Transitioning Towards an Ecological Paradigm: A Role for Public Health

by

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DEDICATION

This thesis is dedicated to the memory of my parents,
and in hope for my nieces and nephews
and all their kin.
We are the environmental crisis. The crisis is a visible manifestation of our very being....The environmental crisis is inherent in everything we believe and do; it is inherent in the context of our lives.

Evernden 1993

We abuse land because we regard it as a commodity belonging to us. When we see land as a community to which we belong, we may begin to use it with love and respect.

Leopold 1949

Public Health success is as much about imagination as evidence: challenging what is accepted as the so-called normal, or business as usual. Public health must regain the capacity and will to address complexity and dare to confront power....Public Health professionals today need to think and act ecologically if they are to help reshape the conditions that enable good health to flourish.

Lang and Rayner 2014

Human beings are capable of transformational change.

Hanlon et al. 2012
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ABBREVIATIONS

ABS - Australian Bureau of Statistics
AIHW - Australian Institute of Health and Welfare
CO₂ - carbon dioxide
DELWP - Department of Environment, Land, Water and Planning
IPCC - Intergovernmental Panel on Climate Change
IUCN - International Union for the Conservation of Nature
MDG - Millennium Development Goal
NEP - New Ecological Paradigm
RSPB - Royal Society for the Protection of Birds (UK)
UN - United Nations
WHO - World Health Organization
ABSTRACT

Background
The inextricability of humanity and environment has been recognised as a cornerstone of world health policy, for example in the Ottawa Charter for Health Promotion (Appendix A). However, collective behaviour towards the environment remains problematic, with international scientific consensus being that the planetary ecosystem is damaged and poised for greater harm, with attendant health, wellbeing, economic and security risks to present and future generations.

Cultural theorists and researchers, including those from public health, are calling for widespread cultural shifts towards a more eco-centric understanding/worldview or paradigm. What is uncertain, however, is the nature of the cultural transitioning required, the means of doing so, and appropriate cultural agents likely to engage in such an effort.

Aims and methods
This thesis explores the facilitators of and barriers to greater socio-cultural transitioning towards an ecological paradigm. It also considers the implications of the findings, especially for the field of public health. A grounded theory approach was adopted to explore, via individual semi-structured interviews, the perspectives of eighteen eminent people of profound socio-cultural influence whose commentary and/or actions indicated recognition of and responsiveness to the inextricability of humans and environment.

Findings
The findings from this research propose that transitioning towards an ecological paradigm will be supported by: 1) re-awakening recognition of human-nature inextricability; 2) renewing the cultural discourse regarding human-nature relations; 3) promoting holistic approaches which impact human-nature relations; and 4) challenging the power of those invested in the environmentally damaging ‘business as usual’ status quo. Features evident in the Ottawa Charter (Appendix A) provide a
basis for considering the critical role of public health in supporting an eco-centric transitioning and emergent propositions for change.

For example, this research indicates that awakening a sense of connection with nature would be supported by experiences in the natural world, especially in childhood. A sense of connection with nature is associated with an eco-centric worldview and action to protect the environment. Public health’s wide view of causation embraces the notion of the impact and importance of worldview, indicating a crucial role for public health in supporting more widely a sense of connection with nature.

**Conclusion**

The findings emergent from this study indicate the holistic nature of the cultural changes required for society to transition towards an ecological paradigm. Four theoretical propositions for change contribute further insight into the direction of ecological public health initiatives, and strengthen the rising calls from cultural theorists, researchers and public health experts for an eco-centric transitioning. This thesis argues that future planetary flourishing, inclusive of human health and well-being, depends on a re-orientation of cultural norms which prioritises above all else the inextricability of humanity and the environment.
1 Chapter One: Introduction and background

1.1 Introduction
This chapter introduces this study into transitioning towards an ecological paradigm. It includes background information, an overview of the thesis, and finishes with a list of definitions and terms used in this thesis. Chapter Two then moves on to present the literature.

1.2 Background
The natural environment is fundamental to human health and flourishing (WHO 1986, 2005). International public health documents such as the influential Ottawa Charter for Health Promotion (WHO 1986, p.2 [Appendix A]) explicitly recognise ‘the inextricable links between people and their environment’. Beyond survival needs, much recent research provides evidence for associations between contact with nature and a range of health, social, developmental and spiritual benefits (Henderson-Wilson 2010; Louv 2008; Townsend et al. 2015; Townsend & Ebden 2009).

The scientific evidence suggests, however, that the effects of human-wrought changes on the natural world, particularly the biosphere’s changing climate, have been and will continue to be profoundly destructive (IPCC 20131; Worldwatch Institute 2015). On the other hand, the damaging effects on human health and flourishing of human-caused environmental degradation, most notably climate change - already being experienced in Australia through floods and fire (Jones 2013) - are predicted to escalate (Climate Council 2013a; Garnaut 2011; IPCC 2013). The current state of human-nature relations indicates that, despite international recognition of inextricability between humans and the environment, such recognition

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1 The fifth IPCC report was delivered to the UN in 2013. The IPCC is currently in its sixth assessment cycle, with AR6 to be finalised in 2021 (IPCC 2017).
has been insufficient to affect ‘business as usual’ agendas impacting local and planetary ecosystems (Bushell, Colley & Workman 2015).

Widespread environmental destruction has proceeded apace over the last several centuries through processes such as land clearing for urban development and increasingly large-scale food production, industrialisation and pollution. This has been attended by widespread destruction of habitat and accelerating species-loss as well as increasingly diminished environments affecting populations, especially the poor. Even without the threat of global warming, human usage of water, land and ecosystems would still be endangering health and well-being on unprecedented scales (Myers 2009). However, the issue of climate change/global warming has begun to sharpen attention on human relations with their environment. The term ‘environmental crisis’ used henceforth includes these multiple harms culminating most recently in climate change. Although human-induced climate change impacts the biosphere including human health on its own, it is also part of a ‘syndrome of macroscopic environmental consequences’ comprising unprecedented human population pressure on the planet acting jointly with other environmental pressures to disrupt the functioning of ecosystems (McMichael & Lindgren 2011, p.403).

A focus of recent socio-political climate change research and commentary in Australia and beyond is the paradox of increasingly informed populations and seemingly decreasing concern (Blühdorn 2011; Lorenzoni, Nicholson-Cole & Whitmarsh 2007). Although experts acknowledge the science of climate change as beyond rational refutation (Climate Council 2013b; Garnaut 2011; Glikson 2013), public discourse appears also to have become polarised, especially along the political lines of Left and Right (Blühdorn 2011; Buys, Miller & Megen 2012; Holmes 2013; Charlton 2011). The consequence is effectively a decision-making stasis with regard to policy initiatives responsive and proportionate to the environmental crisis at hand (Whitmarsh 2009).

Many cultural theorists suggest the ‘cause of the cause’ of both the environmental crisis and the collective decision-making stalemate is a prevailing socio-cultural paradigm or worldview of cognitive/affective disconnect between people and nature
(Boyden & Dovers 1997; Crompton & Kasser 2009; Flannery 2010; Hamilton 2010; Merchant 2005; Moran 2006; Ornstein & Ehrlich 1989; Plumwood 2002; Pretty 2011; Rigby 2009a, 2009b; Roszak 2001; White 2011). Such theorists call for greater recognition of these links between people and nature.

Much-cited studies into associations between a wide variety of human variables and pro-environmental behaviour have found that feelings of connectedness to nature correlate with pro-environmental attitudes and/or behaviours (Kals, Schumaker & Montada 1999; Mayer & Frantz 2004; Nisbet, Zelenski & Murphy 2009; Schultz 2001; Schultz et al. 2004). In a context acknowledged as one of rapid environmental destruction, changing behaviour pro-environmentally is critical (IPCC 2013; Milfont & Sibley 2012; Whitmarsh 2009).

A significant focus of much of the research into human-nature relations is gaining a clearer understanding of the attributes and attitudes of those who share an ecological worldview. An ecological worldview (Dobson 1990) extends beyond managerialism to recognise the intrinsic and independent value of the natural world. It aligns with Barbour’s (1980) attitude of unity with nature over attitudes of either domination or stewardship, both of which emphasise nature’s instrumental value. It is likely to include feelings of community, kinship, embeddedness, egalitarianism and belongingness to nature (Maher & Frantz 2004). Identity as an ‘ecological self’ suggests the likelihood of seeing things beyond narrow definitions of self and inclusive of the ‘perspective’ of the environment (Frantz et al. 2005; Chatalos 2009). Individuals who share an ecological worldview recognise their ecological embeddedness (Plumwood 2002).

However, although cultural theorists call for urgent population-wide transitioning towards an ecological paradigm, and a growing field of research suggests the characteristics of those likely to share an ecological worldview, less clear are the steps required for an ecological cultural transitioning, and the cultural agents most appropriate to take the lead in such an effort. The aims of this project are therefore:
1. to explore the facilitators of and barriers to greater socio-cultural transitioning towards an ecological paradigm; and
2. to consider the implications of findings, especially for the field of public health.

These aims are explored through the application of a grounded theory research approach. This approach is informed by a constructivist/interpretivist epistemology and a symbolic interactionism theoretical perspective. Constructivism/interpretivism embraces the notion that, although the physical world is understood as having independent existence, the perception of that world (reality) is recognised as a social construction (Martin 1994); truth and meaning arise through engagement with the world (Crotty 1998). Grounded theory makes use of the particular constructivist/interpretivist perspective of symbolic interactionism which emphasises meaning and interpretation. All human meaning-making is assumed to be open to change; humans continually create and change the world around them, including their institutions, through acting/interacting as a consequence of their meaning making (Strauss & Corbin 2008).

1.3 Overview of thesis
This thesis has eight chapters. Following this introductory chapter, the second chapter explores in detail the literature informing this study. This includes an examination of the claim of the inextricable links between humans and environment, an overview of the planetary situation regarding human-environment interaction, and responses of governments and the Australian people to this situation. Literature exploring attitudes and values, including disconnection between humans and nature, as contributing to the environmental crisis, is then examined. Evidence of calls for an eco-centric transitioning are explored, as well as the research into ecological worldview and identity. A gap emerges in understanding the nature and means of the transitioning indicated, providing the rationale for this study. The public health literature suggesting a significant role for public health in supporting ecological cultural transitioning is also explored. The Ottawa Charter for Health Promotion (WHO 1986) is recognised as foundational for this discussion (Appendix A).
The third chapter outlines the methods used in this project. Grounded theory is the methodological approach seen as most appropriate to research seeking better understanding of cultural meaning-making, in this case regarding human-nature relations. Recognition of the socially-constructed nature of reality as ever-open to change provided the impetus for exploring respondents’ understanding of human-nature relations, including the concept of human-nature inextricability. The chapter describes the sampling and recruitment processes, and ethical implications.

The purpose of the fourth to sixth chapters is to describe the findings. The first findings chapter, Chapter Four, explores participant perspectives on the meaning of inextricable human-nature links, the individual experiences antecedent to such an understanding, and the emergence of participants’ eco-centric worldview and identity. The second findings chapter, Chapter Five, explores participant understandings of a pervasive human-nature disconnect. This includes the causes and effects of the human-nature disconnect, leading to calls for change. The third findings chapter, Chapter Six, then examines emergent propositions for ecological cultural change. In line with grounded theory’s potential to support the development of theory, four themes emergent from the previous findings chapters are articulated as theoretical propositions for transitioning towards an ecological paradigm. To demonstrate rigour, analytical claims are supported throughout the description of findings by extensive data from participants themselves. Each findings chapter, (Chapters Four, Five and Six) ends with a brief discussion of the overall progression of this thesis’ argument.

Chapter Seven discusses the findings in the context of the literature and relates them to the project aims: to explore the facilitators of and barriers to greater socio-cultural transitioning towards an ecological paradigm; and consider the implications of findings, especially for the field of public health.

Chapter Eight provides an overall conclusion to this thesis, alongside implications for further research, and reflections on the research process.
1.4 Definitions of terms used in this thesis

**Anthropocentrism** focuses on humanity/society and human interests; it is a worldview upholding mankind as the ‘central fact of the universe, to which all surrounding facts have reference’ (Oxford English Dictionary). See *eco-centrism* below.

**Country** - the word Country is a highly significant term for Indigenous Australians. Country ‘refers to a place that gives and receives life’ (Kingsley et al. 2009, p.291).

**Culture** is broadly understood as a system of meanings and symbols framing ways people in any society perceive, locate themselves and behave within the world (Geertz 1973).

**Earth**. The common name for the planet has been capitalised to reflect this usage in much of the literature examined.

**Eco-centrism** is a worldview that accords intrinsic value to all life on earth. Such valuing is recognised as fundamental to long-term human flourishing (Sessions 1995). To be eco-centric is to be pro-social as there is no human society or culture in the absence of a flourishing ecology (Boyden 2004; Hamilton 2010). Eco-centrism is contrasted with **anthropocentrism**, and is seen as a means of moving towards an ecological paradigm (see definitions).

**Ecological embeddedness** (Plumwood 2002) implies awareness of human ecological reality and ecologically ‘rational’ behaviour (with implicit ethical implications). Individuals who recognise and respond to the ‘inextricable links between people and their environment’ (WHO 1986, p.2) are understood as ecologically embedded.

**Ecological paradigm**. An ecological paradigm is congruent with the ‘unity with nature’ attitude (Townsend 1998, p.25) and stands in contrast to the prevailing paradigm of
disconnect from nature and the associated (also anti-social [Hanlon et al. 2012]) values of consumerism and individualism.

Ecology is, according to the Oxford Dictionary (2017), the branch of biology concerning the relations of organisms to one another and their physical surroundings (from the Greek word ‘οικος’ for ‘house’). It can also be taken to refer to the whole of nature, of which human beings are a part (King 2005). Ecosystems are the focus of ecology, from micro to the planetary scale; ecology is therefore the study of interconnected relationships (King 2005).

Human-nature relations/relationship refers to the various ways people understand and respond to their relationship with the natural world. For example, recognition of the inextricable links between people and their environment is one expression of human-nature relations, and the cognitive-perceptual disconnect between people and the natural world is another.

‘Immersion’ or ‘immersive contact with nature’ is used in this thesis to refer to direct experience of nature, such as exploring the bush, lying in a field ‘listening to the wind or watching the clouds move’ (Louv, 2008, pp.1-2), the opportunity for which previous generations took for granted.

Nature. For the purposes of this study, nature is defined as ‘organic environment(s) where the majority of ecosystem processes are present (e.g. birth, death, reproduction, relationships between species)’ (Maller et al. 2006, p.46), such as wilderness, farms and gardens. Individual features of the natural world include plants, animals (Maller et al. 2006) and natural, for example geological, features. It includes dynamic events such as storms (Kahn & Kellert 2002). Nature also refers ‘collectively to the geological, evolutionary, biophysical and biochemical processes that have occurred throughout time to create the Earth as it is today’ (Maller et al. 2006, p.46). The word ‘nature’ itself has continually changed in meaning over time; according to Williams (1983, p.219), it is ‘perhaps the most complex word in the language’.
**Natural world.** The term ‘the natural world’ is used often but not exclusively in this thesis in preference to the word ‘nature’ as it more clearly designates the contextual, ecological focus of this study. However, the terms ‘nature’, ‘the natural world’ and ‘the environment’ are used to some extent interchangeably as this reflects common usage in the literature and in the cultural discourse generally.

**Paradigm** refers to a set of beliefs or worldview (Creswell 2007); it is ‘a basic set of beliefs that guide action’ (Creswell 2007, p.19). The cultural paradigm is the dominant worldview.

**Public health/health promotion.** Public health is a discipline ‘concerned with protecting, preserving and promoting the health of people living now and the health of generations yet unborn’ (Hanlon et al. 2012, p.3) [Authors’ emphasis]. The public health focus is therefore on the conditions that create or damage health, and on the recognition that today’s society can impact profoundly on the health of future generations. Public health is also ‘the overarching concept within which health promotion sits’ (Gould, Fleming & Parker 2012, p.165).

**Reductionism** refers to the task of science to find the simplest and most elegant explanation to fit the data (Bateson 1988). However, according to Bateson, reductionism becomes ‘a vice’ – a term with moral overtones, suggestive also of a powerful grip – ‘when accompanied by an overly strong insistence that the simplest explanation is the only explanation. The data may have to be understood within some larger gestalt’ (Bateson 1988, p.248).

**Socio-cultural.** The term ‘socio-cultural’ - meaning ‘combining social and cultural factors’ (Australian Oxford Dictionary 2004) - is used to signify the dynamic expression of attitudes and values (cultural aspects) within the norms of society, the ‘actions and interactions’ of people (Strauss & Corbin 2008).
**Socio-ecological** approach to health is understood as incorporating the health and well-being of the whole individual, their whole community and their environment (Pryor 2009).
Chapter Two: Literature review

2.1 Introduction

This chapter provides an overview of literature relevant to current human-nature relations. It includes summaries of literature associated with: the claim of the inextricable links between humans and nature; the current planetary situation of human-environment interaction; the world response to the growing environmental crisis, particularly climate change; the theory of the cause of the cause of poor human-nature relations; the expanding field of research into human-nature relations; and evidence of an eco-centric cultural transitioning underway. The gaps derived from examination of the literature review are discussed. A potential role for public health in eco-centric cultural transitioning is then considered in the light of appropriate literature. The chapter ends with a brief discussion.²

As this thesis explores throughout contrasting notions of anthropocentrism and eco-centrism, a brief clarification may be helpful. Anthropocentrism is a worldview upholding mankind as the ‘central fact of the universe, to which all surrounding facts have reference’ (Oxford English Dictionary). Anthropocentrism focuses on society and its interests. An anthropocentric worldview is one in which humans are understood as superior to, and in control of, the rest of the natural world (White cited in Sessions 1995, p. x). Nature, conceived as irreconcilably ‘other’ and denied subjectivity, agency and autonomy, is therefore ever-available and reducible as ‘resource’ for all human endeavour (Bateson 1987; Plumwood 2002). Anthropocentrism is seen as a consequence of ongoing human distancing from the natural world (Boyden 2004). As a philosophical/ethical stance, it is aligned with the utilitarian theories of Jeremy Bentham (1789) and John Stuart Mill (1861) which advocate that a society must act to insure ‘the greatest good for the greatest number of people’ (Merchant 2005, p.70).

² This literature review builds on work undertaken for my unpublished Master of Public Health.
An eco-centric worldview, on the other hand, recognises the intrinsic value of all life on Earth, that is, all species inclusive of the eco-systems/environments essential to their survival and well-being. Such valuing is recognised as fundamental to long-term human flourishing (Boyden 2004; Sessions 1995). To be eco-centric is to be pro-social as human society and culture decline in the absence of a flourishing ecology (Boyden 2004; Hamilton 2010; Roszak 2001). To be eco-centric is also to recognise flourishing human identity as inextricably interwoven with the natural world in which humans evolved (Pretty 2007, 2011). Wilson (1993) makes the case that recognition of an ‘anthropocentrism’ arguably inextricable with eco-centrism will best serve both humanity and the natural world (as discussed in Biophilia section 2.2.3 below).

2.2 Claim of inextricable links between humans and nature

The claim of the inextricability of people and environment is made in a number of much-cited public health documents, most notably the internationally ratified Ottawa Charter for Health Promotion (WHO 1986, [Appendix A]). Although this Charter is now over 30 years old, it is still recognised as influential, within the field of public health (Hanlon et al. 2012). Explicit within the Charter is the recognition that there is no human health without environmental health, the Charter emphasising (p. 1) for the first time the environment as a determinant of health (Tait, McMichael & Hanna 2014); a ‘stable eco-system’ and ‘sustainable resources’ are recognised ‘fundamental conditions’ for health. Importantly, social, political and cultural factors are seen as interconnected phenomena which impact on the fundamental conditions for health including the environment. The Charter (p.3) affirms that ‘the protection of the natural [and built] environment...must be addressed in any health promotion strategy’; and signatories pledge to ‘address the overall ecological issues of our ways of living’ (p. 4). The Charter further claims that the ‘overall guiding principle for the world, nation, regions, and communities alike, is the need to encourage reciprocal maintenance – to take care of each other, our communities and our natural environment’ (p. 2) [emphasis added]. The critical importance of the environment to human health is evident in many other national and international documents (UN 2010; WHO 2008).
A number of other significant international conferences/statements and programs followed on from the Ottawa Charter (WHO 1986), highlighting the interconnectedness of people and environment in a context of rising environmental concern. These included the Sundsvall Statement on Supportive Environments for Health (WHO 1991). This statement focused on the need for ‘creating supportive environments for health’ (physical, social, and economic as well as political environments), and emphasised that ‘issues of health, environment and human development cannot be separated’ (WHO 1991, p.1). The Sundsvall Statement also called for the development of an Earth Charter at the forthcoming 1992 UN Conference on Environment and Development to be held in Rio de Janeiro. The need for an Earth Charter, the first international charter of this nature, was subsequently agreed to at this conference, the so-called Earth Summit (UN 1992). The Earth Charter, proposing the indivisible interdependence of environment, human rights, equitable development and peace, has now been endorsed by organizations representing millions of people, including UNESCO (UNESCO 2000). It is, arguably, the most important international document enshrining the Earth’s wondrous diversity, its fragility, its interdependence, and the need for urgent action as humanity stands at the ‘critical critical moment in Earth’s history, a time when humanity must choose its future’ (UNESCO 2000, p. 1).

The WHO’s Healthy Cities movement, initiated in 1987 and now gaining traction internationally, is also recognised as a response to the principles of the Ottawa Charter, including recognition of the interconnectedness of the environment and an emphasis on ‘settings’ for health (Taylor 2010). The Healthy Cities movement emphasises physical and social environments, and engages local governments in innovative and partnership-based programs for healthy development. It is seen as a direct response by the WHO to the Ottawa Charter, bypassing national governments who remained resistant to such ideas (Hanlon et al. 2012, p. 42). Another international charter, the WHO Jakarta Declaration on Leading Health Promotion into the 21st Century, followed in 1997. This declaration reiterated recognition of the significance of the Ottawa Charter as the leading health promotion document and of the prerequisites for health as including a stable eco-
system and stable resources. However, the statement that, ‘Above all, poverty is the greatest threat to health’, suggests the beginning of the falling away from the centrality of recognition of the interconnectedness of humanity and their increasingly compromised environment evident in preceding statements, as is noted by a number of public health commentators (see section 2.8.1).

Recognition of the inextricability of human and environmental health is evident in other significant public health documents. For example, the Mandala of Health model of Hancock and Perkins (1985) situates all human endeavour and health within the overall context of the ‘biosphere’, illustrating how humans both depend on and impact nature’s delicate balance (Figure 1, p. 69). The Mandala of Health was responsive to growing public health recognition of the field lying within the broad field of human ecology (see also section 2.8.3). More recently, the Millennium Ecosystem Assessment report explicitly notes ecosystems as fundamental determinants of human health (WHO 2005). The following section provides an overview of the literature supportive of the claim of inextricable links between humans and nature. It includes summaries relating to biological links for survival, contact with nature as a determinant of health and well-being, the biophilia hypothesis, and Indigenous³, philosophical, and theological-spiritual understandings of human-nature relations.

2.2.1 Inextricable human-nature biological links for survival

Human beings are biologically embedded in the natural world and human survival is not possible without food, water and oxygen (WHO 2005); all human health ultimately rests upon ecosystem services enabled through biodiversity (Stephens & Athias 2015). Biodiversity and ecosystems are acknowledged as critical at both the micro scale, for example in maintaining human microbial health and, at the planetary scale in regulating energy and material flows in the Earth System (Stephens & Athias, 2015). The UN Millennium Development Goals recognise the essential nature of

³ The word ‘Indigenous’ has been capitalised throughout this thesis in accordance with the usage of Kingsley et al. (2009) and other papers writing with respect for an Indigenous perspective.
healthy ecosystems for human survival and development in the emphasis on equity of access inclusive of the developing world (UN 2000). The UN Sustainable Development Goals (2015), also known as ‘Transforming our world: the 2030 Agenda for Sustainable Development’, have built on the Millennium Development Goals which expired in 2015. The Sustainable Development Goals emphasise inclusive social development, environmental sustainability, inclusive economic development, and peace and security. The overall context for these goals was articulated by the United Nations Secretary-General: ‘we don’t have plan B because there is no planet B’ (Ki-moon 2016). That is, transforming the world economically, politically, socially, is inseparable from recognition of the Earth’s centrality, the finitude of the natural world’s ‘resources’, and their susceptibility to collective human actions.

