute of the Environment where I filmed the experiment in the whole tree chambers, as her work involves using the data from experiments like that one to develop modelling showing how ecosystems will be affected by climate change. My third guest was Sarah Curran a very experienced and active member of the bat rescue and rehabilitation community. I was excited and honoured when they all accepted. The panel moderator was Dr Jonica Newby, well known science reporter for ABC TV's Catalyst program, whose book *Beyond Climate Grief* (Newby, 2021) was about to be published. I was particularly struck by Prof Thom Van Dooren's response to Jonica's opening question, asking for his thoughts and responses to the film.

> I think it's both a really mournful film but also a strangely hopeful film… it's hopeful in part because of the beautiful storytelling work... The effort to stay with the complexity and the difficulty of this situation. That there isn't really any easy answers. But the film is bearing witness to that complexity and making the effort to dwell with it. In documenting this tragedy so much of the care that goes into creating good knowledge, good science, looking after flying foxes... so much of that care is so visibly on display. And I think both of those things themselves are really hopeful. They're not solutions to the problem of climate change. We are all long past realising that we need big systemic change to our political systems in order to do anything about climate change in a long-term meaningful way**.** So I don't mean to downplay that at all, but I think there is such a need for this kind of small scale effort to just get on and do what each of us can …to contribute on all of these different levels to working through the challenge of climate change… I think what the film does is draw us in to contributing in any whatever way we can. Maybe not to the construction of a perfect future but at least to the best future

> that is still available to us. There really is a profound hopelessness that comes with thinking that we're in a black and white situation where we're either going to be saved or we're going to be lost. That we need to solve the problem in order to contribute to it. And that just isn't the case, and we see so many snapshots of that within the film (Thom Van Dooren, *The Weather Diaries* Launch, September 24, 2020).

I have quoted Thom at length because he so eloquently and concisely articulates so much of the thinking underlying the film. His words have helped my whirl of ideas in writing this exegesis around the work to better coalesce. I didn't realise as I began filming, but as I edited it became clear that making it was part of my own process of grieving the already occurring losses, coming to grips with the future they indicated, and letting go of the hope that we could save the world I'd known as a child. Being in a flying fox colony during starvation and heatwave events is painfully confronting. I cried many times as I constructed those scenes in the editing room, and counterpointed them with Imogen's hard work, excitement and hopefulness about her developing skill as an artist and songwriter. Even so, I found the research and the work of making the film fascinating and pleasurable. Focusing on the overwhelming threat of the environmental crisis in this way immediately began to alleviate the anxiety and fear that had inspired it. And as the film came together, I saw with growing clarity that the work of all the people I was filming; the scientists, and all of the bat carers, and as a parent watching Imogen grow stronger, more mature, capable and accomplished, was reinvigorating my capacity for hope that together we can make a difference. Their patience and dedication to the work they were doing, their composure in the face of the enormous odds we all know we are collectively facing, their refusal to give up and resign themselves to catastrophic failure or extinction as a fait accompli, their kindness, was inspiring and reassuring. As I worked on the film I was participating in that effort, and I felt a strength in that diverse community of likeminded people, all striving in various ways towards the same goal.

When I greeted Belinda Medlyn (the climate and ecosystem modeller) before the launch, I felt a pang of shock and fear when she told me with tear filled eyes that she was worried she would cry when speaking after the film as part of the panel. However when it was her turn to speak about her response to the film she said, "I didn't know what to expect. I thought it was going to be a lot sadder. I actually felt quite happy at the end which surprised me. But I think it was because you showed the best of us. You showed the amazing art, and the amazing science, and the amazing care people have. So remarkably I came away a lot happier than I thought I would."

Not everyone experiences and interprets the film this way. Travis Johnson's analytical review for Metro, an Australian film and media periodical, was titled "Climate of Resignation" (Johnson, 2021). On the whole it was a positive and sometimes perceptive analysis, but I was disappointed and troubled by the light its headline cast on the piece. Describing the film as "intimate, personal and hand-made", and "low-key and relatable" Johnson found the "parallel, contrasting, yet inextricably entwined thematic and narrative threads" to be "quickly and resonantly established." He praises the way the film foregrounds of Imogen's story without falling into preciousness and self-indulgence to invite "the viewer to consider the psychological and emotional burden inherent in coming of age during what is, controversially, called the Anthropocene" (Johnson, 2021, p. 28). His assertion that the film "is not a call to action, but rather an apocalypse blog: a journal recounting, if not the end of days, then at least the beginning of the end," is the opposite of my intentions, and even worse, this quote is given a byline under the film still on the page (Johnson, 2021, p. 66).

I'm pleased with Johnson's interpretation of what he describes as the film's brief "dismissive framing of the 'other side'" of the climate argument, appearing in the sequence showing my parents and the Singleton anti-bat campaigners. "Drayton allows that there are economic, social and even generational forces that drive people to ignore or deride climate science but that doesn't change the facts… It's an approach that suits the film's assumptions… And yet *The Weather Diaries* is not a polemical film. It doesn't

ABOVE: JONES (LEFT) WITH MONONOKE MASK IN 2006

In terms of tone, *The Weather Diaries* is quite bleak. It's not a call to action, but rather an apocalypse blog: a journal recounting if not the end of days, then at least the beginning of the end.