Sala, Meyerson and Parmesan (2009) propose four biodiversity-dependent functions of ecosystems: supplying human needs, such as food, clean air, clean water, and clean soils (i.e. ecosystem services); preventing the spread of diseases through biological control; providing medical and genetic resources; and contributing to the maintenance of mental health by providing opportunities for recreation, creative outlets, therapeutic retreats, and cognitive development. As Mackey (2005) observes, human future well-being is irrevocably dependent on the ecological integrity and full functioning of natural processes, understood as Earth’s support systems.

2.2.2 Contact with nature as a determinant of health and well-being

A growing body of evidence confirms that, beyond physical survival, contact with nature may be a determinant of human health and well-being (Barton, Griffin & Pretty 2012; Hartig 2008; Kaplan & Kaplan 1989; Townsend & Ebden 2009). A comprehensive literature review of evidence for the positive health and well-being effects of contact with nature confirms contact with nature has physical, psychological, social as well as spiritual benefits (Townsend et al. 2015). Benefits of contact with nature may result from a wide range of experiences, from viewing to being in nature, experiencing natural processes, and through contact with plants and animals (Townsend et al. 2015). As far as amount of exposure, or ‘dosage’ required
for positive health effects, a strong body of evidence suggests that, whilst ‘total exposure is important...all forms and quantities of exposure are helpful; and the greener the better’ (Kuo 2013).

A number of studies, including large-scale epidemiological work and rigorous experimental studies, has linked nature with health for a range of outcomes, from immune functioning, rates of physician-diagnosed adult disease, longevity in older adults, to childhood obesity (Kuo 2013). A recent study affirms that access to nearby quality (well-maintained and clean) urban green spaces is associated with increased physical activity, and attendant stress-reduction/mental health benefits (Akpina 2016). Significant also is the finding that larger, clearly visible green urban spaces, rather than piecemeal spaces, invite greater access and are linked to better physical health outcomes (Akpina 2016). The evidence is clear that, where a sedentary lifestyle may decrease health outcomes dramatically, access to ‘safe, high quality green space’, such as through nearby parks and natural spaces, supports physical activity with multiple beneficial health outcomes, including cardiovascular effects and enhanced immune functioning (Townsend et al. 2015).

Beyond physical activity or inactivity, mental health conditions such as depression and stress also impact negatively on physical health and mortality; stress for example has been linked to a range of preventable conditions such as stroke, high blood pressure, diabetes and cancers (Townsend et al. 2015). Access to quality, nearby green places has been shown to lead to significant improvements in stress levels, particularly for residents in urban areas (Roe et al. 2013). Depression, and its disorders such as drug and alcohol abuse, has a large and growing burden of disease, most worryingly among young people (Townsend et al. 2015). Evidence suggests that depression may be significantly ameliorated through nature exposure. For example, a study on the effects of ‘green exercise’ (treadmill exercise whilst being exposed to photos of green and non-green spaces) found it had not only positive physical but mental health benefits (Pretty et al. 2005).
A recent systemic review of epidemiological studies into the health benefits of green spaces in living environments found strong evidence for significant positive associations between perceived mental health (as well as mortality from all causes) and the quantity of residential green space (van den Berg 2015). Patient recovery in hospitals and rehabilitation units has also been shown to be supported through exposure to nature in various forms, such as via a view of trees through a window or access to a ‘green space’ such as a garden within the facility (Weerasuriya 2015).

Contact with nature has been associated with increases in both pro-social behaviour (Zhang, Howell & Iyer 2014) and increases in pro-ecological behaviour (Hartig, Kaiser & Bowler 2001). There is also evidence to suggest contact with nature may impact positively on crime (Maller et al. 2008), Green urban areas have been shown to reduce tensions associated with high density living, which may include increased levels of fear, incivilities, prejudice, even aggression and violence leading to crime (Kuo & Sullivan 2001). It was observed that the greener the surroundings of a building, the fewer crimes were reported; this applied not only to property crimes but violent crimes (Kuo & Sullivan 2001). The rehabilitation of prisoners has also been shown to be supported through programs providing prisoners with a pet, such as a dog or bird; caring for an animal is understood as supporting prisoners to regain compassion in preparation for release back into society (Jacobson 2007).

A review of the specifically mental health benefits of contact with nature, such as stress reduction and psychological well-being, suggests these may derive from processes such as attention restoration provided by the ‘soft fascination’ of natural environments, and, echoing the biophilia hypothesis (discussed further at section 2.2.3 below), the restorative effects of engagement with the natural world within which humans evolved (Townsend & Weerasuriya 2010).

Maller et al. (2008) suggest further that loss of contact with nature, associated with accumulating losses in diversity within the natural world itself, endangers not only the body but the spirit. Many of the addictions so prevalent in modern life, such as drug, alcohol and food addictions, are seen as futile attempts to fill the spiritual
vacuum resulting from lives disconnected from the natural world (2008). The discipline of eco-psychology has arisen in recent times specifically to address the psychological-spiritual malaise seen as a result of this disconnect. The field of eco-psychology recognises human psychology as interwoven with and dependent on a flourishing natural world (Doherty 2009). Historian and cultural theorist Theodore Roszak (2001), highly influential in the development of the field, posits human sanity as inalienably interconnected with the web of life. The work of eco-psychologists is to seek healing for the split between the psychological-spiritual and ecological.

Research into the health benefits of contact with nature suggests deprivation of access to nature has profound health and well-being effects (Maller 2009; Townsend et al. 2015; Townsend & Ebden, 2009). Louv’s (2008) synthesis of research into the effects of a lack of nature-contact for today’s urbanised, hyper-technological children supports the notion of nature as a determinant of human health and development. He hypothesises a ‘nature-deficit disorder’ contributing significantly to conditions such as Attention Deficit Hyperactivity Disorder (ADHD), obesity, type 2 diabetes and depression, all of which may be ameliorated through contact with nature. Significantly, as populations become increasingly urbanised the global prevalence of obesity is on the rise (NCD Risk Factor Collaboration 2016), with Australia among the countries most affected; a quarter of Australian children and adolescents (aged 5-17) are overweight or obese (ABS 2010). Type 2 diabetes is also on the rise in this age group in Australia (AIH 2014). With regard to ADHD, Taylor and Kuo’s (2011) research corroborates Louv’s notion that, whilst regular play in built outdoor or indoor settings has a positive effect for children suffering ADHD, it is access to green, natural play settings that has the most positive effects.

A strong case for children having access to the natural world for optimal development has been made by researchers (Gill 2008, 2012; Kahn & Kellert 2002; Maller 2009; Melson 2005; Perkins 2012). For example, studies suggest that free play within the natural world supports not only mental health outcomes, but assists in the development of life skills such as coping and self-reliance associated with unsupervised play outdoors (Maller 2009; Gill 2008). Engagement with nature,
especially in childhood, has also been shown to be associated with care for nature, which has consequences for the future flourishing of environmental and human health (Louv 2008; Townsend & Weerasuriya 2011; Perkins 2010).

Maller et al. (2008) argue that recognition of the growing evidence of nature as a determinant of health, should increasingly inform the design of widespread policy interventions to improve population health. Examples of such interventions include the greening of urban public spaces (Maller, Henderson-Wilson & Townsend 2009; Planning Institute of Australia 2009); the inclusion of nature in high-rise dwellings (Henderson-Wilson 2010) and in hospital settings (Hartig & Cooper-Marcus 2006; Weerasuriya 2015); the creation of child-friendly communities through the creation of accessible parks and public spaces, together with enabling and encouraging children to walk or cycle to school (Gill 2008); and ‘caring for Country’4 initiatives in Indigenous communities (Kingsley et al. 2009).

A recent Cochrane Public Health review of 19 studies into the health and well-being effects of adult participation in environmental enhancement and conservation activities, found however, that whilst qualitative studies indicate self-reported benefits - for example, participants reported feeling better in nature and enjoyed the social contact – there was limited quantitative evidence for such benefits. This suggested to the researchers a need for more robust research (Husk et al. 2016). Townsend et al. (2015), whilst also noting gaps in the research, particularly with regard to the social and spiritual benefits of contact with nature and calling for research to address them, point out that the rigorous, informative and more holistic nature of much qualitative research regarding benefits of contact with nature is often disregarded in a paradigm valuing quantitative contributions more highly.

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4 ‘Country’ has been capitalised, where applicable, in accordance with the usage of Kingsley et al. (2009) and other papers writing from an Indigenous perspective. ‘The term Country...refers to a place that gives and receives life’ (Kingsley et al. 2009, p.291).
2.2.3 Biophilia - theoretical basis for human innate affinities with nature

Evolutionary biologist EO Wilson’s (1984, p.139) biophilia hypothesis proposes innate affinities between humans and the natural world: we are ‘human in good part because of the particular way we affiliate with other organisms’. He proposes that humanity, having evolved within the matrix of the natural world, including animals and plants, is still intrinsically, including psychologically, rooted in this context. In Wilson’s view, human beings can thrive and fulfil their evolutionary potential only in relation to other organisms in a biodiverse world (1984).

The intrinsic necessity of a biodiversity-rich natural world for human development and maintenance is the basis of Wilson’s argument for the ‘deep conservation ethic’, espoused also by other theorists (Kellert 1997; Kellert & Wilson 1993; Perkins 2010; Simaika & Samways 2010). This stance is differentiated from many arguments for nature conservation, such as pragmatic arguments for resource restraint to enable future exploitation of unknown economic or medicinal potentials, or moral arguments (Wilson 1993). Wilson (1993, p.39) proposes a deeper conservation motive, founded on recognition of an inalienable developmental and evolutionary creative kinship with the more-than-human world: ‘Other organisms are our kin’. Despite the difficulty of proof for the biophilia hypothesis, evolutionary logic is seen as compelling; for 99% of human history - ‘deep history’ - humans were hunter-gatherers co-evolving with other organisms, suggesting that the impulses or ‘rules’ for learning and meaning-making evolved in a biocentric world, not a machine-dominated one (Wilson 1993). These propensities are unlikely to have been erased over the relatively short period of urbanisation (Wilson 1993). Pretty (2007, 2011) is among those (also Gual & Norgaard 2010; Hornborg 1998; St Leger 2003) who acknowledge the significance of this co-evolution. For 350,000 generations humans were embedded in the natural world. Nature was therefore also an inextricable part of culture for much of human existence (Pretty 2007, 2011).

The conservation of nature therefore is essential, not only for material needs, but for emotional, cognitive, developmental and spiritual needs, rationalising an ethic based
on self-interest founded in biological imperative (Kellert & Wilson 1993). The biophilia hypothesis is ‘anthropocentric’ in the sense of being based on the ‘hereditary needs of our own species’ (Wilson 1993, p.38). Implicit here is a particular notion of anthropocentrism as one acknowledging human identity as interwoven with the natural world. To cherish the natural world is to cherish a view of humanity beyond survival, inclusive of developmental/evolutionary potential inextricably linked with a biodiverse world (Kellert & Wilson 1993).

The biophilia hypothesis has galvanised a range of eco-centric thought and development in multiple fields, including education (Kahn & Kellert 2002), psychology (Gullone 2000), planning (Beatley 2011), cultural geography (Besthorn & Saleebey 2003) and health (Townsend et al. 2015). Gullone’s (2000) literature review suggests a ‘convergence’ of support for an innate human tendency to affiliate with life, and for such an affiliation to be psychologically beneficial. Lifestyles congruent with human evolutionary history are recognised as psychologically beneficial, and the rapid rate of urbanisation and technological change is seen as significantly damaging to the human psyche, and as likely to further entrench these effects (Gullone 2000).

2.2.4 Indigenous understanding of human-nature relations

The concept of ‘inextricable links between people and their environment’ highlighted in the Ottawa Charter for Health Promotion (WHO 1986, p.2 [Appendix A]) remains somewhat suggestive of a dichotomy; humans and nature may be linked, even inextricably so, and yet remain conceptually also distinct in relation to each other. Anthropologist Moran (2006) suggests that such a natureculture dichotomy is atypical of world societies, the norm having been to recognise that humans are part of nature (2006). Ethnographer Arhem (1996) observes that among Indigenous Amazonians the concepts ‘nature’ and ‘society’ are contiguous, commenting further that this likely applies to most of the world’s Indigenous peoples. Indigenous peoples may recognise an indivisibility of self-in-the-world (St Leger 2003). Such indivisibility may be suggested by the lack of a word for ‘nature’ in many Indigenous languages,
the concept being unknown to hunter-gatherer societies prior to colonisation (Rigby 2009a).

For Australian Indigenous people health, well-being and identity are understood holistically in relation to ‘Country’ (Kingsley, Townsend & Henderson-Wilson 2013; Wilson 2001). Wilson, for example, indicates Canadian First Nation peoples have ‘physical, symbolic and spiritual relationships to the land’ – they grow tobacco and hunt, perceive the land as the nurturing Mother Earth, and believe the land is alive and inspirted, representing ‘the complex intersection of culture, identity and health’ (2001, p.91).

Recent research into Australian Indigenous health and well-being is supportive of this understanding, suggesting that prevalent Western cultural ideas on health and well-being are questionable in relation to Indigenous peoples (Kingsley, Townsend & Henderson-Wilson 2013), and may implicitly enforce unhelpful – and unhealthy – Western cultural norms, for example steering Indigenous Australians, especially those living remotely, towards adoption of a Western lifestyle (Carey 2013). Such literature upholds the need for Indigenous people to have control over health on their own terms. The potential for land management practices – ‘caring for Country’ - incorporating relationship with land and others, are increasingly recognised for health-giving benefits associated, for example with enhanced self-esteem and self-identity (Kingsley, Townsend & Henderson-Wilson 2009).

Ethno-anthropologist Hornborg (1998) advances the idea, ‘contra-Cartesian dualism’, of such persons and landscapes as mutually constitutive through a co-evolution of persons and environments, as posited by Kellert and Wilson (1993). Individuals are understood as ecologically embedded; ecological embeddedness and personhood being intimately related (Hornborg 1998). This ecological identity leads to environmental behaviour (Burger 2011; Kingsley, Townsend & Henderson-Wilson 2013). An example of this is the sustainable land management practices of Cree beaver trappers based on policies of respect, reciprocity and care-giving for the land (Whiteman & Cooper 2000).
Kellert’s (1993) typology of dimensions of human evolutionary dependence on nature includes a ‘moralistic perspective’ often recognised as associated with Indigenous peoples. He describes early encounters with American Indians prior to European acculturation, during which explorers observed a fundamental belief in the natural world as a vital, living being associated with a continuous reciprocity between humanity and nature. Kellert suggests that this understanding, which embraces the inherent order, spiritual significance and relatedness of all life, may foster protection of nature as well as cooperation and altruism, thereby conferring significant evolutionary advantages (1993).

It has been suggested that chaos theory and complexity theory (e.g. Cassell & Nelson 2010; Charron 2012; Cornell et al. 2013; Mayer & Frantz 2008; Roszak 2001) may be indicative of Western cultural effort to challenge reductive or ‘mechanistic thinking’ (Merchant 2005). The same can be argued for systems theory (Bateson 1988; Dyball & Newell 2015), for example as applied to challenge ‘no limits’ resource exploitation. Such theories all acknowledge inextricable relations between elements in complex systems, including humans in complex social and environmental systems. This focus arguably shares some congruence with holistic Indigenous understanding of human-nature relations (Arabena 2010). Eco-psychologists, for example, emphasise the need for systems thinking based on the belief that behaviour can be understood only in relation to ‘the context in which individuals are embedded’: they see the current fundamental separation between ‘self and system [Earth]’ as problematic (Laszloffy 2009, p.11).

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5 Although much research supports the suggestion of traditional people’s ecological identity and behaviour, Krech’s (1999) historically-based analysis of the relationship of American Indians to the environment challenges what he sees as a stereotypical notion that this always translated into harmonious ecological behaviour. His work indicates myriad relationships between American Indians and their environment, some of which were ecologically destructive such as overhunting bison and beaver to the point of extinction (1999). Diamond’s work also indicates the past is littered with human ecological failure, calamitous to the environment and people dependent on it (Diamond 2006).
A number of contemporary writers and theorists have been suggesting concepts articulating human-nature inextricability which arguably seek to lessen the Western binary. For example, the ‘person-in-environment’ construct is employed by some eco-psychologists (e.g. Norton 2009). Influential cultural theorist Roszak (2001) proposes a ‘person-planet’ continuum; and cultural scholar Rigby a ‘more-than-human’ world (2009a, 2009b). Brown (2015) addresses his fellow human beings simply as Earthians, and Indigenous scholar Arabena (2010, p.263) proposes a ‘global indigenousness’. She also proposes that a ‘universe-referent citizenship’, based on recognition that all knowledge is universe-referent in some way, as supportive of a reframing of relations with nature within and across nations (p.263).

2.2.5 Philosophical understanding of human-nature inextricability

20th-century philosophical works have reflected on the interconnectivity of humans and nature. For example, widely influential anthropologist, social scientist and systems theorist Gregory Bateson (1988) questions the type of reasoning which has gained dominance since the Industrial Revolution positioning humanity against – and outside of – their environment (1987). He theorizes three interdependent and interacting ecologies of mind, society, and environment (1987). For Guattari, (Genosko 1996), current dualistic notions of a separation of the human/cultural system from the environmental/natural system obscure the inextricability of the complex relations between humans and their natural environment. Following Bateson, he advanced the necessity of an ‘ecosophy’, an ecological philosophy, linking the three ecologies of mind, society and environment. Norwegian philosopher Arne Naess (1995a, 1995b), responding to the emergent ecological crisis in the late 60s, suggested the need for an eco-centric ‘Deep Ecology’ movement. He advocated changing fundamental cultural values and attitudinal norms which become encoded in cultural priorities and polices. He also advocated an ecological philosophy or ‘ecosophy’, defined as follows: ‘By an ecosophy I mean a philosophy of ecological harmony or equilibrium. A philosophy as a kind of sofia (or) wisdom contains both norms, rules, postulates, value priority announcements and hypotheses concerning
the state of affairs in our universe. Wisdom is policy wisdom, prescription, not only scientific description and prediction’ (Naess 1995a, p.8) [Author emphasis].

A deep ecology movement was needed partially in response to what he saw as a shallow anthropocentric environmental – ‘human-in-environment’ – movement largely concerned with pollution, resource depletion and human health, particularly in developed countries. Naess saw the deep ecology movement as based on humanity as an integral part of the ecology, the ‘relational, total-field image’ (1995a, p.3). This philosophical movement has provided the impetus for the creation of internationally recognised eco-centric organisations such as Greenpeace, Earth First! And Sea Shepheard (Devall 1991).

Some have argued that Deep Ecology, with its relegation of humanity as a part of rather than distinct from and superior to the rest of the natural world, is ‘inherently misanthropic’ (Sessions 1995, p.xiii). Sessions maintains however that proof of such a position would require that eco-centrism is essentially misanthropic, an argument he states has not been – and, implicitly, being illogical, cannot be - made (p.xiii). Eco-centrism is seen as fundamental to a flourishing human future.

Naess and Sessions (Sessions 1995, p.68) developed a morally-implicating eight-point platform or argument for the deep ecology position:

1. The well-being and flourishing of human and non-human life on Earth have value in themselves (synonyms: intrinsic value, inherent worth). These values are independent of the usefulness of the non-human world for human purposes.
2. Richness and diversity of life forms contribute to the realization of these values and are also values in themselves.

Deep Ecology is noted as having many cultural roots, including inspiration provided by the ways of life of the world’s Indigenous peoples, as well as more recent influences from Eastern spirituality/philosophy such as Zen Buddhism. Western influences include ecologically-minded people from St Francis of Assisi, to Henry David Thoreau, D.H. Lawrence, Aldo Leopold, Rachel Carson, and, more recently, Paul Ehrlich (Sessions 1995, p.ix).
3. Humans have no right to reduce this richness and diversity except to satisfy vital needs.

4. The flourishing of human life and cultures is compatible with a substantially smaller human population. The flourishing of non-human life requires a smaller human population.

5. Present human interference with the non-human world is excessive, and the situation is rapidly worsening.

6. Policies must therefore be changed. These policies affect basic economic, technological, and ideological structures. The resulting state of affairs will be deeply different from the present.

7. The ideological change will be mainly that of appreciating life quality (dwelling in situations of inherent value) rather than adhering to an increasingly higher standard of living. There will be a profound awareness of the difference between bigness and greatness.

8. Those who subscribe to the foregoing points had an obligation directly or indirectly to try to implement the necessary changes.

Much complexity and divergence is evident in the philosophical considerations of human-nature inextricability. Guattari, for example, rejects the idea of holism in favour of difference and heterogeneity, a synthesis of multiplicities (Genosko 1996). Bateson’s ‘theory of mind’, notably the interconnectedness of the ‘three ecologies’ of mind, society and ecology, is explicitly holistic, being ‘like all serious holism…premised upon the differentiation and interaction of parts’ (1988, p.100). Bateson succinctly observes that ‘there have been, and still are, in the world many different and even contrasting epistemologies which have been alike in stressing an ultimate unity’ (1988, pp.18-19).

For ecofeminist/philosopher Plumwood (2002) and anthropologist/philosopher Abrams (2011), human ecological embeddedness is perceptually self-evident. Plumwood (2002, p.3) critiques long-standing norms whereby ‘homo sapiens’ behave as if they exist outside of nature as intellectual beings, increasingly alienated from embodied openness to the surrounding world, an endangering and irrational positon.
This she postulates as the cultural ‘crisis of reason’, or, ‘rather, a crisis of the culture of reason or of what the dominant global culture has made of reason…[in] its hubris and inability to acknowledge its own dependence on the ecological order’ (2002, p.5).

2.2.6 Theological – spiritual understanding of human-nature inextricability

The claim of inextricable links between humanity and the natural world has been an increasing focus of theology over the past century. For example, a number of significant Christian theologians have recognised the need to move beyond a theology which creates oppositions, such as between the spiritual and the so-called material, between God and humanity, between humanity and the Earth. Jürgen Moltmann, for example, writes of the ‘deep interrelation of things that one-sided theology has tended to view as opposed or conflicting’ (in LaCugna 1993, p.755). He argues against a false human sense of dominance subordinating the entire creation to human interests (in LaCugna 1993, p.755) [see also section 2.5 for further discussion of religion’s contribution to the dominant paradigm]. According to Kaufman (2001), such an anthropocentric focus underpinning traditional Christianity is no longer appropriate within a cultural context increasingly recognising, especially through science, human embeddedness in the web of life. Kaufman perceives the emergence of an ‘evolutionary-ecological consciousness’, a re-conceiving of an ecologically-centred spirituality, a ‘humanity-in-the-world’ (2001, p.335).

Such a contemporary search for a spirituality open to ecological realities is seen as imperative to many theologians. Theologian and academic King (2005), for example, is indicative in noting that much religion has been based on a disdain for embodied, everyday experience. She advocates a ‘spirituality-of-being-in-the-world’ as necessary to address the practical ‘great environmental tasks’ of species conservation and ecologically sustainable development (2005, p.72).7 King (2005) argues that conceptualising an intrinsic unity of humankind and planet is generally

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7 Again, it is interesting to see here the emergence of new terms seeking to articulate more holistic human-nature relations.
shared by the world’s religions whose original visions shared origin, belonging and destiny.

For Catholic theologian, Teilhard de Chardin (in King 2005, p.66), an early recognition of the interconnectedness of all life, and of human evolution as interwoven with planetary and cosmic evolution, was foundational to a growing consciousness of a possible convergence of human thought, an emerging collective thinking which he termed the ‘noösphere’, representing a further spiritual – and evolutionary – leap. For de Chardin this was towards an eventual synthesis with the divine at ‘point Omega’ (Brown 2014, p.31).

Teilhard de Chardin’s ecological theology provided inspiration to another widely influential eco-centric theologian – or ‘geologian’ as he called himself – Thomas Berry (Collins, 2009, p.1). Berry, like de Chardin, recognises human embeddedness within biological, planetary and cosmic evolutionary processes. Berry sees the current paradigm, based on patriarchal and consumerist values, as fundamentally irrational for its assault on both the Earth and on human meaning and purpose seen as arising from within Earth’s evolutionary matrix. Consciousness itself – thoughts and emotions – are as much ‘earth’ as soil, rocks, flowers and trees (Berry 1990) and until ‘the human is understood as a dimension of the earth, we have no secure basis for understanding any aspect of the human’ (Berry 1990, p.219). His emphasises an urgent need for a ‘cultural mutation’ enabling humanity to find its place once again as a member of the ‘earth community’ (Collins 2009, p.1). Echoing de Chardin, he understands that with human intelligence comes responsibility. Unlike de Chardin, he calls for a revolutionary movement to engage in a radical confrontation with the forces devastating the planet (1990).

2.2.7 Summary – claim of inextricable links between people and environment

For all the multiplicity of emphases on the inextricable links between people and nature as discussed above (section 2.2.1), a commonality can be seen in the challenge to anthropocentrism and its inevitably reductionist ways of thinking which situate
humans as ever more separate from and superior to the surrounding and provisioning ‘environment’. Implicit in this challenge is the need for a ‘turning back’ of human perception towards the Earth and recognition of human fellowship within it. The various sources of commentary on the inextricable links between people and the environment also provide evidence of significant moral-ethical understandings of environmental valuing as inextricable with equity and social justice, including the need for protection and reciprocity towards the natural world.

The various ways theorists are attempting to articulate phrases and concepts which emphasise humans as interwoven with the Earth community are suggestive also of ethical responses/reciprocity. For example, the concepts of the ‘more-than-human’ world (Plumwood 2002), ‘earth others’ (Gruen 2009), or ‘biocentric’ consciousness (Bateson 1988). This literature provides support from many cultural directions for Plumwood’s (2002) observation that human survival requires resituating humans ecologically and non-humans ethically.

2.3 Planetary situation

It appears these human-environment links have been insufficiently understood and/or recognised by national and international decision-makers to affect ‘business as usual’ industrial and cultural agendas (Hodgkinson 2013). The message from the world’s environmental experts, including the hundreds of climate scientists who contributed to the fifth and most recent report of the Intergovernmental Panel on Climate Change, is that the environment is severely damaged and poised for greater harm (IPCC 2013) with attendant risks to present and future generations. The consensus of the world’s climate scientists is that human behaviour, notably the burning of fossil fuels, is the long-standing, cumulative cause of the biospheric climate degradation (IPCC 2013). Extreme biospheric anthropogenic changes now in motion due to the rising concentration of greenhouse gases include rising global average temperatures, the period 2001 to 2010 being the hottest on record, and warming acidifying oceans (Climate Council 2013b).
Australia is both the world’s biggest emitter per capita of CO₂ (Worldwatch Institute 2010) and one of those regions likely to be most affected by climate change (Diamond 2006; Hare 2013). For many Australian scientists, the future is already here in the form of increasing severity and frequency of extreme events, higher temperatures, changing rainfall patterns affecting water supplies (Climate Council 2013b), rising sea levels eroding highly populated coastlines (Hardisty 2016), floods (Grattan 2011; Jones); early onset and severity of bushfires (Climate Council 2013a). Climate change made the 2016’s Great Barrier Reef coral bleaching, the worst in the reef’s history, 175 times more likely (Climate Council 2016). Insurance Council of Australia 2013 figures are unequivocal: of the nine costliest natural disasters in Australia, seven of them occurred in the 14 years prior (Holmes 2013). These climate effects are projected to intensify if warming is sustained (Climate Council 2013b). Garnaut (2011, p.8), the economist tasked with reporting on climate change to the then government, observed that Australia, facing possible temperature increases of 6°C or more, is already feeling the impact of climate change with an increase since pre-industrial times of less than 1°C. According to the independent Climate Council (2016), the window of opportunity to limit global warming to below the critical 2°C is rapidly closing. The IPCC (2013) has made repeated calls for organised action by the world community to address, and notably to mitigate, the escalating effects of climate change.

Mitigation is ‘reducing or reversing the change process’ (WHO 2005, p.9). Even with immediate deep and sustained reduction in greenhouse gas emissions, the world faces a ‘substantial multi-century climate change commitment’ (IPCC 2013, p.19). Australian earth scientist Glikson (2013, pp.3-4), having warned of biospheric feedback loops now pushing Earth’s climate towards irreversible tipping points, observes that this ‘raises issues of the most fundamental and urgent nature for the world community and calls into question the effectiveness of current strategic responses to global warming’.

Climate change can be seen as the pointy end of a long process of incremental anthropogenic environmental destruction. For example, climate change compounds
what has over the past 50 years been clarifying as a biological catastrophe, ‘the greatest extinction spasm since the end of the Mesozoic era 65 million years ago’ (Wilson 1993, p.37). Planetary boundaries that should never be passed to avoid planetary ecosystem collapse are already rapidly being crossed for climate change as well as for the rate of biodiversity, disruption of the nitrogen and phosphorus cycles (Steffen et al. 2015).

The links between people and their environment work in both directions; the planetary ecosystem impacted by humanity is now impacting humanity in continuous feedback loops (WHO 2005). Australian epidemiologist McMichael (2013, p.1335) perceives global changes as a complex interconnected ‘syndrome’ of forces arising from population pressure, urbanisation, environmental impact of many economic activities, consumerism and widening inequality. He notes the appropriateness of the term ‘Anthropocene’ to describe the current geologic epoch, signifying human impact on the planet. As Steffen et al. (2015) note, this impact is exponentially increasing (‘the Great Acceleration’ [McMichael 2103]) beyond boundaries considered safe for continued human social or biologic well-being.

The Millennium Ecosystem Assessment, compiled by 1,300 worldwide experts (WHO 2005, p.1), notes ‘ecosystems are the planet’s life support systems for the human species and all other forms of life’. Echoing McMichael’s idea of a syndrome in action, the causal links between environmental change and human health are understood as complex because they often are ‘indirect, displaced in space and time, and dependent on a number of modifying forces’ (WHO 2005 p.12). Nevertheless, as warned by the IPCC, climate change especially will increasingly pose ‘serious risk to ecosystems, food production, the attainment of sustainable development and of the Millennium Development Goals as well as to human health and security’ (Clini et al. 2007, p.6).

Undiminished climate change is likely to amplify abrupt ‘non-linear’ ecological events (WHO 2005, p.7). Given the interconnectedness between ecosystems and society, these may compound adverse social events – for example, climate change caused famine may lead to conflict (McMichael 2009). Among these ecological events the
projected mass extinctions of Earth’s creatures (Hodgkinson 2013) will further erode the biodiversity underpinning ecosystems/ecosystem services (Boyden & Dovers 1997; Sala, Meyerson & Parmesan 2009), with profound health and well-being impacts implicit in this loss. Public health expert Hancock (2015, p.253) confirms that the ‘decline in ecosystem functioning at a global and regional scale represents perhaps the greatest threat to the stability of our society and thus to health in the 21st century’. Beyond these effects, recognition of inextricable human affiliation with life amplifies Kellert and Wilson’s (1993, p.36) statement that ‘[w]hat humanity is doing now in a single lifetime will impoverish our descendants for all time to come’.

Multiple health impacts are foreseen from the ‘syndrome’ (McMichael 2013) of multiple forces of environmental destruction of which climate change is a part. Global changes include new strains of influenza virus, declines in seafood protein, displacement and conflict resulting from shortages of fresh water, and compromised land-use impacting food production, for example as a result of increasing demand by wealthier countries for red meat and biofuels (McMichael 2013). The Centers for Disease Control and Prevention (2009) in the United States details potential health effects caused by increasingly frequent heatwaves and extreme weather events, such as aero allergies, respiratory disease, vector-borne zoonotic disease, water- and food-borne diseases, and mental health issues. The American Psychological Association (2009) warns of the psychological effects of global climate change on individuals and populations, such as stress and anxiety due to resource scarcity and extreme weather events. Evidence also implicates widespread exposures to industrial and agricultural chemicals in developmental problems and other health issues including cancers, diabetes, allergenicity, congenital malfunctions, generalised immune disorders, endocrine disruptions, asthma, neurological and behavioural conditions, and, arguably, obesity and autism (Tait, McMichael & Hanna 2014, p.105).

The effects of climate change will be shared unevenly, with the world’s poorer communities, accounting for 6 billion of the world’s current population of 7 billion (Charlton 2011), bearing a disproportionate burden. Although the transboundary nature of environmental degradation means that rich and poor alike will be
increasingly exposed to threats, inequity ensures the poor will receive both greater exposure and less adequate responses (Tait, McMichael & Hanna 2014). In the Australian context, Green, King and Morrison (2009) observe that Indigenous vulnerability to climate change, for example respiratory and cardiovascular disease, will be amplified by the long history of neglect in this country.

McMichael (2009, p.11) warns that the profound direct and indirect risks to human health implicit in climate change, in particular, are a wake-up call for humanity. Direct risks from heatwaves, for example, and more indirect risks associated with weather impacting food yields and patterns of infectious diseases provide the ‘signal...[to] reinforce the motivation of governments and their constituencies to take rapid and radical mitigating actions’. Other voices stress the urgency of mitigating actions (Fussel 2009; Garnaut 2011; Hodgkinson 2013), as well as the adaptation responses called for by, for example, public health advocates (Frumkin 2008; Thomas & Capon 2011). Mitigation is the attempt to address the causes of climate change and as such represents a public health agenda. The earlier and more effective the mitigation of climate change, the less adaptation will be required in the future including by future generations (Garnaut 2011). From the health sector’s perspective, ‘the primary prevention task is...to arrest human-induced climate change’ (McMichael & Lindgren 2011, p.411).

2.4 Response to the growing environmental crisis, particularly climate change

2.4.1 International organisations

The UN has general responsibility for leading efforts by the international community to reduce the threat of climate change for humanity, including future generations. Millennium Development Goal (MDG) 7 specifically enmeshes environmental and social justice goals (2000). The 2010 MDG update emphasise the urgency for a ‘decisive response to climate change’ (2010, p.55). However, the report also acknowledges that the biodiversity target has been missed already, with potentially

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8 Adaptation and mitigation responses are both required. Adaptation is the process of adjustment to actual or expected climate change and its effects (IPCC 2014).
grave consequences. By 2012 the fact that conservation action is at least slowing the rate at which species move towards extinction was seen as positive (UN 2012).

The WHO’s Millennium Ecosystem Assessment notes that both ‘mitigation and adaptation response options can be legal, economic, financial, situational, social, behavioural, technological or cognitive’ (2005 p.9). This observation suggests that social/psychological processes lie at the heart of causation, and therefore mitigation (and adaptation), of climate change. However, the WHO (2008) Commission on Social Determinants of Health Final Report on Closing the Gap in a Generation explicitly states that it was not within the remit of the Commission to consider and analyse policy options to counter climate change. Although the need for improved research into issues of climate change is recognised by the Commission, its actual funding for improved regional information on climate change impacts implies a largely reactive interpretation of possible actions (WHO 2008), which, it can be argued, is a narrow reading of the social determinants of health.

International public health responses from the UN and WHO to the intensifying environmental crisis have generally focused on recommending actions to ensure that adaptation and mitigation strategies implemented by national governments do not further disadvantage (or take advantage of) developing countries. The emphasis is, moreover, on adaptation (WHO 2008). Although it can be argued that the emphasis on resource equity and social justice is a logical, just and necessary response to the current situation, the ‘decisive response’ (UN 2010) to offset the threat of the climate crisis in particular required by the international community under UN leadership appears not to have been made.

The recent multi-national Lancet Commission on Health and Climate Change expresses concern that the multiple impacts of climate change on human health are still not affecting global mitigation and adaptation strategies (Watts et al. 2015). Other international agencies such as the World Bank (2012) are now making calls for mitigating change. The World Bank’s risk-management report outlines observed and projected climate impacts on health, welfare and the economy, and emphasises the
economic and moral imperatives of responding urgently to climate change, the latter especially in relation to impacts on the developing world. It is intended to be a call that ‘shocks us into action’ (World Bank 2012, p.ix). Such a shock is needed because ‘recognition of the fundamental human dependence upon healthy ecosystems has attenuated in the popular mindset’ (Tait, McMichael & Hanna 2014). It has also been argued that health equity and sustainability could be better addressed by the WHO Commission by seeking to challenge the neo-liberal economic model (Baum & Fisher 2010).

The international bodies mandated to strive for the health of collective humanity, now and into the future, appear unequal at this time to acting with the urgency required, despite a discourse suggestive of recognition both of the ‘inextricable links between people and their environment’ (WHO 1986, p.2), and of the role of social, psychological and institutional factors in the causation, and implied mitigation, of climate change (WHO 2005).

A significant recent development has been the calls from the Rockefeller Foundation – Lancet Commission on Planetary Health (Whitmee et al. 2015) for a planetary health, a focus beyond notions of ‘global health’ which have not made central the importance of the planet and it’s flourishing to human health. According to the Commission, human civilization has flourished - including prodigious gains in human health (e.g. longevity, child mortality) - through unsustainable resource exploitation. However, now the degradation of those resources, ‘nature’s life support systems’, is leading to substantial risks of negative health effects into the future. Humanity has essentially been ‘mortgaging the health of future generations to realise economic and development gains in the present.’ The Commission calls for action from all levels of society, including the UN and WHO, national governments, health professionals, research funders and the academic community, investors and corporate reporting bodies, and civil society organizations.
2.4.2 Public health approaches responsive to human-environment inextricability

Significant public health initiatives responsive to recognition of the links between people and their environment have been made through the socio-ecological approach and the related ecosystem approach to health. The socio-ecological approach recognises the integration of social and ecological systems (Berkes, Doubleday & Cumming 2012). It seeks equity within and between generations (including unborn generations), and the protection of biodiversity through collaborative work – e.g. between governments, park management bodies, planners and health policy makers – in developing programs based on nature as a health determinant (Ritchie & Brown 2006). The socio-ecological emphasis finds resonance in much recent health promotion (Hansen-Ketchum & Halpenny 2011; Patrick et al. 2011; St Leger 2003). However, concern is also expressed about an over-emphasis on the healthy settings approach, evident in the initiatives such as healthy cities and schools, for failure to focus on the specifics of actual ecosystems (Parkes & Horwitz 2009). Parkes and Horwitz (2009) suggest the result is incongruous, a disconnect out of step with the socio-ecological intent of the Ottawa Charter (Appendix A). Researchers with a socio-ecological focus are also highlighting the need for public health/health promotion practitioners to respond more urgently to the impending public health crisis implicit in climate change with appropriate adaptation and mitigation approaches (Frumkin 2008; McMichael 2013; Patrick et al. 2011). Although the settings approach, with its emphasis on the places in which people ‘learn, work and play’ (WHO 1986, p.3) has had positive effects on multiple contexts, such as workplaces, schools and prisons, the task at this time of complex global challenges is to embrace a truly ecological approach; this entails building bridges between silos and reaching beyond the health field to involve other cultural domains (Dooris 2013).

The EcoHealth or ecosystem approach to health explicitly recognises the inextricability between people and their environment (Dakubo 2013). This emerging approach focuses on understanding how social, economic and political factors shape people-environment interactions, and on consequent health outcomes (Dakubo 2013). Also emphasised is community participation, particularly with regard to global
development, in order to balance health and sustainability goals (Lebel 2003). However, the insight that ‘inter-linked social ecological systems’ impact on health including global health (Charron 2012, p.256) appears not yet to have penetrated the international policy level of climate change mitigation⁹.

It can be argued that such initiatives represent a profound reorientation of public health thinking (recognition and response) away from a long-standing medically-framed health model and towards necessary inclusion of the natural world in public health initiatives (Maller et al. 2008). Such a re-orientation of public policy seeking to promote the health of populations, and leading to a concomitant re-valuing of the environment (Townsend & Ebden 2009), appears directly responsive to the Ottawa Charter (WHO 1986). That such thinking appears to have stalled at more influential levels of decision-making raises concerns about the effectiveness of such programs and initiatives in the absence of national and international ‘decisive’ policy and regulation enshrining recognition of the planetary ecosystem as an inextricable determinant of human health. (A detailed case for a greater role for public health in addressing the environmental crisis is made later in this chapter).

2.4.3 Public-Government responses to the situation

Public engagement is essential for ensuring adaptation to climate change (Buys, Miller & Megen 2012). The same can be argued for mitigation. The fore-fronting in all forms of media of issues of environmental degradation/climate change has been paralleled by much research showing wide awareness of the general issue of climate change which, however, is declining (Franzen & Vogl 2013; McCallum & Bury 2013), increasingly disbelieved (CSIRO 2011) and perceived as of low priority compared with other issues such as health and security, including other environmental issues such as pollution and disposal of hazardous wastes (Lorenzoni, Nicholson-Cole &

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⁹ However, it should be noted, that according to Charron (2012), policy environments are not always favourable to uptake of research results. EcoHealth research therefore ‘supports other forms systematization, like word-of-mouth, private sector leadership, or socialization of knowledge through cultural, religious and non-governmental organisations’ (2012, p.262).
It has been argued that public attitudes and action are therefore not proportionate to the probability of future impact on human affairs from unmitigated climate change (Whitmarsh 2011), nor responsive to the extreme likelihood that human behaviour is the largest cause, and therefore most likely solution, to the problem (IPCC 2013).

Moreover, in the Australian context as elsewhere, there is evidence of confusion about the facts of climate change and an increasingly polarised debate (Buys, Miller & Megen 2012; Charlton 2011; Whitmarsh 2011). Analysts point to further entrenchment of political tropes, with the ‘Right’ often in denial of the existence of climate change let alone its human causation (Charlton 2011; CSIRO 2011; de Blas 2010; Metcalfe 2013). For example, just over half of Coalition MPs made comments in the press prior to the 2013 election suggestive of not accepting the science on climate change (Holmes 2013). Charlton (2011) posits a wide-ranging polarisation around the environment, dividing country from city, Labor’s urban progressive and industrial bases, splitting the Liberal party and the business community. It appears that the effect of this falling away of public concern, compounded by deepening societal/cultural divisions and the politicising of climate change, has resulted in a collective Australian polity effectively stalled on climate change action. Such inaction on climate change is mirrored in the broader response to widespread environmental degradation.

Current thinking about how to achieve a sustainable future appears fraught with internal contradiction between the outcomes required and behaviours required to achieve them. Much of the commentary focuses on the outcomes required for what is generally termed a sustainable future. For example, the Australian Government has committed to limit global warming relative to pre-industrial levels to below 2 degrees (Climate Change Authority 2016). However, in 2015 the government approved Adani Mining’s Carmichael coalmine, the intended first of five controversial mega mines in Queensland’s Galilee Basin, with likely negative impact on Indigenous lands (Traditional owners vs Carmichael mine 2015), local aquifers and vital farming into the future, and in hefting a further significant tonnage of CO₂ into the collective
Information alone regarding the effects of collective human behaviour appears not to have motivated the changes in behaviour required to effect purported outcomes (IPCC 2013). There appears to be a confounding gap between the required outcomes as indicated by the widest scientific consensus the planet has known and the understanding leading to an appropriate behavioural response by government and populations. Many cultural theorists suggest that socio-cultural factors lie at the heart of this confounding situation.

2.4.4 Analysis of the collective response to climate change

Much analysis and commentary is currently focused on attempting to understand the reasons for this complex and endangering situation. With regard to the lack of action on climate change, likely contributors have been suggested: the human propensity towards short-term thinking (Emery 2011); the difficulty in imagining or visualising the cumulative effects of climate change (Holmes 2013); and faith in science and technology to solve the problem, seen as both problematic (Emery 2011) and an enabler (Charlton 2011). U.S. research into declining conservation behaviour in young people suggests that young people attribute responsibility for climate change action to government, a situation mirrored in Australia (Marshall & Goldberg 2013). Hodgkinson (2013) supports the widespread conviction that it is useless for individuals to take action on climate change as the problems can only be solved at the level of government. Yet much research is focused on behavioural-change strategies directed at individual behaviour (Milfont & Sibley, 2012). The interplay between governments and their constituencies (McMichael 2009) is also observed, the suggestion being that, with indifferent populations, governments will have difficulty securing support for pro-environmental policies (Marshall & Goldberg 2013). Following the election in Australia of the Liberal-National Party coalition in 2013 and again in 2016, it can be argued this influence is exacerbated. The national government has dismantled bodies and legislation instigated by their predecessors to address climate change (Metcalfe 2013).
Cultural researchers and theorists have enquired into the roots of the dilemma confronting humanity. U.K. political scientist and cultural commentator Blühdorn (2007, 2013) hypothesises that a ‘post-ecologist cum post-democratic paradox’ lies at the heart of Western civilisation, effectively paralysing meaningful collective action on climate change. According to Blühdorn, contemporary consumer societies have mobilised democratic norms through dispersed forms of collective power (e.g. social media) which also disperse political responsibility and obscure accountability. This leads to a ‘politics of unsustainability’ (2007, 2011). The pervasive –‘democratised’- commitment to lifestyles is maintained only at cost to social justice and the environment (Blühdorn 2013; Lowe 2009; 2013; Whitmarsh 2009). Some, observant of the current political polarisation resulting in ‘stalemate’ in environmental action (Charlton 2011), decry limits-to-growth scenarios, maintaining that both economic growth and environmental protection must go hand in hand. This especially applies to economic growth affecting the developing world. The solution to climate change is perceived as lying fundamentally in research and development (Charlton 2011). Blühdorn’s hypothesis, however, digs deeper into the socio-political and, implicitly, cultural and psychological values substrata of the paradox.

Research into possible associations between psychological variables and environmental behaviour also suggests a cognitive dissonance may be operative (Lorenzoni, Nicholson-Cole & Whitmarsh 2007; Whitmarsh 2009). For example, although intentions to recycle are frequently acted on, actions impacting on identity, social status, and norms - such as changes to domestic energy use and travel - are far less likely to be acted on (Lorenzoni, Nicholson-Cole & Whitmarsh 2007). Human ecologist Clarke (2010, p.29) observes a phenomenon which he terms ‘fetishistic disavowal’: ‘Members of today’s mass society increasingly know very well that the dominant economic and political order is leading the world toward ecological catastrophe, yet nevertheless they act as if they don’t know this’.

Many commentators agree that the discourse on climate change is fractured between competing and polarised interests. People are confused, and this has led to the gap between what the sciences indicates is urgently needed and the
collective response, including the response from governments subject to competing interests (Bushell, Colley & Workman 2015). It is argued that what is lacking may be a cultural narrative to unify a collective response, narrative being ‘the most natural form of human communication’, an example being the ‘strategic narrative’ which galvanised citizens during war (Bushell, Colley & Workman 2015, p.2). Such views on the lack of and need for a powerful collective story to provide a lens for making sense of the world and the common future support that of other cultural theorists (Roszak 2001; Boyden 2004).

2.5 Theory of cause of the cause of planetary crisis: perceptual disconnect from nature

For a growing body of cultural commentators and researchers the prevailing low recognition of, and therefore behavioural response to, the links between people and environment is seen as a collective failure of perception, people’s failure to situate themselves individually and collectively within their ‘ecology’. This, they claim, has pragmatic outcomes ruinous for humans and the environment (Boyden & Dovers 1997; Crompton & Kasser 2009; Flannery 2010; Hamilton 2010; Merchant 2005; Moran 2006; Ornstein & Ehrlich 1989; Plumwood 2002; Rigby 2009a, 2009b; Roszak 2001; White 2011). Ornstein and Ehrlich (1989, p.65) allude to the outdated human perceptual system which fails to recognise incremental environmental degradation, claiming that unconscious cultural evolution ‘has not given us the means of survival’. For Roszak (2001, p.90), there is an ‘ecological madness’ an ‘epidemic psychosis’ (p.14), at play, indicative of Western civilization’s brutal repression of what he calls the ecological unconscious.

For Blühdorn (2013), the ecological paradox existing at the heart of modern democracies is, at this time, not resolvable. Many theorists however are calling for an urgent re-awakening of ‘ecological wisdom’, and renewed human consciousness of embeddedness and embodiment in the natural world (King 2005; Plumwood 2002; Roszak 2001). For Roszak (2001) the significant question is how ecological wisdom can become more impelling and engaging than hyper-consumerist culture.
Cultural theorists suggest that the cause of the cause of anthropogenic environmental destruction, including climate change, is an anthropocentrism consequent to the cognitive separation of humans from the natural world (Boyden & Dovers 1997; Merchant 2005; Moran 2006; Ornstein & Ehrlich 1989; Plumwood 2002; Pretty 2011; Roszak 2001; White 2011). This separation of humans and nature is seen as a characteristic of the mechanistic paradigm which arose with the Enlightenment scientific worldview of the 17th-18th centuries (Boyden & Dovers 1997; Merchant 2005; Plumwood 2002). Spirit, God, and often animation itself were excised from the natural world, which came to be seen as a vastly complex machine. Human mastery over nature was affirmed: ‘Nature takes orders from man and works under his authority’ (Bacon cited in Merchant 2005, p.5). As a consequence the natural world was radically diminished in cultural meaning, ever reducible to human understanding and ever available for human ends, to claim, extract, trade and dispose of as desired (the contemporary term ‘natural resources’ being indicative).