Fig 5.2 Image and byline in Metro Magazine's review *Climate of resignation unquiet adolescence in Kathy Drayton's The Weather Diaries* (Johnson, 2021, p. 66).

attack or disparage climate-change sceptics; it dismisses them, and the tone it takes in doing so is not angry or disdainful, but pitying" (Johnson, 2021, p. 67). I readjusted this sequence into the last hours of editing, anguishing over the right balance that would present my parents and the section of society they represent, fairly but honestly. Johnson's analysis seems to indicate I achieved this. But to me, his concluding thoughts are frustratingly flip and shallow; a disservice to the film, especially when one considers that Metro is published by the Australian Teachers of Media, who distribute the film into schools and universities. "Out of the countless films that have attempted to document the multifaceted existential threat that confronts us as a species, this might be the first

that feels truly nihilistic, even to the point of absurdism: the planet is dying, our children will die hungry, let's dance" (Johnson, 2021, p. 67).

Overall, the responses audiences have shared with me following screenings of the film seem to be evenly split between people who find the film confronting and bleak, and those who find hopefulness in the story being told and are moved rather than alienated by the opportunity for the shared mourning it offers. *The Weather Diaries* has had ten community screenings, supported by local councils, The Greens, and community film, climate and environment groups. In my observation the people who respond warmly to the film tend to be parents of young children (mostly mothers), people working closely with the environment who are witnessing and worrying about the early signs of the progressive devastation that the heating climate will wreak, and young people. One of the most memorably moving moments occurred in Mt Victoria when a ten-year-old girl took the microphone and thanked me for making the film. She said watching it made her feel better because not many adults seem to really care about climate change. Sadly, many parents have spoken to me of their concern about the intense climate anxiety their young children are suffering.

Amy Westervelt describes the duress of mothering in the age of extinction as "performing hope when you feel terror, preparing your kids for the worst without letting on too much… trying to make them resilient but not bitter, prepared but not terrified" (Westervelt, 2021, p. 266). She points out that mothers have a long history as organisers and social justice activists in marginalised communities and argues that mobilising maternal activism, tapping into the ethic of community mothering, is a powerful tool in the organizing toolbox that has "been completely underutilized in climate movement. Mostly because anything other than hard data and charts has been avoided by the movement for decades" (Westervelt, 2021, p. 268). Her essay illuminates one of the unique strengths of *The Weather Diaries* and perhaps underpins the warmth of its reception at the screenings, despite the perceived bleakness of the film. It is a film cultivating what Guattari calls dissensus (Guattari, 2000, p. 14); the dissensus of parents who share the understanding they are nurturing children to face social and environmental collapse, and perhaps catastrophic extinction. It is a powerful affective

force with the potential to produce dissidence in much the same way as the School Strikes 4 Climate movement has. Westervelt points to three other key lessons from the civil rights movements that are relevant to the movement for climate action: "You don't need eternal optimism and hope to fight for what's right… Knowledge and information rarely shift power structures… and community organising is (perhaps) *the* critical part of addressing intractable social problems" (Westervelt, 2021, p. 268). The first two points resonate with the themes of the film, and the third is an avenue I want to pursue. I've recently connected with the Australian Parents for Climate Action group who have expressed interest in organising a screening event for their members.

I am proud of the contribution that *The Weather Diaries* has made to Australian documentary. It utilises the neglected form of autoethnographic documentary to tell a story that is part of the emerging genre of climate memoir (Wallace, 2021). Wallace describes these works as "wary of selling the reader false hope or tired platitudes." Instead, they interrogate "the rift between what we know and what we do", seeking to simply bear witness. Like the memoir he describes of author Daniel Sherrell, *The Weather Diaries* is reaching for a new structure, creating a narrative that discloses my own feelings, in the hope of compelling others to recognise their own. It does this within the frame of multi-species storytelling, in an attempt to rekindle an awareness of the enmeshment of humans with nonhuman species, and to awaken compassion and sense of responsibility to them that is essential to mutual thriving. It is a work that reflects my own enlivening experience of "staying with the trouble" (Haraway, 2016) as Donna Haraway calls it, and I hope it can embolden other people to do the same.

SCREENINGS OF THE WEATHER DIARIES

Sydney Film Festival (virtual edition) (finalist best doco)	June 10 – 18 2020
National Film and Sound Archive - Feature (online)	Sept 10 2020
Melbourne Women in Film Festival - sold out	Feb 20 2021
Environmental Film Festival of Australia – opening night film	Oct 14 2021
Kuala Lumpur Eco Film Festival	Oct 24 2021

Cinema Launch:

Event Cinemas George St Sydney (sold out)	
Indooroopilly Brisbane Qld	Sept 24 2020
Bondi Cinema Club (online)	Oct 20 2020
Hornsby Event Cinemas - The Greens (sold out)	Nov 3 2020
Melbourne Women in Film Festival - sold out	Feb 20 2021
Waverley Council Summerama (online)	Feb 18 2021
Mount Vic Flicks - sold out	Mar 2 2021
Roseville Cinema for Bradfield Can Do Better	May 5 2021
Lake Mac Council Glendale Event Cinemas	May 19 2021
Narooma Kinema for Eurobodalla 350.org	Jun 23 2021
Forum 6 Cinema Wagga for The Greens	July 25 2021

AWARDS

Best Feature Documentary | Finalist | DAF Awards | Sydney Film Festival 2020

Best Tertiary Documentary | Winner | ATOM Awards 2021

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