Religion, particularly Christianity, has been noted as having a critical role in helping to establish the dominant paradigm of separation (Hancock 1982; Merchant 2005). Hancock (1981) suggests that if one ethos presided over Western worldviews, it was the concept of the valid domination and subjugation of nature by man. Christianity taught that the subjugation and exploitation of the natural world was God’s will (Plumwood 2002). ‘For nearly two millennia Christian missionaries have been chopping down sacred groves, which are idolatrous because they assume spirit in nature’ (White, cited in Hancock 1981). The effect of destroying pagan animism was to make possible the exploitation of the natural world ‘in a mood of indifference to the feelings of natural objects’ (Hancock 1981).

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10 Many experts and scientists understand the main factor impacting the environment as expanding human populations (Attenborough, cited in Hodgkinson 2013; Charlton 2011; Lovelock 2007; McMichael 2013). Although this is acknowledged to be of great significance, the focus of this research is on the socio-cultural bases of behaviour impacting the environment.

11 The conflation of ‘nature’ and the ‘feminine’ and the consequences of this for ‘both’ is the subject of much feminist/eco-feminist theory (e.g. Griffin 1978; Keller 1985; Merchant 2005).
Anthropologist and systems theorist Bateson’s (1987, p.500) summary of the central cultural ideas which, in their most virulent form, have dominated civilisation since the Industrial Revolution, finds much support in this literature:

a) It’s us against the environment.

b) It’s us against other men.

c) It’s the individual (or the individual company, or the individual nation) that matters.

d) We can have unilateral control over the environment and must strive for that control.

e) We live within an infinitely expanding ‘frontier’.

f) Economic determinism is common sense.

g) Technology will do it for us

For many, including Bateson (1987, p.495), such a worldview is a consequence of only partially conscious habits of thought associated with the ‘epistemological error’ of humanity knowing itself as separate from the natural world, an ‘insane’ proposition. That these ideas are ultimately self-annihilating finds expression in his formulation: ‘The creature that wins against its environment destroys itself’ (1987, p.501). The case is made for a prevailing ‘crisis of reason’ associated with the dominating mode of reductive, ‘mechanistic’ reasoning profoundly maladapted to the growing ecological and interwoven social crises (Plumwood 2002).

The form of rationality seen by many observers as dominant at this time centres on ‘rationalist economics’, a central feature of which is an anthropocentric attitude towards the natural world, conceived as irreconcilably ‘other’ and denied subjectivity, agency and autonomy (Bateson 1987; Plumwood 2002). Such a paradigm reducing, dominating and exploiting the natural world, coupled with hubristic and flawed notions of human agency and autonomy, therefore meets environmental ‘challenges’ with limited paradigmatic reasoning (Plumwood 2002). The failure to recognise human ecological embeddedness, or its active denial by those with vested interests, is encapsulated in the treatment of the biosphere, the
entire natural world, as ‘external’ to human survival; this has been argued to be fundamentally irrational, maladaptive and dysfunctional (Plumwood 2002, p.29).

Many cultural theorists/experts critique the associated neo-liberal no-limits-to-growth worldview, linked with processes of historical change distancing humans from nature, which is seen as inevitably ruinous for a finite Earth (Anderson & Bows 2012; Hamilton 2010; Lowe 2009). The presumption that there is no possible model or vision for human affairs other than free-market capitalism is also of significant concern. For example, the pervasive conviction that solutions to the ‘environmental crisis’ must inevitably be market-driven, and the alacrity with which challenges to the model are swiftly realigned in terms friendly to the market – green consumerism being an example – is the focus of much concern (Brulle & Antonio 2015; Hamilton 2015). The ecologically disastrous effects of a cultural paradigm of ecological disembodiedness is seen as worsening as the economic rationalist agenda focuses more sharply on the economic potentials of science-driven developments such as biotechnology, bioprospecting and intensive agriculture (Plumwood 2002, pp.238-239).

Further, the West’s increasing economic and cultural dominance of the developing world is seen as inevitably further diminishing the natural world if steps are not taken soon to address the cultural issues at the heart of the crisis (Plumwood 2002). For Australian Indigenous academic Arabena (2010, p.263), consumerism is the rampant ‘culture of colonisation’ now in motion, subjecting not only Indigenous peoples but the entire planet: ‘Humanity and other life forms, arable land, rivers, oceans, springs, other waterways and our air are also being colonised’. Even the colonizers have become trapped.

According to Arabena (2010), a process of ‘un-colonization’ is required to support the recognition, clear to many Indigenous peoples, of the fusion of humanity with an alive universe. The Indigenous perspective entails recognition that this universe is manifested not only through the thoughts and actions of humanity, but also through its own ‘thoughts and actions’ manifests humanity (Arabena 2010). Indigenous leader
Pat Dodson, speaking at the 2014 International Union for the Conservation of Nature [IUCN] World Parks Congress, observes that all Australians are inextricably linked with the land and each other, and concludes that unless we ‘learn about connectivity’ and ‘learn to live with respect for what we have been given [in the land], we are doomed’. He re-frames the project of reconciliation between Indigenous and mainstream Australians: ‘Reconciliation with land is as necessary as reconciliation with Indigenous people’.

Many theorists and researchers, including within the public health field (Brown et al. 2005; Patrick et al. 2012), are calling for major cultural transitions to begin to address the disconnect between people from their environment, seen as the cause of the cause of the environmental dilemma on the collective doorstep (Assadourian 2012; Bannon 2009; Baum & Fisher 2010; Boyden & Dovers 1997; Burton & Schwarz 2013; Cassell & Nelson 2010; Clark 2010; Cornell et al. 2013; de Blas 2010; Dunlap 2008; Flannery 2010; Hamilton 2010; Head 2013; Heeson & Scutt 2009; Lorenzoni, Nicholson-Cole & Whitmarsh 2007; Macy 2007; Mayer & Frantz 2004, 2008; McKibben 2007; Merchant 2005; Monbiot 2010; Moran 2006; Ornstein & Ehrlich 1989; Plumwood 2002; Roszak 2001; Urry 2011; White 2011).

Culture is understood as the system of meanings underpinning worldview and behaviour (Geertz 1973). The significance of culture to this study is similar to Plumwood’s: ‘I use the term ‘culture’ as a way to focus on how deep, wide and multi-levelled the cultural challenge must be to the systems that relate us both materially and in terms of attitude and ideology to the ecological world we all-too-unwittingly inhabit’ (2002, pp.3-4). At the heart of the cultural transformation is therefore a shift in consciousness of the human place in the Earth community. ‘Deliberate collective action’ is required in support of a ‘biosensitive’ ecological phase (Boyden & Dovers 1997, pp.30-31); a rousing of ‘conscious cultural evolution’ in order to ‘chang[e] the way we think to save our future’ (from title, Ornstein and Ehrlich 1989, p.63).

12 Some of these sources pre-date the current concerns specifically about climate change; however as it can be argued that such thinkers, who remain influential, saw that the environmental changes accumulating would lead one way or another to serious consequences for humanity, their analyses remains current.
Palaeontologist and scientist communicator Flannery (2010) addresses the power of cultural ‘myths’, and the necessity for new and more life affirming cultural ‘memes’ to proliferate. Ecologist Rees observes a need to address the cultural drivers of climate change that strives for consciousness and reasoned deduction, in order to ‘rewrite the myths we live by...[and] articulate the necessary conditions for sustainability’ (cited in de Blas 2010, p.2). Kellert’s (1993, p.66) formulation of this shift is broadly indicative: ‘our modern environmental crisis...[is] symptomatic of a fundamental rupture of human emotional and spiritual relationship with the natural world...[And] mitigation of this environmental crisis may necessitate nothing less than a fundamental shift in human consciousness’ to counter ‘the contemporary drift towards massive biological impoverishment and environmental destruction’.

Changes in human-nature relations seen as necessary reach beyond narrow behaviour-change notions; mainstream understandings and behaviour change interventions are inadequate to the accumulating ecological crisis (Adams 2016). Implicit in much of the research and commentary is the understanding that much of the ‘action to address climate change’, for example, may be merely addressing symptoms of a wider dis-ease in human-nature relations and is likely to prove ineffectual in the long term in the absence of a renewed recognition and responsiveness to the reality of human-nature relations (Adams 2016; Plumwood 2002). Expanded capacities within human consciousness and community are required to engage in a wider field of values and potentials – for example, ecological, moral, ethical, and political. The deliberation called for – contra to a culturally endemic short-term focus – also includes the future (Brown 2015).

Cultural theorists suggest the continued flourishing of a biodiverse Earth, inextricable from the future flourishing of humanity, lies now as never before in the hands of humanity, or more precisely, in human capacity to engage this wider perspective (Bateson 1987, 1988; Brown 2015; Hamilton 2010). ‘We must change this culture or face extinction’ (Plumwood 2002, p.5). Unlike Blühdorn (2013) who suggests humanity is living in a post-ecological cultural context, many of these theorists
suggest that, complex and uncertain as the dilemma confronting humanity clearly is, intrinsic to such transitioning is a more ecologically embedded awareness.

A human-nature cultural repositioning is seen as not merely cognitive but affective and experiential. Phenomenological researcher White (2011, p.42) reflects that, to begin to reconnect the ‘disconnected consciousness’ regarding collective relations to nature, ‘humanity’s consciousness needs to shift towards a more respectful, related and participatory form if we are to encourage and sustain a more harmonious relationship with the nonhuman world’. ‘Humanity needs a ‘reconceptualising of our relations with nature’, as there has been ‘an erosion of evolutionary flexibility’; ‘linear reasoning alone is insufficient’ (Moran 2006, p.96). For communications researchers Crompton and Kasser (2009) the cultural shift of consciousness required is explicitly toward a human environmental identity.

The crisis both requires and opens up the opportunity for a renewal of understanding: ‘climate change challenges us to explore ways of thinking and acting that depart from the main line of modernity, calling us into relationship with others across boundaries of ‘race, class, religion, nation, and...species’ (Rigby 2009a, p.136). A wider, more inclusive, more holistic ecologically oriented awareness will better fit humanity, it is implied, for the challenges posed by the planetary situation (Boyden & Dovers 1997; Merchant 2005; Moran 2006; Ornstein & Ehrlich 1989; Plumwood 2002; Pretty 2011; Roszak 2001; White 2011).

The critical necessity as emphasised by cultural researchers and theorists is described in terms suggestive of a transitioning to the more ‘ecologically embedded’ cultural paradigm as articulated by Plumwood (2002), an ecological paradigm (Dunlap et al. 2000; Townsend 1998), wherein humans are (re-) situated in ecological terms in keeping with values explicitly acknowledging human-nature inextricability. Boyden (2004), observes that although the human aptitude for culture is the root cause of the main threats to humankind today, the only hope for the future lies in this aptitude.
2.5.1 Research into human-nature relations

Anthropologist Theodore Roszak (2001, p.77) argues that the environmental crisis as clear evidence that ‘our relations with nature are...deeply failed’. In addition to the recent expansion in cultural commentary and theory (which frequently draws upon research findings) into the causes of environmental destruction, particularly climate change, there has been an upsurge in quantitative and qualitative research into human-nature relations, suggestive of heightened collective attentiveness to this failure, and to the wider subject and possibilities of enhanced human-nature relations.  

This research is frequently contextualised by the mounting scientific evidence of the threat posed to humans and the wider environment by human-induced climate change (Whitmarsh 2009), suggesting that ‘individual, social, and structural changes on a fairly large scale will have to occur in the near future’ (Mayer & Frantz 2004, p.503). More precisely, this aspect of the literature suggests that the causes of climate change, and likewise the causes of the current paradox (Blühdorn 2013) or stalemate (Charlton 2011) stalling collective action, are not simply human-induced or anthropogenic, but are understood as psychogenic (Chatalos 2006), not simply ‘environmental problems’, but psychosocial problems (Adams 2016). That is, the understandings, attitudes, values, feelings and intentions underpinning the behaviour which ultimately impacts on the environment originate in the human psyche, the individual and collective or cultural mind. ‘Climate change is a psychological fact as much as a social or physical fact’ (Marshall 2011, pp.265-6). These phenomena have attained enhanced significance as determinants of human behaviour towards nature (Whitmarsh 2009).

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13 For example, for the period 1992 -2002 the search terms ‘ecology* paradig*’ elicited from EBSCOhost 312 research documents: the same terms elicited 966 documents for the period 2002 – 2012. The term ‘ecological paradigm’ and its variants may be suggestive of heightened human-nature awareness. This contrasts with some evidence of waning interest in ‘environment’ in the general populace, such as is suggested by Google search patterns.
The range of research on human-nature relations, including on associations between psycho-social attributes/characteristics and pro-environmental behaviour, is multi-focal, extensive and expanding, multi-disciplinary, and interdisciplinary. It includes the fields of: environmental sociology (e.g. Dunlap 2008), psychology (e.g. Whitmarsh 2011), eco-psychology (e.g. Burns 1998, Buzzell & Chalquist 2009), anthropology (e.g. Moran 2006), ethnography (e.g. Hornborg 1998), organisational psychology (e.g. Crompton & Kasser 2009, 2010), systems theory (e.g. Bateson 1988), evolutionary biology (Wilson 1984), agriculture (e.g. Carol & Kirwan 2011), ecological economics (e.g. Gual & Norgaard 2010) and public health/health promotion (e.g. Frumkin 2008).

The multi-focal nature of recent qualitative and quantitative research into characteristics or variables associated with environmental behaviour is indicated as follows [N.B. this indicates only a main emphasis of invariably complex research into overlapping psycho-social phenomena]: values (Brick & Conrardy 2013; van der Werff, Steg & Keizer 2013); attitudes (Australian Bureau of Statistics 2013; Costarelli & Colloca 2004; Hawcroft & Milfont 2010; Stern & Dietz 1994); intentions ([meta-analysis] Bamberg & Möser 2007); concerns (Nisbet, Zelenski & Murphy 2009); identity (Arcidiacono, Procentese & Paolillo 2011; Davis, Green & Reed 2009; Hinds & Sparks 2008, 2010); beliefs (Axelrod & Lehman 1993; Gootee et al. 2010; Pahl et al. 2005); and feelings (Carrus, Passafaro & Bonnes 2008; CorraVerdugo et al. 2009; Perrin & Benassi 2009).

A number of dominant themes emerge from the literature. For example, research and commentary has focused on encouragement of pro-environmental behaviour through a highlighting of positive alternatives to current behaviours, ‘alternative hedonisms’ (Soper 2008), with emphasis on health, agency and/or hope (American Psychological Association 2009; Butler & Weinstein 2011; McKinley 2008; Nisbet & Gick 2008). The theme of ‘place’ and associated attitudes, values and feelings

14 Such an emphasis appears to be grappling with Roszak’s injunction, "If ecological wisdom cannot...compete with the material gratifications of industrial growth, it will run a poor second to those who appeal to stronger emotions' (2001, p.38).
(Devine-Wright & Howes 2010; Gosling & Williams 2010; Hernández et al. 2010) has been highlighted. The concept/theme of ‘ecological embeddedness’ is also receiving attention at this time from fields ranging from philosophy (Plumwood 2002; Stephens 2012), ethnography and anthropology (Burger 2011; Hornborg 1998; Moran 2006) to land management and agriculture (Carol & Kirwin 2011; Penker 2006).

Some human-nature relations research explicitly seeks to provide baseline data - including aggregated data at national levels - and reliable measurement and predictive tools to support policy makers tasked with factoring human behaviour towards the environment into policy decisions and approaches (Milfont & Sibley, 2012). An emphasis of policy-oriented research is that the data, which shows significant population divergence, for example in attitudes (Milfont and Sibley 2012) and intentions (Whitmarsh 2009) associated with environmental behaviour, suggest the necessity for ‘multiple level’ interventions to effectively address global environmental problems (Milfont and Sibley 2012). As noted in Whitmarsh’s (2009) work on behavioural ‘asymmetries’, associations between attitudes and behaviour do not appear to be straightforward, as pro-environmental intentions do not always flow through into pro-environmental behaviours.

A major direction of much research into human-nature relations has been understanding and measuring associations between attitudes, and particularly feelings of connectedness, towards nature and pro-environmental concerns and behaviours. For example, widely cited quantitative studies provide evidence of associations between a sense of connection with nature and environmental concern (Schultz 2001; Schultz et al. 2004; Zelenski 2009). A variety of quantitative scales are used to measure associations between a sense of ‘connectedness to nature’ (Mayer & Frantz 2004; Nisbet, Zelenski & Murphy 2009) and ‘emotional affinity’ (Kals, Schumaker & Montada 1999) and actual pro-environmental behaviour15. Such

15 Work undertaken for my unpublished Masters of Public Health thesis (2013) provided the basis for some of the research in this paragraph.
studies demonstrate with high validity and reliability that feelings of connectedness to nature are associated with pro-environmental behaviour. A plethora of other quantitative scales supports similar associations between feelings of nature connectedness and environmentally friendly behaviours, for example: the ‘environmental identity’ scale (EID) (Clayton 2007); the ‘nature relatedness’ (NR) scale (Nisbet, Zelenski & Murphy 2009); and the ‘Participation in Nature’ (PIN) scale (Scott, Amel & Manning 2000).

A couple of scales or typologies are so frequently cited as to merit particular attention, namely Kellert’s typology of valuations of nature (Kellert 1993), and Dunlap and Van Liere’s New Environmental Paradigm (Anderson 2012). Kellert hypothesises nine ‘presumably biologically based’ categories representing adaptational and evolutionary advantage in valuing nature: Utilitarian, Naturalistic, Ecologistic-Scientific, Aesthetic, Symbolic, Humanistic, Moralistic, Dominionistic, and Negativistic (1993, p.59). Kellert (1993, p.42) proposes that the typology represents an exploratory effort at supporting EO Wilson’s biophilia hypothesis that there exists a ‘biologically based, inherent human need, to affiliate with life and lifelike processes’. Kellert’s typology aligns with the work of others; Mayer and Frantz, for example, made use of it to develop quantitative tools to measure connectedness to nature (2004), suggesting interest in better understanding of a biological basis for human-nature relations.

The New Ecological Paradigm (NEP) (Dunlap & Van Liere 1978; Dunlap et al. 2000) has also been very influential in the work of many quantitative researchers in the field of human-nature relations (e.g. Rauwald & Moore 2002). The NEP was developed specifically to begin to measure the population shifting from the ‘dominant social paradigm’ towards a more environmentally conscious world view or ecological paradigm (Anderson 2012). The NEP developers were convinced this movement had begun in the wake of environmental concern following the publication in 1962 of Rachel Carson’s ground-breaking book ‘Silent Spring’ (Anderson 2012). Concerns have been raised about the validity of the 15-question scale, that is, that it may not measure what it purports to measure, as well as for not accounting for certain
elements of a pro-ecological worldview (Anderson 2012), however it is ‘probably the most widely used measure of environmental values or attitudes worldwide’ (Anderson 2012, p.261).

The scale provides, for example, cross-sectional assessments of the relation of environmental worldviews to attitudes on public policy, and has been used in before-and-after intervention studies. These include studies on the impacts of education programs on environmental world views (Anderson 2012). There appears to be as yet no ‘meta-analysis’ of the many studies to date using or based on the NEP from which large scale societal movement could be extrapolated towards the ‘ecological paradigm’ as originally envisaged by Dunlap and Van Liere (1978). However, the frequent use of the scale and the debate in the literature about the various advantages and disadvantages of using the NEP or similar scales may be suggestive itself of movement of the academic focus – discourse and research – away from the dominant social paradigm in a pro-ecological direction (Anderson 2012, p.260).

Other studies incorporating qualitative methodologies have sought to understand associations between feelings of connection to nature and ‘place’ and pro-environmental behaviours, suggesting that connections with nature are likely to arise from the time spent in the natural environment. For example, Schroeder’s (2007) phenomenology-based surveys of feeling ‘a part of/apart from’ nature researched participant’s attitudes to particular places, finding that places with which participants are familiar are more likely to elicit pro-environmental responses. The grounded research surveys of human ecologists Vining, Merrick and Price (2008, p.25) suggest that feelings of ‘connectedness to nature’ are related to both contact with nature and actual time spent in natural environments. Louv’s (2008) research supports the claim that connections with nature in childhood are associated with life-long feelings of connectedness and care for nature. My primary research into the antecedent experiences of environmental activists also supports this claim; all except for one of the six participants developed strong affinities with nature as a result of contact with nature as children (Lewis & Townsend 2015).
A number of research papers emphasise the importance of emotion in influencing human behaviour as distinct from, and frequently of more importance than, cognition (Corral-Verdugo et al. 2009). Mayer and Frantz’s study using the ‘connectedness to nature scale’ (CNS) is among studies emphasising the necessity for analysis and measurement of human-nature relations to focus beyond knowledge on affect or the ‘felt sense’ (2004, p.508), noting Aldo Leopold’s observation that a feeling of connection with nature, arising from experience, is a necessary basis for behaviour informed by an environmental ethic. Schultz et al. (2004) built quantitative measures of ‘connection to nature’ based on Leopold’s concept of the felt sense of connectedness. Another study elucidates the role of anticipated emotions, such as with regard to potential use of public transport or private car, as predictors of environmental behaviour (Carrus, Passafaro & Bonnes 2008).

The research on feelings of connectedness with nature includes reference to the idea of an overlap between humans and nature, of a continuum between person and planet (Roszak 2001) on feeling a part of, as distinct from apart from, nature (Schultz et al. 2004). A recent study includes the concept of ‘perceived self-nature overlap’ within its measurement frame, and finds that the greater the perception of such overlap the greater the prediction of pro-environmental behaviour (Levin et al. 2013). Mayer and Frantz, quoting Theodore Roszak, suggest the implication of such an overlap is that ‘the expansion of the self means that environmental destruction is self-destruction’ (2004, p.504). As noted previously, such an expanded self has been given a variety of names in the human-nature literature more generally, for example Naess (1995b) terms this expanded self the ‘ecological self’. The slow response to the environmental crisis is therefore seen as evidence of the socio-cultural decrease in recognition of self-nature overlap (Mayer & Frantz 2004, p.505), a perceptual disconnect between humans and nature. The behaviour of ecologically embedded environmental activists in protecting the natural world does not fit narrow definitions of self or self-interest (Lewis & Townsend 2015).

Assumptions, values and attitudes towards nature have been classified along a broad spectrum of attitudes to nature by a number of researchers (Barbour 1980; Birch
At one end of the spectrum are attitudes of domination over nature (Barbour 1980) or exploitation over nature (Birch 1993), based on more ego-oriented assumptions and attitudes. At the other end of the spectrum is what may be described as a biospheric (Schultz 2001) or unity with nature perspective (Barbour 1980). Schultz’s quantitative study of college students’ values supports an empirical tripartite classification of environmental concerns into ‘egoistic, altruistic and biospheric’ (2001).

A significant direction of much of the research into human-nature is towards the development of a clearer understanding of what it actually means to exist at the ‘biospheric’ or ‘unity’ end of the spectrum of attitudes to nature (Schultz 2001; Stern and Dietz; van der Werff, Steg & Keizer 2013). Both quantitative and qualitative research points towards feelings of connection with nature grounded in actual experience as indicative of more biospheric/unity pro-environmental behaviour. A picture begins to emerge from the literature on the relationship between psycho-social aspects and pro-environmental behaviour of the attitudes and characteristics of individuals who behave in marked pro-environmental ways, those whose attitudes and values may be termed more ‘biospheric’ (Schultz 2001).

This picture is supportive of ecofeminist Plumwood’s articulation towards an understanding of human ecological identity, or ecological embeddedness (Plumwood 2002). Human ecological reality is inevitably one of ecological-embeddedness, however this awareness is not a cultural norm. To live in ‘ecologically embedded and responsible ways’ (Plumwood 2002, p.16) is to live with awareness of human ecological reality and to behave in ecologically ‘rational’ ways (with implicit ethical implications). A paradigm of ecological embeddedness, according to Plumwood, calls on other forms of reasoning or rationality in our relations with nature than those of resource-usage and mastery. Individuals who are ecologically embedded recognise their ‘inextricable links [with] their environment’ (WHO 1986, p.2).
The biosphere becomes valued because it is included in the concept of the self (Hamilton 2010, p.154). The characteristics of such an understanding suggest a worldview likely to be, in Plumwood’s terms, dialogic rather than monologic (echoing the reciprocity outlined in the Ottawa Charter [WHO 1986]). A dialogic understanding is perceptually open to engagement and communication with the natural world as distinct from current monologic, dualistic rationality positioning the natural world as passive, perpetually other and diminished (Plumwood 2002). This worldview is also likely to be underpinned by attitudes and values which: are not primarily instrumental with regard to nature; affirm dependency on nature; and affirm human embodiment within nature (Plumwood 2002).

These ideas align with Maher and Frantz’s (2004) eco-centric worldview which encompasses feelings of kinship, egalitarianism, community, embeddedness and belongingness to nature. An identity as an ecological self (Chatalos 2009) is also implied, including the ability to take the perspective of the environment (Schultz 2000). Eco-centrism is a foundational principle of the deep ecology movement, according intrinsic value to the well-being and flourishing of all human and non-human life on Earth (Sessions 1995). Individuals, species, populations and habitats - as well as human and non-human cultures - are valued, and, in the light of current knowledge regarding all-pervasive nature of the interconnectedness of life, this implies fundamental respect and concern (Sessions 1995). To be eco-centric is to be pro-social, as the literature confirms there is no human society or culture in the absence of a flourishing ecology (Boyden 2004; Hamilton 2010). An attitude of eco-centrism and eco-centric behaviour are means of moving towards an ecological paradigm.

Townsend (1998, p.25) notes the value shifts required to move towards an ‘ecologism’ paradigm (Townsend’s term) which, in keeping with the ‘unity with nature’ or eco-centric perspective, can be seen as ranging beyond a more direct focus on human-nature relations to include other social values (which also impact on the environment). In her view (citing Dunkley 1998, p.25) an ecological worldview emphasises not only eco-centrism over anthropocentrism, harmony with nature over
struggle with nature, but also aligns with such characteristics as: less competitiveness, more cooperation; less egoism, more altruism; less consumerism, more frugality - ‘conspicuous frugality’. A re-definition of living standards is another feature of this worldview, needed to ‘counteract our obsession with productivity and economic growth’ (Townsend 1998, p.25). An ecological worldview encompasses recognition of the inextricable links between humans and nature explored in section 2.2 above.

Although all research is, by definition, an attempt to raise awareness, this research outlined above into human-nature relations implies a continuum regarding ‘consciousness’ itself, supportive of the calls of cultural theorists. The understanding of ‘self’ or identity changes significantly from the egotistic end of the spectrum, whereby one acts in pro-environmental ways in support of one’s immediate needs, through altruistic motivations to act in support of fellow humanity, to the ‘biospheric’ perspective whereby environmental valuing and behaviour emerge from a more ecological self-identity (van der Werff, Steg & Keizer 2013).

In summary, the range of qualitative and quantitative research on associations between psycho-social attributes/characteristics and pro-environmental behaviour is extensive, multi-disciplinary, multi-focal, and expanding. Arguably, this breadth and complexity as a whole provides evidence of: the importance of the field of inquiry into human-nature relations to the research community; the emergent nature of the research, pointing frequently as it does to the necessity for more targeted research (Carrus, Passafaro & Bonnes 2007; Whitmarsh 2009); the intentional direction of the research to effect, at minimum, behaviour change (Milfont and Sibley 2012; Whitmarsh 2009; Carrus, Passafaro & Bonnes 2007), or, more radically, to support transition, a paradigm shift, to a more ecologically embedded society (Adams 2016; Mayer & Frantz 2004). Multi-layered responses by decision-makers to engage the complex multi-layered reality of human attitudes/values affecting environmental behaviour is required (Milfont & Sibley 2012; Whitmarsh 2009). Also indicated are that the most effective pro-ecological approaches move beyond cognitive-based processes such as information provision to supporting and engaging emotion and
values (Mayer & Frantz 2004; Schultz et al. 2004). The research literature also suggests that feelings of connectedness to nature which lead to significant pro-ecological behaviour are supported by contact with nature especially in childhood (Lewis & Townsend 2015; Louv 2008).

2.6 Eco-centric cultural transitioning underway

There is evidence beyond the academy’s focus on human-nature relations of an eco-centric transformation beginning to make inroads into cultural norms and structures. A striking instance of this is in the legal domain, for example, the rise of Earth’s jurisprudence. In 2014 New Zealand enacted the Te Urewera Act under which a former national park is granted ‘all the rights, powers, duties and liabilities of a legal person’ (Rousseau 2016), with Maori people designated the appropriate ‘guardians’ (Miller 2016). The 2011 Bolivian ‘Pachamama’ law recognises Mother Earth as a judicial entity and grants all nature equal rights to humans, the first law of its kind in the world (Vidal 2011). Ecuador’s new constitution demands that nature’s rights must be recognised prior to those of public institutions (Worldwatch 2010). These national laws were influenced by the cultural norms of Indigenous populations, typified by the Maori notion ‘I am the river and the river is me’ (Rousseau 2016). In Australia the 2009 Wild Law Declaration builds on Indigenous understanding and the work of cultural theorists such as Thomas Berry and Vandana Shiva to commit to the development of laws which recognise the subjectivity, and therefore legal rights of the natural world, seeking explicitly to bridge the ‘fundamentally flawed’ perception of humanity and nature as separate (Friends of the Earth 2009).

Beyond national laws, Australian legal experts have been calling for international laws to recognise ‘crimes against biodiversity’ and for the formation of an Earth System Council similar to the UN Security Council to preserve, protect and repair global ecosystems (Burke & Fishel 2016). The proposed council would ‘give voice to ecosystems and non-human forms of life’ (2016, p.1) in the form of permanent seats to be held by eco-regions – a convergence of human and non-human communities in major ecosystems, such as the Pacific and Indian Oceans or the Amazon Basin. The ‘voices’ of ecosystems would be conveyed through democratic representation.
including, especially, Indigenous peoples (Burke & Fishel 2016). These developments are suggestive of significant cultural reorientations towards the presence and value inherent in the natural world, and necessity to protect it.

A further sign of cultural change directly responsive to human-nature relations is provided in the context of the international climate science reporting itself, traditionally a forum heavily oriented towards quantitative measurement and explanation. Moral philosopher and economist Oxford Professor John Broome was recruited, along with hundreds of other experts, to contribute to the 2014 IPCC synthesis report for policy makers on climate change mitigation (Miller 2013, p.16). His job was to ‘rein in the economists’, balance the discussion on mitigation with questions pertaining to ethics and values, for example, ‘Should we value only what affects us as humans? Is there a value to Nature in its own right? Is it a bad thing when a species goes extinct, or a unique ecology disappears?’ (Miller 2013).

2.7 Gaps in the literature
As the literature indicates, many cultural theorists and researchers are calling for a more deliberative transitioning towards an ecological paradigm, the core feature of which may be summarised as a shared recognition and responsiveness to the reality of the inextricability of humans and environment. These calls are as urgent as those of the international science community urging collective behavioural change to contain environmental degradation, especially climate change. What is less clear is an understanding of the nature of the cultural transitioning required, the means of doing so, and appropriate cultural agents likely to engage in such an effort. An understanding from the perspective of those already engaged in or ‘living’ (Hanlon et al. 2012) eco-centric transitioning as cultural leaders may be particularly useful in approaching these issues.

2.8 Role for public health in supporting transitions towards an ecological paradigm
The literature affirms that public health is an appropriate cultural agent with an important role in supporting an ecological paradigm to reduce environmental
destruction and, more positively, to support human and environmental flourishing. As discussed above (section 1.2), although a consensus of international scientists is calling for urgent interventions in the destructive processes underway, especially climate change, neither the world community nor individual nation states, such as Australia, are making the required changes to prevent likely catastrophic worldwide impacts. Given the potential health impacts on whole populations, public health, with its mandate to consider and respond to the causes of ill-health, has a significant role to play. However, despite the uptake of the EcoHealth and socio-ecological approaches to health, calls from public health experts for the health sector to support urgent mitigation efforts to ‘arrest climate change’, in particular, (McMichael & Lindgren 2011, p.411) have not yet galvanized proportionate action.

Public health practice involves the ‘organised effort’ of society to support the conditions in which people can be healthy, and as such is inherently political (Lin, Smith & Fawkes 2007). Its key principles include commitments to social justice, equity of access and outcome, an expanding and evolving agenda, making links with government, a focus on prevention, and on balancing science and society.

A socio-ecological emphasis within public health is evident in the Ottawa Charter for Health Promotion (WHO 1986 [Appendix A]). A number of core features of the influential Ottawa Charter for Health Promotion align with public health’s key principles and lend weight to arguments for a significant role for public health in supporting eco-centric cultural transitioning at this time. These features are: 1. Concern for the health of people now and into the future; 2. A wide view of causation – a focus on the determinants of health, including, for the first time, the environment as a determinant of health; 3. A holistic perspective; 4. Commitment to empowering the agency of individuals and communities to take control over things impacting their health; 5. Commitment to advocacy for healthful cultural change; and, underlying the document as a whole, 6. A vision for the future (WHO 1986).
2.8.1 Concern for health of people now and into future – an evolving mandate

The central feature of the public health model since its inception in the 1800s can be seen as the protection and enhancement of the long-term health of populations (Lin, Smith & Fawkes 2007, p.6). The interpretation of this mandate has varied over time with public health ‘ever evolving’ in response to the changing social and cultural context (Lin, Smith & Fawkes 2007, p.19). The public health movement which emerged originally in response to the adverse health effects of poor sanitation in 19th century industrialising England, evolved to focus on contagion and infectious diseases through to a focus on preventative medical and primary care approaches from the mid-20th century. Today there is commitment not only to protect and promote the health of people who are living but that of generations yet unborn (Hanlon et al. 2012, p.3).

The ‘new public health’ thinking arose in association with health promotion as embodied in the Ottawa Charter (WHO 1986). The health promotion focus, whilst including a focus on prevention, looked beyond the reductive medical approach and embraced a wider view of health and its determinants. Empowerment of the individual to take control of the issues impacting their health was highlighted, whilst the social determinants of health also indicated that social, including economic, and cultural factors beyond the immediate control of the individual impact health and require redress. Health promotion, as an extension of public health thinking, therefore embodies a paradigm shift as a ‘comprehensive social and political process’ (Catford 2004). This understanding led to international agreements to foster the social determinants of health within national policy (WHO 2008). The Ottawa Charter’s focus on the environment as a determinant of health appears, as noted above (section 2.2), to have had limited impact.

Public health experts Tait, McMichael and Hanna (2014) raise concerns of absolute human dependence upon healthy ecosystems having ‘attenuated in the popular mindset’. Of particular concern to these and other public health experts is the lack of recognition of the ‘primacy of the human-environmental relationship’ within the
field of public health itself (Lang & Rayner, 2012, p.17). A number of public health experts argue that the ecological awareness which was arising within the field of public health at the time of the Ottawa Charter has stalled to a significant degree over the intervening years (Lang & Rayner 2012; Tait, McMichael & Hanna 2014). As noted (section 2.4), the socio-ecological and ecosystem approaches responsive to recognition of human ecological reality, whilst significant, have gained limited traction within the field generally, and have had limited impact on broader socio-cultural factors impacting the environment. Public health experts have themselves taken to task the field for failing to recognise and respond to ecological realities. According to McMichael, epidemiologists remain ‘prisoners of the proximate’ in terms of their understanding of the determinants of population health, needing to extend their ‘spatial-temporal frame of reference’ to perceive the multiple health risks posed by intensifying human impacts on the environment (McMichael 1999, p.887). Ill-informed advice and lack of engagement in the big policy debates by the field generally at this time are seen as poor contributions to the imperative task of sustaining the natural world and human welfare within it (Tait, McMichael & Hanna 2014, p.104).

The socio-ecological emphasis, with its origins in Bronfenbrenner’s child development model, is seen as flawed and inevitably favouring the social over the ecological (Lang & Rayner 2012, p.19). Tait, McMichael and Hanna (2014, p.104) also express concern that the rising interest in the years since the Ottawa Charter on the social determinants of health has not been matched by recognition of the ‘vital importance of a well-functioning natural environment, with its ecosystems and other biophysical processes, to sustaining human livelihoods and prosperity, complex industrial society and, ultimately, human health and well-being’. Whilst the emphasis on the social determinants is acknowledged as a significant reorientation of public health from a narrow, bio-medical focus towards prevention and primary care, unease is expressed that this ‘new public health’ emphasis has eclipsed fundamental environmental determinants (Dakubo 2011; Tait, McMichael & Hanna 2014), or, more pointedly, as having ‘dampened the primacy of ecology’ (Lang & Rayner 2012, p.19).
For some observers, health promotion has remained narrowly focused more generally and is criticised especially as being still too embedded in a traditional public health functionalist framework, for example on being focused on prevention, such as through quarantine responses to SARS outbreaks, and as failing to address major health threats such as health inequality and terrorism (Awofesa, 2004). What is needed are ‘more radical’ public health frameworks based on significant social, economic and political change to address looming health crises (Awofesa 2004, p.708).

Recognition of the importance of an adequate, urgent public health response to ecological realities is growing stronger. For example, in 1999 Canadian public health expert Trevor Hancock (p.421) noted that human development (health, well-being, quality of life) requires a balance between social well-being and ecosystem health. However, by 2015 Hancock (2015, p.106) also raised concern that, although the social determinants of health have gained in recognition over the decades, the ecological determinants have not. The indicators are that an escalating environmental crisis is likely in the absence of appropriate intervention by the human community; this would have associated massive social upheaval and health impacts. Implicit here is a heightened recognition that, as Hancock (1985, p.3) stated in 1985, ‘the biosphere, of which the person is but one small and interdependent part, is the ultimate determinant of health’, and that the public health focus must urgently align within a model making primary rather than a ‘sphere interest’ (Hancock 1999, p.421) the flourishing of the biosphere on which human health depends. Tait, McMichael & Hanna (2014, p.104) argue also a necessary re-introduction of the idea of a healthy environment as a fundamental determinant of health.

Hanlon et al. (2012, p.34) provide support for wider recognition of public health’s ability to respond not only to changes in population size and age profile, and to changing patterns of illness and disease, but also to emerging ideas about society, health and well-being. They argue that the tools of modernity have failed to meet the challenges of essentially unsustainable modern ways of life (Hanlon et al. 2012, p.5).
Widespread contemporary problems are impacting health, from ‘new epidemics’ such as obesity, addictive behaviour, rising depression and anxiety, and loss of well-being, to consumption-driven anthropogenic climate change and depletion of multiple key resources (for example, land, fresh water and oil) and environmental degradation generally resulting in species loss. The failure to meet these accumulating health-impacting challenges is seen as having particular relevance to the health field. New thinking and approaches are urgently needed, a call for public health to evolve in response to the current situation.

Hancock (1985, p.5) affirms a more ‘radical’ potential for public health/health promotion, seeing health promotion as a ‘subversive’ discipline as it is essentially focused on changing society. An eco-social approach is needed not only in public health and population health promotion, but ‘within society as a whole’ (Hancock 2015, p.254), and public health has a role in fostering this change. These concerns are echoed by many public health experts looking at the complex and interwoven problems impacting health at this time who are calling for a new public health approaches (Brown & Harris 2005, 2014; Patrick et al. 2012)

Radical new approaches suggested by experts (Hancock 1985, 2015; Hanlon et al. 2012) share several features. These include a re-framing of the public health/health promotion remit around its ‘bigger picture’, more holistic-thinking potentials as evident in the Ottawa Charter. Human ecological reality is emphasised, as is the notion of complexity. And, in view of its inherently political nature, the necessity for challenging health-impacting vested interests is also highlighted. This includes through empowering the agency of people to take control of the things impacting their health. Aligned with its mandate for wide consideration, always with an eye to prevention, of the ‘cause of the cause’ of health/ill-health, the other significant feature of the public health discourse at this time is a recognition of the need to look more deeply and critically at cultural values and mindsets, the ‘inner world’, which influences the structures of society, the ‘outer world’ (Giddens cited in Hanlon et al.}
The radically different model of ‘integrative’ public health posited by Hanlon et al. (2012, p.4) is based on recognition that there is no human health in a context of environmental devastation. The long-term health of populations is therefore inseparable from the long-term health of the environment. This model prioritises ecological understanding for survival (2012, p.126).

There are two main interwoven emphases in the calls of many public health experts with regard to public health’s role in responding to the ecological crisis. The first is a realigning of the public health field itself within its own big picture, eco-centric thinking as exemplified in the Ottawa Charter. This emphasis is seen as a return to the holistic thinking out of which public health arose in the 19th-century (Dakubo 2010). The second emphasis is on the necessity for public health, from its realigned perspective, to take a leading health promoting eco-centric role. This requires supporting a cultural transitioning in worldview from one in which the environment is, in all ways, ‘external’ to humanity, to one which makes primary the recognition emergent in the Ottawa Charter of the ‘inextricable links between people and their environment’ (WHO 1986, p.2 [Appendix A]). The field as a whole is challenged to change, to ‘evolve’, and to accept its mandate as change agents. A further paradigm shift within public health has the potential to support changes in cultural norms more generally. Health promotion is seen as uniquely placed amongst cultural institutions to achieve these transitions (Hanlon et al. 2012; Lang & Rayner 2012).

2.8.2 Wide view of causation – a focus on the determinants of health

Two aspects of the health promotion ‘determinants’ focus support the notion that public health has a significant role to play in fostering eco-centric cultural transitioning. These are a willingness to look beyond less immediate causation of health/ill-health into the social and cultural factors which may be more ‘upstream’ in time and space but nevertheless have significant impact, and a preventative focus on

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16 According to Giddens (1984), the impacts between the inner and outer worlds flow in both directions – that is the inner world leads to changes in the outer world and vice versa.
causation that does not rest on absolute proof in order to take action (Lin, Smith & Fawkes 2007).

With regard to the latter, two often-cited instances of public health thinking serve as examples. These are Dr John Snow’s impetus to consider the causes of cholera in nineteenth century England, recognised as the origin of both public health and epidemiology (Ellis 2008), and the ongoing public health campaign against tobacco use. Snow’s attentiveness to the common source of water for those who died from a cholera epidemic in the 1850s – the Broad Street pump – resulted in him removing the pump handle, its removal having a significant impact on mortality (Soskolne & Broemling 2002). Although the aetiology of cholera would not be known for another 30 years, Snow’s careful observation, informed by his reasoning on ‘germ theory’, suggested that the water at the particular pump as the likely cause (Vandenbroucke 2001).

The issue of tobacco use spans the last 50 years and is ongoing. The advertising/propaganda from tobacco companies in the middle of the last century denied links between smoking tobacco, on the rise in most developed countries, and rising rates of cancer especially lung cancer (Oreskes & Conway 2010). People concerned about public health, however, saw associations between smoking, addiction and lung cancer. Although causation was ‘unproven’, some of the largest, most multi-faceted campaigns for the health of populations arose to confront interests - including governments and bodies theoretically pro-health such as sporting organisations - vested in maintaining the massive remuneration tobacco-use provided (Chapman 1993). Public health practitioners and theorists also probed beyond the more obvious role of tobacco-use into the social determinants of smoking. Poverty, educational attainment and cultural norms were recognised as social determinants, themselves influenced by social and cultural as well as economic forces.

In neither of the above well-known public health examples was causation ‘proven’ before preventative action was taken, the evidence however pointing in clear
directions. Although arguments persist, nationally and internationally, about the causation of climate change - funded, it is claimed by many observers, by those invested in fossil fuels (Oreskes & Conway 2010) - all indicators point towards anthropogenic global warming (IPCC 2013). The indicators also point towards human causation of environmental degradation more generally, with its long-term effects on the health of populations, such as from diminished biodiversity (IPCC 2013; WHO 2005).

As noted above, much literature, including international scientific consensus (IPCC 2013) indicates the inextricable relationship between human health and well-being, and the health of the natural world. Human survival depends on a healthy environment (Hanlon et al. 2012). And, beyond this, many researchers agree that contact with a flourishing biodiverse world is necessary for physical, mental, social and spiritual health and well-being (Townsend et al. 2015; Wilson & Kellert 1993). It can be argued that, if a flourishing natural world as ‘causative’ of multiple levels of human flourishing has not been ‘proven’, it is strongly indicated. A preventative role is indicated here for public health regarding human-nature relations. The public health mandate to protect and enhance the long term health of populations suggests the need for urgent interventions in the diminishment of the natural world impacting human survival and, beyond that, human health and well-being.

The other aspect of health promotion determinants which lends weight to a role for public health to support eco-centric cultural transitioning is their wide view of causation. From the health promotion perspective, social and cultural factors which influence health are determinants of health. Whilst exposure to biological and chemical elements such as air and water pollution - or tobacco smoke - may be more ‘downstream’ in having more obvious health impacts, social and cultural factors, such as policies, can be seen as more ‘upstream’, the effects more distant in time and space but nevertheless effecting health (Soskolne & Sieswerda 2002, pp.382-3). Policies which guide collective behaviour, for example, at all levels of government and corporate thinking can be seen as dependent themselves on ‘psychogenic’ (Chatalos 2006) factors such as values and attitudes (Hanlon et al. 2012).
The environment may be noted as a determinant of health (Tait, McMichael & Hanna 2014, p.104) but questioning the determinants of the health of the environment is essential to health promotion thinking. As the literature review above has highlighted, many cultural theorists and researchers contend that psycho-social phenomena such as attitudes and values lie at the very heart of collective behaviour damaging the environment. In the context of calls for public health to significantly re-align its own theory and practice ecologically, the health promotion remit to focus on the cause of health/ill-health point to the interwoven recognition that if the causes of behaviours affecting the environment are rooted in attitudes, ideas, values, and so on, then addressing these cultural factors is squarely within the health promoting remit.

This understanding finds much resonance in the public health field. Despite its determinants approach, Hanlon et al. (2012, p.84) believe that public health has not much grappled with issues of culture, seeing them as beyond their comfort zone. These public health experts believe that it is important, perhaps imperative, that the public health field begin to address cultural issues that influence health and well-being. This is seen as a further extension of the determinants approach. They draw on a body of research to make the case that the values and worldview of contemporary society contribute to many of today’s complex, including ecological, problems (Hanlon et al. 2012, p.7).

A strong case is made, for example, for a re-evaluation of the value and meaning of the culturally significant concept of ‘well-being’ for its impact on health and also as a driver of practices which impact sustainability (Hanlon et al. 2012). Four dominant social norms of Western-type culture and their associated attitudes and values are implicated in damaging practices impacting the environment and human health. These are economism (seeing the world through an economic lens); consumerism and materialism (meaning and happiness are attained through acquisition, squeezing out non-material values including spirituality) and individualism (reduced social support and control, heightened personal responsibility, fear of failure) (Hanlon et al. 2012, p.84).
Further, the continued pre-eminence of post-Enlightenment reductive reasoning based on science as the only legitimate source of truth is also observed as dangerously limiting of collective understanding. The term ‘scientism’ is used to indicate a fundamentalist ideology, rather than a method of seeking understanding of the world (2012, pp.6-1). Consequences for health and well-being flow from these four cultural norms in the reductive socio-cultural context. These include psychological distress and unhappiness from a treadmill pursuit of short-term pleasure, chronic choice anxiety, depression and anxiety, poor work-life balance, and addictive behaviour (2012, pp.76-77).

These commentators note further that in the absence of a culture offering deeper forms of meaning and engagement (such as occurred in more traditional cultures)\(^{17}\), what is often mooted as ‘the good life’ is pursued as a form of meaning-making. Referring to Giddens, the authors reflect that consumption practices which provide people with meaning, purpose and a way of constructing personal and social identities also thereby further entrench the cultural norms and their unsustainable effects. They conclude that the evidence in fact indicates that Western-type culture at this time is ‘pathological for individual and social well-being’ (Hanlon et al. 2012, p.78).

Public health is challenged to be at the forefront in helping society to imagine and foster a non-consumerist approach to life and have better levels of health and well-being (Hanlon et al. 2012, p.13). The envisioning of alternative cultural norms to counter those prevailing which are damaging to health and sustainability is seen as an essential public health task. Implicit within this task is not only a responsibility to open to alternative conceptions of ‘the good life’ and well-being, such as those of other cultures. A willingness to engage and promote imagination, within the profession and more widely, is seen as imperative to envisioning a socially-just and ecologically-sane cultural norms. Hanlon et al. (2012, p.163) note that, ‘as human beings, we create our worldviews through our everyday encounters with the world’—

\(^{17}\) Authors Hanlon et al. (2012) are not, however, arguing for a return to a premodern world.
individuals, learning throughout childhood, reinforce language and cultural values in adulthood, thereby sustaining and reproducing culture. If this is true, and if the collective response to the natural world depends on such experiences, it can be argued that one role for public health in more deliberately enlisting imagination in a re-conceptualising of the good life and associated cultural norms, is imagining ways to reconnect people with the natural world. (Further analysis of the envisioning role of public health is provided at section 2.8.6 below).

Radical change of worldview is seen as both necessary and inevitable as human nature is not fixed. Worldviews are always changing, as is borne out by history - the worldview of people who lived 500 years, or even a century ago, is often radically different from the current one (Hanlon et al. 2012, p.162).

2.8.3 Holistic perspective of public health

The case has been made for a new public health thinking suggestive of a paradigm shift from reductionist, simplistic cause-and-affect medical view of health to a ‘complex, holistic, interactive, hierarchic systems view known as an ecological model’ of human health (Hancock 1985, p.1). The claim was explicit: public health belongs to the field of human ecology as it also lies at the intersection of environment and culture (Hancock 1985), a view which finds support in the literature (e.g. Boyden & Dovers 1997). Such an understanding can be seen as linked with the view of causation outlined above (section 2.5), with a probing beyond more obvious cause-and-effect health issues into wider and interconnected cultural and social forces (Hancock 1985). Kickbusch (1989, p.47), noting that ‘good planets are hard to find’, argued for the concept of an ecological public health premised on Bateson’s notion of ‘the pattern that connects’; that is, a pattern of interrelations rather than of fixed quantitative outcomes. The Mandala of Health is an example of an ecological model of human health, a ‘human ecosystem’, with nested and interactive flows between individuals (also holistically conceived as mind/body/spirit), and family, community, the built environment, and culture and the biosphere (Hancock 1985, p.2).
The Ottawa Charter (WHO 1986, Appendix A) states that a focus on ‘holism’, along with ‘caring’ and ‘ecology’, is essential in developing health promotion strategies. Holism or holistic thinking can be seen in the Charter’s commitment to address the ‘overall ecological issues of our ways of living’, seeing the interconnectedness of people and their environment. Holistic thinking is also evident in the requirement to respond to this awareness through processes seeking to enlist the widest possible community/society engagement and collaboration.

The multiple, interconnected complexities challenging humanity now and into the future require integrated, holistic approaches to solve them. Internationally renowned epidemiologist Tony McMichael (2013, p.1335) noted the interconnected nature of global changes impacting socially and environmentally. These include pressure of rising populations, urbanisation, systemic environmental effects of many economic activities, consumerism and widening inequality, and global flows of information, people, culture, trade and capital (2013, p.1335). These things contribute to what he termed a highly charged ‘syndrome’, and cannot be addressed...
singly. Humanity must move beyond reductionist approaches to environmental threats and ‘recognise the interdependence of global environmental health issues’ (Patz 2014, p.450).

Lang and Rayner’s (2014, p.20) ‘ecological public health’ supports recognition and response to the inherent interconnectedness of the dimensions of existence – material, biological, cultural and social dimensions. It incorporates contemporary thinking about complexity and systems dynamics, including questions of ‘non-linearity, variations in scale, feedback, and other emergent qualities of nature, biology, and human behaviour’. An ecological model of public health is seen as vital if progress is to be measured in greater health into the future.

Hanlon et al (2012, p.136) echo this understanding in arguing that ecologically-minded or holistic thinking is needed precisely because of the ‘ingenuity gap’, the prevailing reductionist mindset, and associated materialist and individualist values. These cultural attributes have led to a comprehensive collective failure to see, imagine and respond to the range of complexities currently facing humanity. The famous quote attributed to Einstein is raised: ‘we can’t solve problems by using the same kind of thinking we used when we created them’ (2012, p.9). If reductionist thinking has brought about this impasse, an openness to other and essentially holistic ways of thinking is needed: ‘conventional forms of thinking, tools, and approaches’ have failed, and collectively humanity will need to think and act differently.

Hanlon et al. (2012, p.138) propose an ‘integrative framework for public health’. This framework would re-integrate into public health thinking dimensions that have been effectively separated during the ‘era of modernity, the last two centuries or so. These dimensions include subjective and objective, the individual and collective, and ethics, science and aesthetics (‘the good, the true and the beautiful’). Such reintegration within public health is understood as necessary to find integrated and collective responses to the many interwoven problems impacting health (2012, p.138). This ecological approach combines a systems perspective with insights from the many natural and man-made complex adaptive systems, including ecosystems in nature.
that influence health and well-being. It incorporates an emphasis on the need for dialogue. This understanding aligns with the literature, including the literature from the Australian Indigenous perspective (e.g. Arabena 2010).

A significant feature of the Ottawa Charter (WHO 1986 [Appendix A]) is the recognition that health outcomes cannot be achieved by the health sector alone, putting responsibility for ‘health on the agenda of policymakers in all sectors and at all levels’. Health professionals are among those having ‘major responsibility’ to mediate across sectors with different interests in pursuit of health, and to coordinate action between interests, such as those in industry, government and media (Lang & Rayner 2012). This coordination lead to changes in policy areas such legislation, fiscal measures and organisational change and may impact on community enablement in taking control of the issues affecting health (Chapman & Wakefield 2001; Lang & Rayner 2012). This emphasis is also responsive to the holistic and interactive nature of health as highlighted in the eco-centric models and frameworks. Public health mediation and coordination are required to engage diverse interests which are often silos, interweaving necessary contributions across sectors in pursuit of the common goal of health for all (Lang & Rayner 2012). The importance of respectful and inclusive dialogue in achieving these aims has been noted by a number of public health practitioners (Brown 2005; Brown & Harris 2014).

The recognition of the role and potential for health promotion to engage with multiple sectors in pursuit of policy changes beneficial to health is evident in the range of social and cultural players engaged over the issue of tobacco use. Chapman (1993), for example, notes it involved enlisting concerned people in the media, law and politics in addition to health practitioners. The work of health promotion researchers supports health promotion’s role in such cross-sectoral engagement. For example, the work of Lowe et al. (cited in Tait, McMichael & Hanna 2014, p.14) provides evidence of associations between chronic diseases and the built environment, arguing for health promotion practitioners to engage with urban planners and policymakers to develop healthy urban environments through integrated transport, infrastructure and land use planning. Legge (2007, p.92) argues
for health promotion engagement and advocacy with the forces of global trade which affect population health in many ways, including working conditions and environmental impacts, security, culture, diversity and governance.

Arguments for integrative framework and ecological modes of public health can be seen as both congruent with and extending the Ottawa Charter’s emphasis on ‘ecology’ and ‘holism’. For Hanlon et al. (2012, p.150), the integrative approach highlights recognition of human ecology and requires in response multi-dimensional engagement across society to effect change. However, the holistic perspective is taken a step further in the suggestion that the future public health itself must ‘be embodied in the sense that it will require practitioners to be the change that they want to see in the world’, as both practitioners and citizens (Hanlon et al. 2012, p.150) [Emphasis in text]. Reflexivity and increasing self-awareness will therefore be required. This includes a raised awareness of each practitioner’s own worldview or mindset, and its limitations. It implies openness to other perspectives, including those of other cultures and disciplines (for example, psychology, sociology, economics, and anthropology) and willingness to change practice as a consequence (Hanlon et al. 2012, p.150). Perspective and insight are especially needed to focus on the cultural belief systems, values and assumptions associated with the modern capitalist economy which impact well-being and sustainability (Hanlon et al 2012, p.83).

The human attribute empathy is an intrinsic element in the integrative public health framework as envisaged by Hanlon et al. (2012, p.166). Their argument for the holistic potentials of a widening of ‘the circle of empathy’ is founded on history and human development. Deepening consciousness and a widening circle of empathy are intrinsic to healthy development as humans grow from infancy to adulthood, and widening this circle has also been seen as a feature of human social and cultural development over time. The anti-slavery movement in the UK and the civil rights movement in the US are examples. Empathy is an attribute supportive of social justice. A widening of the circle of empathy would support openness to the contributions of others including those with different perspective, for example
different cultural worldviews. This has ethical justification, such as in helping to devise culturally appropriate health promotion strategies, but it also enhances capacity to respond to the imperative for new ideas and learning at this time.

As this circle – and this potential – is still in train, it is conceivable that a process of broadening awareness and empathy may extend, as cultural commentators (e.g. Plumwood 2002) argue is necessary, into the more-than-human world. Tait, McMichael and Hanna (2014, p.108) echo the necessity for expanding concern to include not only differing human perspectives, but ‘other species’. Although this is noted parenthetically by the authors, and in consideration that other species likely includes many ‘which we depend on’, the inclusion suggests that the idea may be emergent within the public health field. The argument of Hanlon et al. (2012, p.145) for a needed emergence of a ‘new form of ethics...that sees the connected nature of all people (indeed, of all life) as essential for any transformational change regarding such widespread inequity’ [emphasis added], although likewise parenthetical in its inclusion of all life, is also highly suggestive of this idea. This has developmental as well as ethical consequences. For example, enlarging the circle of empathy would likely effect not only the treatment of animals, but would bring likely transformative sources of insight and information (Plumwood 2002). Pretty’s (2017) notion that enlarging the empathetic ‘circle of us’ through activation of the ability for more immersive engagement, including with the natural world, may result in greater care for the planet, leaves open the possibility of that circle including the more-than-human world.

2.8.4 Empowering the agency of individuals and communities to take control over things impacting their health

A further feature of the public health model, which arose with the health promotion paradigm shift, is a recognition of the importance of individual and collective agency, based on the insight that health resides primarily in the people themselves. This insight underlies the Ottawa Charter’s emphasis on supporting and empowering
individuals and communities to ‘take control of the things which determine their health’ (1986).

There is a presumption implicit within an international policy document (the Ottawa Charter) making the case for recognition of the environment as a determinant of health on the one hand, and the necessity for culture-wide environmental protection on the other; that is, the presumption of the importance of empowering people in all countries to better understand the environmental determinants of health in order to make ‘more favourable’ the ‘political, economic, social, cultural, environmental and behavioural’ factors which impact positively on the environment and hence human health and well-being.

There is a growing sense of hopelessness and despair emergent in populations (Hamilton 2010). This includes in relation to feeling empowered to take action on environmental degradation, particularly the threat of something as vast as climate change, and in envisioning a liveable future. Concern is being expressed particularly in relation to such hopelessness and despair within younger people (Brown 2015). A number of public health documents make clear the relationship of a sense of agency to health and well-being outcomes (Syme 2004; Wilkinson & Marmot 2003). If hope is a determinant of health as Syme (2004) argues, then despair is a determinant of ill-health, and despair and hopelessness in populations arguably call for public health interest and engagement. Hanlon et al. suggest that the public health field needs to focus on hope, motivation, vision, creativity and raised consciousness as much as healthy eating and exercise (2012, p.168).

Commentators, including those from public health (Blühdorn 2013; Hanlon et al. 2012; Lowe 2009), make the point that, in the absence of seeing a way to take action to support an ecologically-balanced future, many people default to a compensatory materialism which maintains modern life and its consumption practices, thereby compounding the problem of over-usage of Earth’s resources. These reinforcing factors can be seen as impacting cultural norms and the way society is structured (Giddens 1984), the chicken-and-egg dynamic making change elusive. Public health
arguably has a role in activating further its understanding that the power for widespread healthful changes resides at the interface between informed and empowered citizens - ‘strengthening public participation in and direction of public health matters’ (WHO 1986) - and challenging and changing the social, economic and political factors affecting health.

Aligned with the health promotion emphasis on the empowerment of citizens to take control of the determinants of their health is the recognition that this is a sharing of power; at the heart of health promotion is ‘empowerment of communities and the ownership and control of the own endeavours and destinies’ (Ottawa Charter 1986). This also requires an attentiveness by public health to the ecological, social and cultural reality and, implicitly, the meaning-making of individuals and communities. For example, health services are seen as needing ‘to embrace an expanded mandate which is sensitive and respects cultural needs’ (p.3). Such a requirement to listen and attend to views beyond professional expertise is consistent with the holistic focus which values complexity and opens to, as it seeks to ‘coordinate’, interconnectivity. Friel et al. (2011) recognise the need for fostering processes supportive of agency as ‘political empowerment’ at both individual and collective levels in order for people to gain control over the things that affect their health. This includes affecting political decision-making (2011). Health equity is seen as dependent on political engagement to challenge the unequal distribution of material and psycho-social resources, especially in an increasingly urbanising world. The urban planning required would impact both on inequity in creating more inclusive, healthful cities in line with the social determinants of health, whilst also designing for sustainability through climate change mitigation and adaptation. The social determinants and environmental determinants of health are inextricably interlinked (Friel et al. 2011, p.860; Hanlon et al. 2012, p.78).

Renewal of the public health/health promotion mandate in a time of rapid ecological and social change includes a strong focus on empowering the agency of the health workforce, for example through education, for the challenges ahead. These
challenges include engagement, and promotion of wider engagement, in adaptation to and mitigation of climate change (Patrick et al. 2012).

2.8.5 Commitment to advocacy for healthful cultural change

The current socio-political-cultural situation, described above (section 2.4), of poor population-wide recognition and responsiveness to human ecological realities in the planetary context of ever-increasing anthropogenic environmental degradation suggests that, without appropriate mitigating action, the planetary future will be far from the vision of ‘health for all’. This situation suggests the need for a widespread and urgent advocacy across diverse and often divergent interests and institutions to raise awareness of human ecological embeddedness, and the need to address the cultural attitudes determining behaviour impacting the environment.

The Ottawa Charter provides a health promoting focus on ‘advocacy for health’ relating to making conditions - such as political, economic, social and cultural conditions - favourable (WHO 1986 [Appendix A]). The emphasis on advocacy suggests a clear remit to engage beyond the empowerment of the individual at meta socio-cultural levels and influence policy. Coordinated action is required to engage diverse interests/sectors in ‘the identification of obstacles to the adoption of healthy public policies in non-health sectors, and ways of removing them’ (WHO 1986, p.2). Despite the mildness of tone, this confirms Hancock’s (1985) recognition of the health promotion mandate as ‘subversive’ in the sense of being, if it is to be consistent with its theoretical underpinnings of a wide socio-ecological view of the determinants of health, culturally transformative and inherently challenging to those vested in a health-damaging status quo. As Australian anti-tobacco campaigner Chapman (2001) notes, advocacy is unavoidably political.

Public health has been at the forefront of creating major social shifts in favour of health since struggling with issues such as sanitation in the overcrowded cities of industrialising Britain (Hancock 2015). The historical examples provided above (section 2.8.2) of public health action (Dr. Snow and tobacco use), give insight not
only into the public health field’s wide view of causation but are instances of the field having its roots in advocacy intended to produce significant socio-cultural change. More recently, significant eco-centric advocacy efforts have been made for some time by committed public health experts such as Brown et al. (2005), McMichael (2013), and Siri et al. (2015). Their influence is also spreading to a younger cohort of professionals arguing for recognition of human inextricability with nature (e.g. Patrick et al. 2012). However, the urgent requirement for activation of public health advocacy implicit in the current state of human-nature relations appears not yet to have become a critical feature of public health policy or practice.

As noted, the field of public health has been criticised recently for its political inaction and inarticulacy, particularly with regard to the human-nature interface (Lang & Rayner 2012). Critics suggest that, despite what may be seen as public health’s mandate to look at the ‘shaping forces’ of culture and society and therefore to challenge health-damaging vested interests, its proponents have allowed themselves to become restricted within a more micro-focused discourses of individualism and choice, or corporate responsibility and partnerships (Lang & Rayner 2012). Big picture thinking and planning and advocacy have been ‘ceded under the rubric of globalisation to corporate and elite vested interests’ (2012, pp.17-18).

According to Lang and Rayner, it is critical that the interface between human and ecosystems health becomes central to policy making (Lang & Rayner 2012, p.17). The challenge to the field is to reclaim capacity to think outside the squares convenient to vested interests, and beyond a self-limiting managerial focus including on the necessity for ‘evidence’. Instead, the field could encourage engagement at the critical human-nature interface and in debate across society about what constitutes a good society and, echoing with Hanlon et al. (2012), a good life (Lang & Rayner 2012, p.20). The emphasis on advocacy within the Ottawa Charter can be seen as challenging public health itself to move beyond self-limiting understandings in order to embrace the role of socio-cultural change agents in pursuit of a healthy future for all. Public health practitioners are challenged to reform the health care system, and, beyond this, society in pursuit of healthy communities (Hancock 1999; Patrick et al. 2012).
Advocacy has two aspects, advocacy against and advocacy for. It can mean a stepping-up to address political power in order to change structural conditions unfavourable for health. Thus Hancock (1985) argues persuasively for the health sector to become more conscious and challenging of consumerist culture. He affirms his understanding that there are only ‘two fundamental principles of public health: 1) ecological sanity and 2) social justice’, the socio-cultural determinants being interlinked (Hancock 1985, p.4). Likewise, the determinants of environmental damage/protection, and the distribution of social determinants of health such as wealth, power and opportunity (Tait, McMichael & Hanna 2014, p.106). Addressing the causes of poverty, exclusion and inequity on the one hand, and unsustainable practices on the other, is inevitably to challenge dominant cultural norms and, especially, the powers of those vested in maintaining the status quo.

Tait, McMichael & Hanna (2014, p.106) perceive the current dominant worldview as informed by the following assumptions: 1. Prosperity derives from endless wealth accumulation and growth in population, resource use and waste generation on an infinite planet; 2. Natural resources are boundless; 3. Their value exists only as commodities for sale or trade; 4. Any damages to ecosystem supports in pursuit of profits are legitimate (discountable) externalities (Tait, McMichael & Hanna, 2014, p.106). It is significant to note that, where the assumptions underpinning the deep ecology platform discussed above (section 2.2.5) are presented in positive explicitly eco-centric, the assumptions behind this public health critique of assumptions behind the dominant paradigm and its assumptions suggest a significant overlap in worldview. This analysis aligns with that of many cultural commentators (e.g. Bateson [1987] discussed earlier in this chapter).

The environmental and social determinants of health which lie behind poor health and environmental degradation are enabled by poor regulation of corporate behaviour based on implicitly flawed assumptions. These assumptions externalise and therefore disregard both ecological and social costs of resultant actions (Tait, McMichael & Hanna 2014). Public health is itself challenged to engage in challenging
these assumptions, and the powerful forces behind them, in a way not dissimilar to its involvement with other politically contentious issues. For example, issues involving tobacco and alcohol, which ‘pit vested interest against the common good’. Public health is challenged to engage as a matter of routine at the environment-health interface in advocacy in support of flourishing ecosystems such as river systems, and on issues such as fracking and energy choices (Tait, McMichael & Hanna, 2014, p.106).

Advocacy can also be used to promote positive alternatives to the causes of poor health. Hancock (2015, p.254) raises the transformational potential in such a challenge, noting creative possibilities in adopting an ‘eco-social’ approach within society as a whole. This would see a fundamental shift of society’s goal from one of economic growth and development to a creative human development that is socially just and ecologically sustainable. As noted, many health co-benefits also result from creating a more sustainable society (McMichael & Lindgren 2011, p.411). For example, advocacy for collaborative intersectoral ‘green urbanism’ planning which would support more active transport options such as cycling or walking. These options not only have health benefits - including via the reduction of fuel use - but help address equity issues, and enhance well-being and happiness as people engage more with their environment (MacMillan & Woodward 2008).

The public health mandate is clearly directed towards the health of the population as a whole. Lin, Smith and Fawkes (2007, p.20) point out that, as the public health field is primarily concerned with the health of human populations rather than of specific individuals, where there is conflict between these needs, ‘public health practitioners will always choose to assist the larger group, and so derive the best health benefit for the most people’ (2007, p.20). Such considerations are not only inevitably moral and financial, but inherently political (2007, p.9). This idea has two implications. In a context with anticipated population-wide poor health outcomes due to environmental degradation, particularly climate change, a significant role for public health is evident in the need to engage in eco-centric political advocacy. The other implication lies in the fact of the benefits of the current ecologically-disconnected
paradigm accruing to a relatively small number of people, underlining the necessity for advocacy for health for all.

Gould, Fleming and Parker (2012, p.165) affirm the important ongoing role of advocacy for health promotion/public health practitioners. They cite the Ottawa Charter’s identification of advocacy for health as an essential health promotion tool, and the WHO’s assertions that health professionals ‘have significant responsibility to advocate for health across society as well as with government to address the structural determinants of health (2012, p.165). McMichael and Lindgren’s (2011, p.411) recognition of the primacy of the task of arresting climate change underlines the key role for public health in supporting the growing push from many quarters of society, as evidenced in the literature review. What is needed is ‘decisive’ (UN 2010) national and international interventions to enshrine policy and regulation recognising the planetary ecosystem as an inextricable determinant of human health.

There is evidence, therefore, within the public health field itself of a significant challenge to step up at this critical time as advocates for greater eco-centric understanding, and to not ‘squander’ the opportunity to address some of the broader determinants of health (Gould, Fleming & Parker 2012; Hanlon et al. 2012; Tait, McMichael & Hanna 2014). Individual health practitioners, groups and associations for advancing population health are seen as the logical choice to advocate for healthy public policies. This is a result of the diverse backgrounds of practitioners, and practitioner training which includes collaboration and which emphasises ‘bigger picture’ relations between living conditions, the social, economic, physical and political environment, and health. A need is also highlighted for greater recognition of the importance of training for public health competencies in advocacy in particular (Gould, Fleming & Parker 2012; Patrick et al. 2012).

2.8.6 Vision for the future

Based on the claim that improving public health lies at the heart of defining what is meant by progress (Lang & Rayner 2012), public health, with its emphasis on the big
picture, is seen as especially able to envision and articulate what a good society, including a good economy, looks like (Hanlon et al. 2012, pp.74-75; Lang & Rayner 2012, p.18). This view can be seen as underlying the arguments of the various public health experts cited throughout section 2.8 for greater recognition and responsiveness by the field to the inextricable links between people and their environment. The public health field is already theoretically open to the task, and already in motion in implementing eco-centric practice (Hanlon et al. 2012, p.84).

A vision for the future is critical, according to public health professionals (Hancock 1999; Hanlon et al. 2012) and cultural commentators alike (Berry 1990, Eisenstein 2013, Plumwood 2002, Macy 2007, Roszak 2001). Public health, with its mandate to protect and enhance the health of populations now and into the future, its wide view of the determinants of both health and ill-health, its holistic focus, and commitment to enable and empower individuals and populations to take control of the things impacting health, and its obligation to act and advocate on this understanding, is seen as perhaps uniquely fitted to the task of envisioning a liveable, ecologically sane and socially-just future, and promoting and empowering this envisioning more widely (Lang & Rayner 2012). The activation of imagination (Lang & Rayner 2012) is seen as important, both within the field of public health and as a health promoting action, in order to begin to re-envision what may be the features of the ‘good life’, or a life worth living, congruent with ecological sanity and social justice (Hanlon et al. 2012). As Hancock (1999, p.418) observes, ‘good futures thinking is about creating a vision of a preferable future and involving society as a whole in the process of creating that vision and making it happen’.

2.9 Chapter summary

This chapter reviewed the literature relevant to human-nature relations at this time. The claim of inextricable links between people and their environment finds support in the literature from the perspectives of biology, contact with nature as a health determinant, the biophilia hypothesis, Indigenous understanding, and philosophy and theology. The literature suggests, however, that the culturally significant understanding of the inextricability of humans and their environment has not met
with sufficient collective recognition and response to ward off the environmental crisis, notably climate change. Cultural analysis and research suggest that psychosocial-cultural phenomena such as attitudes and values, which impact on behaviours, are central to understanding this confounding situation. In the view of many, failure to recognise the reality of human ecological embeddedness is proving disastrous to the natural world and human survival dependent on its continued flourishing.

Cultural observers suggest that what is urgently needed is a realignment of culture, grounded in values and attitudes affecting behaviour, towards recognition of and response to human ecological embeddedness: the need for society to transition towards an ecological paradigm. Much quantitative and qualitative research into human-nature relations has been conducted, affirming that feelings of connection with nature are associated with eco-centric attitudes and behaviours. However, little research to date has been carried out on means of bringing about society’s transitioning to an ecological paradigm.

The literature provides evidence of calls from multiple directions within the culture, from cultural theorists to public health advocates, for a more deliberative transitioning towards an ecological paradigm. And it can be argued that theories for change exist within the literature, for example public health literature (e.g. Hanlon et al. 2012). However, it appears that a theoretical understanding of the multi-faceted nature of factors contributing to eco-centric cultural transitioning, grounded in a phenomenon of change already underway, does not currently exist. An understanding from the perspective of those already engaged in or ‘living’ eco-centric transitioning as cultural leaders may be particularly useful in approaching these issues. Such understanding is likely to support collective understanding and response, such as policy-making including from within the public health field, in the direction of transitioning towards the more ecologically aware cultural paradigm seen as necessary by researchers and cultural theorists. This study is the first of its kind in Australia.
The chapter also discussed literature relevant to a role for public health in fostering an ecological cultural transitioning. Six features of the Ottawa Charter for Health Promotion (WHO 1986 [Appendix A]) were seen as particularly significant in the case for this role, namely: concern for health of people now and into the future - an evolving mandate; a wide view of causation – focus on the determinants of health; holistic perspective of public health; empowering the agency of individuals and communities to take control over things impacting their health; commitment to advocacy for healthful cultural change; and vision for the future. The following chapter, Chapter Three, presents the research aims and the methods used to address them.
3 Chapter Three: Methods

3.1 Rationale and study aims
This study seeks better understanding of the ‘necessary conditions’ (Townsend 1998) which may support - and the factors which may be hindering - transitioning towards an ecological paradigm. It is anticipated that such data may be of use to those responsible for framing public policy responses, including public health responses, to the environmental crisis.

The aims of this research project are to:

1. Explore the facilitators of and barriers to greater socio-cultural transitioning towards an ecological paradigm; and
2. Consider the implications of findings, especially for the field of public health.

3.2 Study design
A qualitative interview study was carried out using grounded theory methodology; further explanation and justification are now provided.

3.2.1 Qualitative research
Qualitative researchers are interested in understanding how people make sense of their world and their experience (Merriam & Tisdell 2016). Merriam and Tisdell suggest four characteristic are key to qualitative research, namely: a focus on understanding and meaning; the researcher as the primary instrument of data collection and analysis; inductive methods; and a richly descriptive outcome. Qualitative research is often exploratory in nature, looking deeply into feelings, views and ideas about an issue or problem in pursuit of a greater understanding (Farrelly 2012). This approach is seen as an appropriate choice when seeking a new perspective on issues, problems or phenomena (Hansen 2006), and its value has been increasingly gaining in recognition (Darawsheh 2014; Farrelly 2012).
Eisenhardt, Graebner and Sonenshein (2016) make the case for inductive methods as particularly suited to seeking understanding of what they term ‘grand challenges’. Grand challenges are described as ‘complex problems with significant implications, unknown solutions, and intertwined and evolving technical and social interactions’ (2016, p.1115). Examples include responding adequately to climate change. Inductive approaches involve deep immersion with the phenomenon of interest, including rich engagement with the literature, use of theoretical sampling to illuminate relationships among constructs, and grounded theory-building processes. Grounded theory incorporates iterative processes of gathering and analysing data and the constant comparison between emerging theory and data to generate creative insights (Eisenhardt, Graebner & Sonenshein 2016). The combination of discipline and openness of inductive research can help to generate novel ideas and make space for complexity (Eisenhardt, Graebner & Sonenshein 2016). This thesis argues that human-nature relations at this time present complex problems with significant implications.

3.2.2 Constructivism and Symbolic Interactionism

Assumptions about reality provide the theoretical context and justification for the particular methodology and methods used to seek answers to research questions (Crotty 1998). The epistemological perspective informing this research, in common with much qualitative research, is the constructivist/interpretivist paradigm. This paradigm arises from the understanding that there is no objective truth awaiting discovery; truth or meaning arise ‘in and out of our engagement with the realities of our world’ (Crotty 1998, p.8). That is, although the physical world is understood as having independent existence, the perception of that world (reality) is recognised as a social construction (Martin 1994). Reality is therefore understood as multiple rather than single, a matter of interpretation (Merriam & Tisdell 2016). The understanding of the ‘multiple nature’ of reality suggests that different people may construct meaning in different ways, even in relation to the same phenomena (Crotty 1998).

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18 Constructivism and interpretivism are terms often used interchangeably (Merriam & Tisdell, 2016, p.9).
The particular constructivist/interpretivist theoretical approach of symbolic interactionism focuses on meaning and interpretation, hence on peoples’ understanding of and construction of reality (Merriam & Tisdell, 2016). Informed by the Pragmatist tradition of John Dewey and George Mead (as cited in Strauss & Corbin 2008), this approach emphasises that knowledge arises through the acting and interacting of self-reflective beings. Knowledge is seen as resulting from useful action, and actions in turn pose problems to be reflected on and resolved, and thereby transformed into new knowledge (Strauss & Corbin 2008). The underpinning assumptions of symbolic interactionism are that actions are a consequence of the meanings people give to things; meaning arises out of social interactions; and meanings are continually modified through interpretive processes (Rice and Ezzy 1999). Meanings given to language, symbols, abstractions, procedures are therefore a consequence of the actions and interactions of human-beings, and subject to continual recreation through interaction (Hansen 2006). Strauss and Corbin (2008) further note the inescapability of the ‘cultural matrix’ – no person and no inquiry exists as separate from it. For them, knowledge is cultural and accumulative, and they question the possibility of the ‘primacy of the individual knower’ (2008, p.3).

The socially constructed nature of reality applies also to the interview contexts (applicable to this research as outlined below) wherein the researcher and participant interact - findings are therefore mutually created within this context, which also has bearing on the continuing inquiry (Farrelly 2012). Qualitative research findings are therefore a synthesis of researcher and participant perspectives. The researcher is however inevitably responsible for the analysis and interpretation of findings (Darawsheh 2014).

Although symbolic interactionism is understood as essentially social (Strauss & Corbin 2008), Holton (2007, p.269) expresses concern at ‘pre-framing grounded theory through the theoretical lens of symbolic interactionism’ as potentially precluding other perspectives and limiting analytical creativity and conceptual abstraction of the data under study. She suggests that classic grounded theory permits adoption of any
epistemological perspective which fits the data and the researcher’s ontological position.

This research also borrows from the phenomenological perspective. As Merriam and Tisdell (2016) explain in relation to understanding the phenomenology of Husserl, the phenomenological approach focuses on how people experience things through their senses and how they describe this experience. The basic phenomenological assumption is that ‘we can only know what we experience by attending to the perceptions and meanings that awaken our conscious awareness’ (citing Patton, p.9) [authors’ emphasis]. This study explores individuals’ meaning-making regarding human-nature relations inclusive of their experiences in the natural world, and the phenomenological perspective provides a valuable insight in addition to the more social-constructivist perspective.

3.2.3 Grounded Theory

Symbolic interactionism is the theoretical approach behind grounded theory. For Strauss and Corbin (2008), the authors of the grounded theory approach informing this study, humans create and change the world around them continually through actions/interaction as a consequence of their meaning-making, including also continually shaping and reshaping their institutions (2008). This approach assumes that meaning-making at all levels of human experience is open to change. The methodology accounts for the tremendous fluidity of phenomena; nothing is predestined, including the understanding of the forces, structures and institutions which shape human lives. This approach takes into account the complexity of the world, and researchers informed by grounded theory methodology seek multiple perspectives on phenomena and events.

Strauss and Corbin (2008) note that any methodology attempting to capture some of the complexity of human experience must also be complex in order to capture something of the multiple perspectives of people, and to build variation into analysis (2008). The grounded theory methodology privileges the meanings and
interpretations arising out of interactions, and the voices and perspectives of research participants who are ‘information-rich’ with regard to the phenomenon under scrutiny (Hansen 2006). Grounded theory methodology is appropriate to a qualitative study seeking understanding of the constructed and fluid nature of current human-ecological relations (Strauss & Corbin 2008). Creswell (2007, p.95) suggests a reason for seeking to ‘generate a theory’ is because there is no existing theoretical perspective that fits a particular issue. This reasoning can be seen to apply to this current research project, as indicated by the literature review (see section 2.9).

The grounded theory approach is inductive, with theory arising from interpretation and analysis of the data itself (Eisenhardt, Graebner & Sonenshein 2016). Iterative and immersive characteristics are seen as supporting interpretation which remains fluid and responsive to the changing data (Bold 2012; Strauss & Corbin 2008). Pre-reading of existing theory is explicitly advised against in order to encourage openness to the emergent and shifting nature of the phenomena under study (Strauss & Corbin 2008). In the case of this research, although many theories were explored in the literature review – for example, with regard to the inextricability of humans and nature, and the necessity for eco-centric transitioning (central to framing the context and making the case for this research) – theories specifically related to the process of transitioning itself were not much in evidence to draw on; as noted above (section 3.2.1), grounded theory, theory essentially from the phenomenological ground up, is particularly useful in developing new theoretical perspectives.

Although a different researcher may interpret the same data in a different way (Strauss & Corbin 2008), theory is formed through the development of a ‘plausible’ relationship among concepts and set of concepts (Creswell 2007). Lincoln and Guba (1985) support the value of plausibility as a feature of credibility and rigour in qualitative research. Theory derived through the coding and categorising/concept-making analytic process is always provisional, nevertheless generating concepts and plausible theory is seen as worthwhile research (Strauss & Corbin 2008).
Self-reflexivity (Bryant & Charmaz 2007; Strauss & Corbin 2008) and theoretical agnosticism (Charmaz 2011) are seen as integral to grounded theory methodology. Whilst the researcher cannot be theory or ideas free, it is seen as important to keep a clear eye on one’s earlier interpretations and ideas (Bryant & Charmaz 2007). According to Annells (2006), it is also critical that the chosen methodology be congruent with the ontological beliefs of the inquirer regarding the nature of reality.

Strauss and Corbin (2008) suggest that qualitative research, including grounded theory, is both a science and an art. Robust empirical enquiry is iteratively engaged with in open-minded analysis to create plausible theory. As a methodological approach, grounded theory can also be seen as congruent with the public health approach which has also been termed a ‘Science and Art’ (Lang & Rayner 2012, p.17) as it seeks to holistically comprehend complex big picture issues affecting populations, and to frame appropriate responses.

3.3 Participants, sampling and recruitment

Eighteen participants were recruited to this study through the application of purposive sampling. In seeking understanding of meaning-making, numerical techniques such as those used in quantitative research - for example random samples - are not appropriate. Small, purposeful samples of articulate respondents are chosen, not as representatives of a larger group, as in much quantitative research, but for their ability to provide important information on the phenomenon of interest (Farrelly 2012).

The inclusion criteria for selection of the research participants were Australian adults:

1. of socio-cultural agency or influence;
2. who show evidence of values or attitudes suggestive of explicit recognition of the ‘inextricable links between people and their environment’ (WHO 1986, p.2); and
3. who show evidence of seeking to facilitate greater socio-cultural recognition of and responsiveness to these links.
With inclusion criteria in mind, I sought maximum variability in sampling across socio-cultural variables such as profession, gender, and age in order to capture the broadest experience and understanding in relation to the research aims (Kuper, Lingard & Levinson 2008). Whilst all participants were individuals of socio-cultural influence, their professional fields ranged from science, medicine and public health to writing and art. Age was not specifically requested of participants, however the age-range likely spanned from the thirties to the eighties, with equal numbers of women and men contributing. Participants were resident in four states/territories; one participant was currently in residence overseas. Snowballing (Kuper, Lingard & Levinson 2008) was also used, namely the following-up of the suggestions of participants for other suitable interviewees. The following table provides an outline of the professions and relevant activities of participants.
<table>
<thead>
<tr>
<th>Professions and relevant activities of participants</th>
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<tbody>
<tr>
<td>Academic, involved in national and international public health policy; activist</td>
</tr>
<tr>
<td>Academic in human ecology; writer; active in environmental groups</td>
</tr>
<tr>
<td>Medical practitioner; environmental commentator; active in environmental groups</td>
</tr>
<tr>
<td>Academic in public health; social and environmental commentator; writer</td>
</tr>
<tr>
<td>Science journalist and consultant</td>
</tr>
<tr>
<td>Medical practitioner; has lived and worked with Indigenous people</td>
</tr>
<tr>
<td>Indigenous writer and environmental/Indigenous commentator and campaigner</td>
</tr>
<tr>
<td>Academic in public health; involved in health policy</td>
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<tr>
<td>Scientist and academic, commentator, writer</td>
</tr>
<tr>
<td>Indigenous academic</td>
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<tr>
<td>Artist focused on environment</td>
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<tr>
<td>Scientist; public speaker; writer; environmental workshop facilitator</td>
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<tr>
<td>Lawyer, lived and worked with Indigenous people</td>
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<tr>
<td>Writer, environmental commentator</td>
</tr>
<tr>
<td>Sculptor; environmental commentator</td>
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<tr>
<td>Ex-politician; writer; activist</td>
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<tr>
<td>Sustainability academic; environmental life-style activist</td>
</tr>
<tr>
<td>International consultant</td>
</tr>
</tbody>
</table>

*Table 1. Participant professions and activities.*

Initial research was undertaken to ensure that prospective interviewees met the particular inclusion criteria – as Schultz (2001) notes, a person may engage in
environmental actions for reasons other than a sense of connection with the natural world, such as from a more ‘egotistical’ concern for personal amenity or safety. An initial approach, whether by telephone or email, required some meaningful understanding of the published work and/or public activity of the person approached. Prospective participants were generally experts in their fields, frequently time-poor and careful of engagements and commitments. An informed approach to prospective participants was intended to convince them of the serious intention of this research. Consistency with ethical obligations also requires respect for individuals at all stages of the research process, which in this case required some understanding of their work. Whilst there were some refusals, kindly worded, and a few approaches such as by email received no response, most people approached agreed to be interviewed. The nature of this cohort meant, however, that several potential participants, although initially willing, dropped away from communication. Respect necessitated a limit to attempts to follow-up these prospective participants. Thus, some significant time-expenditure was devoted to recruitment, usually but not always with a positive outcome.

3.3.1 Informed consent

Informed consent is a critical feature of ethical research practice (Lincoln & Guba 1985). Several steps were taken to ensure a respectful and ethical approach to informed consent. As noted, potential participants were individuals of social or cultural influence. As such they were individuals identifiable for possible recruitment through their commentary - published, spoken or reported - and/or actions, in the public realm, and for whom the contact details were also publicly available, for example online. Prospective participants were approached initially by telephone or email with introductory information and an invitation, should they be interested, to receive further information through provision of a Plain Language Statement. A form relating to informed consent was provided with this information. Sufficient information was provided in the Plain Language Statement to enable informed consent, and participants were also invited to contact the student researcher or principal investigator with any queries, and were provided with the contact details.
The Plain Language Statement included the implications of their involvement in the research project, namely their time commitment, and the researcher’s commitment to confidentiality. The voluntary and provisional nature of their consent was also emphasised. Participants to the project were advised they were able to withdraw from the project – and withdraw information obtained – at any time up to two weeks following their receipt of the full interview transcript. These factors were intended to ensure the voluntary, respectful and non-coercive approach to potential participants.

Informed consent was obtained from all participants; in writing from 17 participants with one additional participant preferring to provide informed consent in the context of the taped interview. All documentation and notification of this one variation were provided to the principal investigator.

Merriam and Tisdell (2016) suggest that, beyond prescribed or instituted ethics requirements, researchers need also to engage a ‘relational ethic’ throughout the research process. This implies reflexivity regarding one’s own role and input, and a commitment to interviewees as people rather than as the ‘sources of a good story’.

3.3.2 Data collection

Face-to-face, in-depth semi-structured interviews were seen as appropriate for this study’s research questions. Merriam and Tisdell (2016) observe that semi-structured interviews are supportive of in-depth open-ended exploration of participant understanding and worldview, whilst also enabling specific questions to be addressed. Semi-structured interviews are guided by, but not restricted to, a flexible list of questions on the topic being explored. For this project, a provisional interview guide was developed covering, for example, participant understanding of their relationship with the natural world, the influences on this, human-nature relations more generally, and ideas for greater cultural eco-centric understanding and responsiveness (Appendix B). The opportunity for a more probing exploration of participant understanding exists within the semi-structured interview framework (Merriam & Tisdell 2016). This flexibility supported a responsive probing in the study.
beyond participants’ more cerebral understandings of relationship with nature, enabling an opening to some deeper expressions of connection.

Strauss and Corbin (2008) observe that, although many factors impact the analysis, the quality of the data itself is among the most vital. Useful data are the likely result of employing methods best suited to the research questions, such as appropriate sampling techniques. It also results from researcher expertise, notably training and practice, and preparation (2008). In relation to this project, what I lacked as the researcher in terms of long experience in the field of qualitative research was augmented by recent training in research methods and the practice involved in undertaking a grounded theory major research project for a Master’s degree. Preparation for interviews for this project received significant attention and included immersion in the broad field of human-nature relations and research relating to the particular work or actions of participants, experts in their fields. This enabled not only appropriate sampling but respectful engagement which supported a more informed conversation.

The practicalities involved in the interview process are also important, and include arrangements for interviewing in a non-distracting location and at a time when, if possible, the participant will not feel rushed (Saldaña 2011). This presented particular challenges, for example for interviewing interstate. Secure recording equipment was also important. Two audio recorders were used to guarantee the recording of interviews (Deakin University’s Zoom Digital Recorder and a personal Sony ICD-P620).

Developing ‘good questions’ is another feature of a quality interview/data collection process (Merriam & Tisdale 2016). The open-ended questions used in this project – such as, ‘Can you say something about...’ - were intended to encourage descriptive data, and yielded many experiences and stories which brought depth to the data. Strauss and Corbin (2008) observe that good interviewing also requires recognition of the co-constructive nature of the interview itself, and requires reflexive attentiveness to such features as the questions asked (especially at the beginning), to various verbal and non-verbal clues, and a willingness to hold back on
automatically filling in awkward silences, thereby possibly forestalling a deeper interviewee reflection. Researchers need to be attentive to their own contribution as well as observant and responsive to the interviewee.

Iterative processes are a feature of qualitative research which distinguish it from the more structured approaches of quantitative research (Kuper, Lingard & Levinson 2008). Data collection in qualitative research is informed by concurrent – or cyclic – data analysis (see ‘Theoretical sampling and saturation’ at section 3.3.4 below), enabling questioning to deepen or widen in response to emergent concepts or themes. The interviews took place over eleven months and were conducted in person or via Skype. Face-to-face interviews were preferred if possible as these enabled a more immersive interview experience, and provided greater context for the analysis. Of the eighteen interviews obtained, fourteen were face-to-face. Duration of each interview ranged from forty minutes to one hour and forty minutes, with most being around one hour long. Interviews were audio-recorded and transcribed verbatim. The interview data set comprised over 212,000 words.

3.3.3 Respondent validation

Respondent validation or member checking of transcripts was used to support rigour (Darawsheh 2014). This technique is intended to ensure the accuracy of the data providing the basis of analysis. Participants were offered the opportunity to change, add to, or indeed withdraw, the information provided in the interview (as advised in the Plain Language Statement). All participants received full transcripts of their interviews. Several participants took the opportunity to provide minor corrections or additions. No participants withdrew data or chose to withdraw from the project.

3.3.4 Theoretical sampling and saturation

In grounded theory, the process of sampling ideally continues until no new data are emerging, the development of categories/themes shows depth and variation, and the
relationships between categories/themes are also well developed. This point of ‘sufficient’ development of the emerging themes or narrative is called ‘saturation’ (Strauss & Corbin 2008). A technique called theoretical sampling supports saturation. Using theoretical sampling, a researcher - exploring for concepts rather than ‘sites or persons per se’ (Strauss & Corbin 2008) - follows a circular trail: data collection leading to analysis, analysis to concepts, concepts to the generation of questions, and questions to the next data collection in order to learn more about the concepts. This process was followed in the data collection interviews for this study. For example, as new concepts emerged (such as ‘spirituality’ and ‘civil disobedience’) they stimulated new questioning or a sharper targeting of key concepts of concern – such as ‘care for nature’ - for subsequent interviews.¹⁹

Noting the unlikelihood of ethical or departmental support for such a project, Strauss and Corbin (2008) suggest that, ideally, no topic guide is needed as an unstructured initial interview around the general topic of interest would likely provide sufficient concepts for pursuit in subsequent interviews through theoretical sampling. An exception to this would, in their view, be questions based on ‘real’ data from previous research. The original questions in the provisional topic guide for this study were based on the grounded theory analysis which emerged from previous postgraduate research into the nature of ecological embeddedness (Lewis 2013). Although, as noted, theoretical sampling was used throughout this project to seek greater variation and depth in emerging themes, to a large extent the original questions arising from the previous research remained relevant throughout. The complexity of the cultural phenomenon under scrutiny also suggested that limits around the overall scope of the enquiry were helpful. The semi-structured nature of the interviews was supportive of an intentional inquiry around some core concepts – such as relations with nature – as well as a flexibility to explore and deepen understanding of concepts. Whilst more depth and variation in the concept development remained possible in relation to a topic concerning culture, by the eighteenth interview for this research no new categories/themes, nor alternative relationships between the

¹⁹ The first and final of 6 provisional ‘topic guides’ provide some indication of the process of theoretical sampling in response to emerging concepts (Appendix B).
categories/themes, were emerging, suggesting ‘sufficient’ saturation for the purposes of the study (see section 3.4 below).

3.4 Data analysis

Data analysis for this project followed the essential grounded theory processes. The key features of this systematic process include coding concepts for their similarities and differences (comparative analysis), constant comparison across the growing data set looking for higher order concepts and relationships between concepts in the search for a thematic response to the core research aims. The data are ‘interrogated’ with an open mind, foregoing preconceived notions, and a willingness for ‘thinking outside the box’ (Strauss & Corbin 2008, p.160). Data analysis proceeding alongside data collection enables the analysis to inform further data collection. Strauss and Corbin (2008) recommend an approach which is fluid, iterative and grounded in both a critical analysis of empirical data and intuitive openness to interpretation and meaning-making: a science and an art.

Immersion in the data – through listening to recordings and repeated reading and re-reading of transcripts – is the first step in grounded theory data analysis (Green et al 2007). Although often dismissed as a straightforward technical task, Bailey (2008) suggests that data analysis actually begins with the transcription process as it involves interpretation and representation of the complexity of audible talk. Most of the interview recordings of this research were sent to a secretarial service for basic draft transcription of the audio content. I then undertook a more complete transcription process. This involved listening to the full audiotape and, in addition to making corrections, inserting many details relevant to meaning and context. For example, highlighting participant emphasis, pauses, hesitations or ‘false-starts’ in answering questions, laughter, and so on. I saw it as important to capture the fullest representation of participant engagement in the interview, and of my own as the co-contributing researcher (Bailey 2008). This immersive transcription process supports interpretation and analysis of participant meaning-making regarding the phenomenon of interest (Bailey 2008). For example, a basic transcription which left out hesitations or ‘hanging-phrases’ may have dulled the following participant
reflection of a sense of urgency and simultaneous hesitation regarding changes required:

...we could have, you know, four to six degrees of global warming by the end of a century. You know, that’s quite a [pause], there’s quite a motivation there for us to change. You know we [small laugh], this is not a sustainable path that we’re on, and we have to change our thinking and we’ve got to find another way (Participant 3).

Field notes are a further form of data collection (Strauss & Corbin 2008). They are a way of recording observations with regard to the interview, as well as a form of initial analysis – a type of memo-writing (discussed further at section 3.4.1). Field notes written in a log book after each interview provided further observation and context to the data. For example, the field note regarding Participant 2 included the observation that whenever he spoke of his feelings for nature, he would look out of the nearby window into the garden. This field note observation made in the context of immersion in the transcript provided insight suggestive of the participant’s relationship with nature as, for all the science imparted during this interview, embodied and inclusive of a sense of the presence of the natural world. A basic draft transcription may have captured the science and more cerebral information; immersive listening to the audio, whilst undertaking full transcriptions which were read and re-read many times, with attention to field notes giving context, helped to capture some of the feelings and deeper meaning within the data.

Whist analysing the initial data, I used the NVIVO software package. I found, however, the limitations of this approach outweighed its usefulness. Strauss and Corbin (2008) suggest that, although often useful, the reliance on computers can ‘stifle’ the richness and authenticity of analysis, affecting quality. Pope and Mays (2009) suggest that a researcher can do a lot of work using such a program without making much analytic sense of the data. The sense of constraint I experienced in being guided through the program into a more narrow and administrative mode mirrored Holton’s (2007, p.287) understanding that the ‘largely mechanistic mind-set’ of such programs runs
counter to the ‘conceptual ideation imperative for generating good grounded theory’. I eventually abandoned this program for the intimate knowledge of the data gained through constant immersion, memo-writing, and ‘scanning’ across the enlarging dataset for similarities and differences.

3.4.1 Open coding

The analytic process begins with the ‘breaking open’ of initial data collected (Strauss & Corbin 2008). The ‘raw’ data are examined with an open-minded brainstorming approach for the initial possibilities and emergent provisional concepts. For this research, the first interview was the longest (one hour 40 minutes) and yielded many initial ideas. These ideas or emerging concepts were subjected to a many-sided process of memo-writing. Memos are working documents providing opportunity to record interrogation of possible meanings and of relationships between concepts, and any other ideas useful to analysis (2008). The use of diagrams supported this memo-writing analysis. The analytic processes of memo-writing and use of diagrams support a continuous ‘mental dialogue’ (Strauss & Corbin 2008) with the data through a recording of the complex, cumulative thinking involved in qualitative research. They are seen as being as important to the research process as gathering of data (Strauss & Corbin 2008).

A document was created, ‘Evolving major codes’, which incorporated the results of the initial analysis as provisional conceptual building blocks for subsequent data analysis. This document evolved with the analysis of each interview, and grew to more than eighty alphabetical codes. For example: Agency; Alternative hedonisms; Antecedents-childhood experience of nature; Awareness-‘seeing’ of participants, and so on.

3.4.2 Axial coding

According to Strauss and Corbin (2008), axial coding is the process of relating concepts to each other. Higher level concepts emerge as categories – incorporating lower order concepts as properties and dimensions. Relationships begin to emerge
across as well as within these higher level or more abstract categories or themes. The cyclic, analytic process of continuous data collection, analysis, and memo writing enables constant review of the emerging analysis.

A template called ‘Contact summary sheet’ was developed as a simple tool to use following recording of each interview’s field notes to aid the cyclic data collection and analysis process. The one-page sheet included space for a summary of significant information obtained, issues emphasised by participants, and particularly interesting or illuminating ideas. The final section prompted reflection on the next likely lines of questioning.

An extensive process of memo-writing analysis of the main codes emerging and relationships suggestive of themes was undertaken for the first nine interviews. This analysis incorporated ideas, reflections, possibilities and questions regarding the data and emergent interpretation. By the ninth in-depth interview the iterative process of analysis across the dataset and memo-writing enabled an emergent clarity between themes and the data, and the relationships between themes. The use of diagrams on A3 art paper using coloured pencils which incorporated the emerging concepts and possible relationships assisted in a process of ‘fitting the data together [and] making the invisible obvious’ (Morse & Field cited in Strauss & Corbin 2008, p.195). The process of analysis was supported throughout by the more formal memo-writing tasks described above (section 3.4.1). It was also supported by ad lib continuous handwritten memo-writing to constantly interrogate the data, and journaling to question the process. The fluid and iterative analytical process of ‘revision and re-revision’ led over time to substantive theory. As Creswell (2007) notes, the presentation of the emergent theory can be in the form of narrative, or as a series of hypotheses or propositions. The theory which arose from this research found expression in interrelated thematic propositions. The analytic process required me as the researcher to ‘trust my voice’, that is, to have confidence in my findings on the understanding that I had rigorously analysed and carefully thought about the meaning of my data (Saldaña 2011).
The reflexive analytic process may also lead to review of the original questions (Strauss & Corbin 2008). This occurred during analysis of the data for this project, which led also to a reframing of the original topic heading (‘Fostering an Ecological Paradigm; a Role for Public Health’). It became apparent as more data were collected and analysed that, no matter how the question was framed regarding how to foster greater ecological awareness (a notion which had been presented to participants in recruitment communications), the initial response of many participants related to the necessity for urgent collective responses to climate change. That is, although many concepts and ideas arose throughout the interviews as a whole concerning how a sense of connection with the natural world may be fostered and encouraged, the initial response often reflected a sense of urgency. The word ‘fostering’, being suggestive of something which may be nurtured over time, became questionable in the light of this analysis, a ‘rich-point’ requiring much reflection. This stimulated recognition that the word ‘fostering’ in the original research questions was inadequate to convey the complexity of the changes in human-nature relations seen as requisite by participants. The analysis needed to incorporate both long-term (fostering) and short-term (more urgent) notions relating to the processes of changing human-nature relations. Participant 3, for example, a person dedicated to fostering awareness of the natural world in children, encapsulates this concern in emphasising that, ‘unless we act on climate change, there’s not going to be any nature left, there's not going to be us left very, very soon’. Although not entirely adequate to convey the urgency apparent in interviews, the word ‘transitioning’ was selected as a concept more able to encompass both the short-term and long-term properties of cultural changes seen as necessary.

Another unexpected feature of the data which the process of analysis clarified and which required incorporating into the emergent thematic structure related to questions regarding participants’ - or ‘the human’ - relationship with nature. Once again, many ideas were provided by participants throughout the interviews suggestive of an inextricable sense of connection with the natural world, (confirming their inclusion, for example, in this study), However, initial responses to questions and probing on this subject suggested some difficulty in talking about such a concept.
Interrogating this feature of the data added another layer to the emergent thematic analysis. Although the analysis remained always focused on the ‘voices of the participants’, a critical view of what was happening in the context of the interviews was required in order to make sense of what were evidently problematic participant responses. Caution is noted in the research literature against simply accepting at face value (Pope & Mays 2007) the beliefs or assumptions of respondents. Strauss and Corbin note a researcher ‘must walk a fine line between getting into the hearts and minds of respondents, while at the same time [keeping] enough distance to be able to think clearly and analytically about what is being said or done’ (2008, p.81). The grounded theory approach also suggests that it is important to question everything. The research did not set out to examine the cultural discourse regarding human-nature relations, however, in seeking understanding about what facilitates or disadvantages ecological transitioning, analysis suggested that the discourse itself, the way people talk and think about the natural world, was a significant aspect of the emergent findings. A number of participants also spoke directly to the difficulty in the discourse with regard to human-nature relations, confirming this notion.

3.5 Rigour

There is no consensus on the definitive evaluation criteria for qualitative research (Strauss and Corbin 2008). Cooney (2011), for example, notes that although rigour has been the focus of study, the criteria for demonstrating it remain difficult to define. The constructivist assumptions regarding the provisional and socially-constructed nature of reality suggest the terms of such evaluation are themselves ever-open to debate and reconstruction (Strauss & Corbin 2008). Rigour in qualitative studies must take into account the socially constructed (non-objective) nature of reality under scrutiny. Research findings are also recognised as the result of constructivist/interpretivist processes of interaction between researchers and participants (Hansen 2006). Qualitative findings develop from flexible and interactive processes of meaning-making.

Strauss and Corbin (2008) suggest that rigour in qualitative research is less about adherence to strict rules than it is to fidelity to the spirit of qualitative work. The
application of particular criteria to evaluate the quality of the research findings depends on the purpose of the research. This is not seen, however, as precluding qualitative research from being disciplined, systematic and therefore rigorous and trustworthy. Wu and Beaunae (2012, p.249) observe, for example, the growing use of grounded theory methods in qualitative research as a consequence of the ‘rigour needed in qualitative studies’. Strauss and Corbin see it as important to consider how a project may be evaluated. Whilst themselves suggesting a range of provisional conditions and criteria for consideration in evaluating qualitative research, they also make reference to significant work undertaken by other qualitative researchers on this subject, for example Lincoln and Guba (2008). The evaluation criteria developed by Lincoln and Guba in 1985 have been used extensively and remain current as a solid basis for evaluating qualitative research (Morse 2015). The rigour of this study and confidence in its outcomes will be discussed in detail in Chapter Eight (section 8.4), ‘Reflections on rigour’, with particular reference to Lincoln and Guba’s (1985) four important criteria for rigour: credibility, dependability, conformability and transferability.

3.6 Reflexivity

Reflexivity is seen as particularly important within the qualitative research paradigm with its underlying assumptions of reality as a co-creation ((Darawsheh 2014; Kuper, Lingard & Levinson 2008). Reflexivity is understood as the continuous process of self-reflection that researchers engage in to generate awareness about actions, feelings, perceptions, assumptions and expectations. It is a process used throughout the research, from designing the project, collecting and analysing the data, through to the reporting of findings (Darawsheh 2014, p.561). Reflexivity supports transparency, important for rigour, as well as for the development of self-awareness and insight. As noted above (section 3.2.2) the interview process and hence the data and consequent findings are considered to a ‘co-construction’ between the researcher and research participants (Strauss & Corbin, 2008, p.31). Reflexivity includes honest reflection on what the researcher brings to the research process, and requires the researcher to situate themselves in their research, highlighting their
subjectivity (Darawsheh 2014, p.563). Self-awareness also supports the researcher in adopting appropriate responses to engage interviewees, such as empathy and enthusiasm, whilst taking care not to lead the interpretive process within interviews or to force an interpretation during analysis. Reflexivity regarding one’s subjective role is acknowledged as a positive contribution to increase credibility and generate relevant findings.

Strauss and Corbin (2008, p.85) question the advice of some researchers (e.g. Darawsheh 2014) that the analytic process could include a ‘bracketing’ of beliefs and perspectives when analysing data. They observe that this is ‘impossible’, as such ideas are often deeply ingrained. Instead, they suggest it is helpful to acknowledge assumptions and experiences and use them consciously to enhance the analytic process. Charmaz (2011, p.166) echoes this understanding. A researcher cannot be a ‘tabula rasa’, untouched by earlier ideas, but rather aims for a stance of ‘theoretical agnosticism’, subjecting ideas and earlier interpretations to rigorous scrutiny. Although bracketing is seen as unlikely, the need to ‘question everything’ (Strauss & Corbin 2008, p.81), one’s own assumptions as well as the assumptions behind participant understandings, is valued. Memo-writing and journaling were used extensively throughout the analytic process, and included problem-solving, relevant discussions, observations, and free-associations in support of reflexivity (Strauss & Corbin 2008, p.85).

With regard to what I as the researcher brought to this project, my interest was founded on a long process of ‘sensitisation’ to the subject of human-nature relations and on the assumption, or intuition, that these relations were important but not well understood in our culture. This included much reading over a number of years, especially of so-called popular literature written by reputable scientists and thinkers, such as Canadian David Suzuki and Australian Clive Hamilton. This led me eventually to undertake a Master of Public Health which included a grounded theory research project into human-nature relations (Lewis 2013). An article on this subject was co-published with my research supervisor Associate Professor Mardie Townsend in the journal Eco-health: ‘Ecological Embeddedness and its Public Health Implications:
Findings from an exploratory study’ (Lewis & Townsend 2015). As noted, this exploratory study provided an understanding central to the development of the aims of this study. Motivation for this deepening interest was grounded in my own life, as I had experienced an awakening to a sense of belonging within a more-than-human world which was transformative. I believe my long ‘sensitising’ engagement with questions relating to human-nature relations was integral to my pursuit of this complex field and helped also in the ‘co-creation’ of the eighteen interviews forming the basis of this work. (A further comment on reflexivity is found at section 8.5).

3.7 Ethical considerations

This research project was considered to be low-risk, and low risk ethics application (HEAG-H 146_2013) was approved by the Deakin University Human Ethics Advisory Group. Individuals who agreed to participate were people of social or cultural influence. As such they were identifiable through their commentary, published or spoken, and/or actions in the public realm and for whom contact details were also publicly available, for example online. These circumstances applied also to those prospective participants (3) who were located as a result of ‘snowballing’. Merriam and Tisdell (2016) note the necessity in qualitative research to ensure the protection from harm of those participating, the right to privacy and the application of processes ensuring informed consent. (See section 3.3.2 above for details on informed consent).

3.7.1 Confidentiality and anonymity

The ethical principle of confidentiality ensures that information obtained on the basis of privacy and confidentiality must be used only for the purposes for which consent was given, and that the anonymity of participants is protected throughout (Hansen 2006). Initial recordings were transcribed with all personal identifiers removed (e.g. Participant 16). Electronic files containing coded (non-identifiable) interview transcriptions, audio recordings and spreadsheets with participants’ names and related codes and contact details, were stored in the researcher's remote password-protected home computer for the duration of the project. At the conclusion of the
all data were transferred to the computer system of the principal investigator or delegate for storage for a minimum of five years. Only the original team or authorised delegate/s will have access to this system. At the end of that period all electronic files will be permanently deleted from the Deakin University computer system.

Reflexivity throughout the research process included ethical considerations of maintaining confidentiality and anonymity (Kuper, Lingard & Levinson 2008). The researcher ensured full confidentiality and anonymity of participant information including verbally and in all documentation. Although a number of participants stated that they did not require anonymity (having often spoken publicly on the subject of human-nature relations) all information obtained in connection with this research project was and will be used only for the purposes of the project. It would only be disclosed in other circumstances with formal participant permission.

3.8 Chapter summary
Eighteen information-rich individuals were located through purposive sampling and interviewed in-depth for this study. Interviews were audio-recorded, transcribed verbatim and provided to participants for validation. Grounded theory methods were used in an iterative process of data collection and analysis. Techniques to support processes of interrogating and interpreting the data included the use of memo-writing, journaling and creating diagrams. The reconstituted data were subjected to multiple revisions and re-revisions. Higher level concepts emerged as categories or themes, suggestive of a plausible interpretation of the data. By the eighteenth interview no new concepts or thematic relationships were emerging, suggesting ‘sufficient’ saturation of concepts and thematic development. The following three findings chapters, Chapters Four, Five and Six, show the emergent thematic development leading to four thematic or theoretical propositions in Chapter Six.
Chapter Four: Findings - Inextricable links with the natural world

4.1 Introduction

This chapter exploring participants’ experience of connection with the natural world. It is the first of three findings chapters responding to the research Aim 1: ‘to explore the facilitators of and barriers to greater socio-cultural transitioning towards an ecological paradigm’. This chapter’s emphasis is on the facilitators. The following interrelated sub-themes are facets of participants’ sense of connection with nature: the meaning of the human-nature relationship; antecedent experiences; committed eco-centric action; what may be termed a holistic perspective more generally evident throughout the interviews; and health and well-being benefits of contact with nature. Participant accounts of their relationship with nature emergent in this chapter are foundational to the thematic development in the two findings chapters which follow, namely, Chapter Five ‘The human-nature disconnect’, which focuses more on the barriers, and Chapter Six ‘Transitioning towards an ecological paradigm’. The chapter concludes with a brief discussion giving context to the emerging findings.

4.2 The human-nature relationship - meaning for participants

Participants’ understanding of the human-nature relationship can be summarised, in words used by several participants, as ‘we are a part of nature’ (e.g. Participant 9), suggesting, at least at the conceptual level, collective acknowledgment of inextricable links between humans and their environment. Further exploration highlighted a range of emphases within this understanding, from a largely scientific and pragmatic recognition through a more emotional and embodied responsiveness, and, finally, towards recognition of a more explicitly participatory engagement with the natural world.

It is important to note that this emergent range of emphases is not intended to suggest a reductive sorting of individual participant positions regarding views on the human-nature relationship, this was not a focus of this study, but rather to indicate the range evident throughout interviews as a whole. Although participants tended to speak to one particular end of the range - the more scientific end or the more
participatory - complex understandings of the human-nature relationship ranged across the spectrum. Further research would be required to understand the meaning of tendencies to speak to one end of this suggested range of recognition of human-nature inextricability or the other. This range is now considered.

4.2.1 Scientific and pragmatic dimension of recognition of human-nature inextricability

Many participants articulated an intellectual recognition of human-nature inextricability based on science and/or a pragmatic focus of nature as the provider of resources. Participants, especially those from a scientific background, emphasised links as a fact of biological evolution, a co-evolution along with other species on Earth. Humanity was perceived as interwoven into the patterns of life on the planet, a relationship with roots deep in time -‘we’ve been connected to nature on this Earth ever since the beginning of the Ordovician, that’s 543 million years ago when life crawled out’ (Participant 15) - and evident still in human genetic inheritance and behavioural interrelatedness with other species:

I think we are a part of nature...we’re an evolved entity, and everything about us makes sense only from an understanding of evolutionary biology really, just as it does for every other species on the planet. So I don’t see a disjunct between us and nature...in your body and my body 10% of [our] weight is not us, it's other organisms, in each of our individual cells the mitochondria in a sense aren't us, they belong to a different class of organisms altogether...(Participant 9).

The following quote illustrates recognition of commonalities shared between humans and other species, long intuited by people and now confirmed by science:

...[humans are] just one leaf on this tree [of life] and every other species has innate, inherent qualities of intelligence and wisdom even, and emotional feelings...jealousy, humour, anger... dogs and cats, they all display those
[qualities], horses, birds, it’s all evident, and that’s only recently been seen with animal behaviourists...[now] they can put an MRI on...a dog or a human...and the dog’s brain goes off in the same area that the human brain goes off...so science is finally showing what we know in the heart (Participant 15).

Human dependence on the natural world for survival was strongly emphasised throughout interviews as indicating human-nature inextricability. Participants recognised human biological reality as dependent on natural elements, especially air, water, and clean productive soils, and on other life-forms as food. This correlation between human life and the presence of such elements was seen as absolute in the sense that there is no human life without such elements:

...You're going to breathe in a few seconds...there are some things that are absolute...we’re dependent on food, water... (Participant 1).
I’ve always been aware of the interconnectedness between humans and their environment. And I understand the interdependence is absolute; that there can’t be humanity without a viable environment (Participant 13).

A healthful environment was not only needed for survival, optimal human health was also dependent upon it:

[Humans] are completely dependent on nature for, certainly for our physical needs; so we need, obviously, clean air and healthy soils to grow our food in, and we need a stable climate, and we need, you know, regular contact with nature to be really well...so on every level really, I think we are dependent on nature (Participant 3).

The impacts on human health and well-being of vectors and toxic particles in air and water were also noted as clear evidence of humanity as interconnected with the environment, the following quote illustrating this interplay:
[We need] to consider human health in the context of the health of ecosystems, it's because they are not separate. [For example, the impact] air-borne and water-borne aggressors...has in-utero on cardiovascular disease and shortened life outcomes is immeasurable. Which brings me to the mine down here at [place] ...we’ve just had that coal fire that’s been burning out of...time. So you cannot consider, for example, some of those causal pathways around cardiovascular disease without also considering the impact of the environment on that. We’ve got an increasing number of children with allergies, peanut allergies, increasing number of asthmatics; all of those are environmental concerns (Participant 10).

A number of participants addressed the notion that even if one had a completely anthropocentric world view - for example, if only human health mattered to people - a flourishing biosphere remained indispensable, as human welfare is totally dependent on the environment - which, as the following quote suggests, inevitably entails human care for the environment:

...to have an anthropocentric human world you also need an environment...to have a rich human future we need a rich physical environment, so you might say it's anthropocentric, but it's also eco-centric (Participant 1).

Any notion of humanity as separate from the world around them was invariably noted by participants as irrational in not engaging with human ecological reality: ‘so it’s just the whole thing of us being a somehow separate entity makes no sense to me’ (Participant 9).

4.2.2 Feeling and embodied dimension of recognition of human-nature inextricability

Many participants spoke of positive feelings, including love for nature, arising from experiences of connection with the natural world. Expressions of strong emotions were generally associated with engagement with particular places in the natural
world, for example, the ‘wild’ - the bush - or in one’s own garden, and with animals. Nature was valued by participants for its intrinsic features, eliciting feelings from delight and wonder to more passionate expressions of engagement and love:

I love the snow, it’s just that being out in the wilds of nature, I love it...there’s just something deep and thrilling about it...I go downhill [skiing]...just being there is a huge part of it. I love the exercise, but I just love being on the mountain and the white snow and the green trees (Participant 5).

The power of nature to engage the whole being, awakening all the senses, was a central feature of interviews. A participant, who ran a wilderness retreat, cited the poem ‘Atavism’ by William Stafford to illustrate his valuing of a more embodied experience of being in the world than perceived as generally available in the cultural context:

...embodied is the key word too... [Stafford] talks about... when we’re finally out there walking, stroking our fur - which we no longer have, so he knows ...you’re human, but we’re still stroking fur - and our whiskers are wider than our minds. Feel the power of that statement? So that’s what I try to do here, get people to feel the whiskers. Yeah, because with whiskers, they’re antennae, they’re so sensitive, and that’s how you can go through this world, if your whiskers are there, in tune, they’re better than your mind, it’s all about feeling and interpreting those feelings particularly in the world through sense (Participant 15).

Immersive experiences in nature were also associated with powerful creative and life-enhancing effects on the human psyche:

...I’m working, and things are on and on and on and on [busy]. I go for a walk. I walk up Mount [name]...I feel the breeze, I go to the lake, I get an idea. It’s like an incredible, incredible dream door to creativity, to reviving, and to the human, to come alive (Participant 18).
psychological connections in nature [are] important because of what it means to be human [and] humans have always had this connection and without it we sort of feel lost (Participant 12)

A feeling response to nature was also frequently evoked as participants spoke about their relationship with nature during the interviews. Feeling for nature included strong feelings of sorrow for the environmental destruction participants had witnessed, for example the destruction of treasured old growth forest and the creeping ‘development’ of bush outlying nearby suburbs. One participant was deeply moved during the interview as she expressed her sorrow for diminution of the beauty of the natural world as a feeling of ‘solastalgia’, which is:

...like nostalgia but for the place that you’re in, so it's when you feel...sad about the place that you're in because of the way that it's changed over time...like that pining for how it might have been, I think, yeah [moved]. So I think, yeah, definitely feel like that, yeah, definitely every time I go somewhere, I think, I wonder what this would have been like before. And so it's great to go to truly, well as much as I can imagine, wild places like the [remote wilderness country] for example or, or I love going down to [a State National Park], or going to places like that where you think maybe this is nearly like it was...So I definitely feel that solastalgia (Participant 3).

A sense of being at home was also associated with connection with nature:

I’m sitting here... I feel at home here, I go outside, I also feel at home. I go to another country and speak another, where I don’t speak the language, and there is nothing familiar to me. I look up and I also feel at home...I look down and I can also feel at home...Because of nature it’s actually possible to feel at home wherever I am even when things are completely and utterly strange (Participant 18).
Participants maintained deliberate and extensive contact with nature in their current lives, for example through camping, gardening, walking, bushwalking and skiing, suggesting need for contact with nature beyond pragmatic health considerations. For many, it was the recollection of childhood experiences in nature, frequently involving an animal, which they chose to illustrate their relationship with nature. This recollecting provided as evidence of current feeling for nature suggests the importance to many participants of those early experiences which remained alive in awareness. Participants recalled, for example, with evident enjoyment, the thrill of discoveries made long ago:

...when I was about five or six...I went to a little preschool...you had to walk along a little lane past a pond, and this little school had a garden, and I remember, still vivid really...I picked up an old log lying out there in the garden, and underneath was...a very young newt...a few weeks before it would have been a tadpole. It must have just come out of the water, exquisite, and so extraordinarily beautiful, I just remember that moment (Participant 2).

Another participant recalled an adult experience evoking such a memory from childhood:

I lived on a bush block at one stage, and I was lifting up an old piece of tin and under there was a little echidna, and I said, oh, a porcupine! And when I reflected back on that, it was so child-like, you know; we called echidnas porcupines when I was a little girl. It was such delight, and so childlike, and, I thought, I hope I never get rid of that sense of wonder (Participant 8).

4.2.3 Participatory dimension of recognition of human-nature inextricability

The natural world, in its parts and as a whole, was also perceived more as subject than object. The recognition of relationship signified here was one of fully participating – co-participating - within a vividly alive natural world. Reciprocity involving gratitude and responsibility to care for nature are engendered:
I feel, a lot of gratitude that I have this opportunity to walk out into the land every day and really feel the elements, and that’s just a constant, and it’s not what you’ve learnt, you’re just *in* it, you’re immersed in it, you’re surrounded by it, it’s the song, the wind, the animals (Participant 15).

Participants spoke in terms suggestive of nature having presence, sentience and agency:

[I] appreciate the wood that I put on my fire has actually come from a tree that has sacrificed its life for me (Participant 6).

One of my earliest memories of recollection is feeling lonely, you know, so I remember going out in to this field and at the end of the field, at the edge of the forest, was a big kind of spruce tree, and I remember going up - and spruce trees have long kind of fingers of needles - and I remember grabbing a finger and shaking its hand. And it wasn’t just a goofy thing to do, I really felt I was shaking another being’s hand, and I said ‘hi’. And that gave me a sense of comfort. That was my first visceral connection to another living being (Participant 15).

The following quote differentiates between a perception of nature as passive, more objectified, and nature as agent:

...the other people within the fellowship...they had other ideas for their projects - so some of them would be medium-scale solar panels, or a TV show to appeal to people, or trying to make car parks greener - but none of them really had any projects that were really essentially *about* nature. And we thought, wow, isn't it incredible that in this group of twenty-five passionate people who want to bring about change, no one else really seems to care that much about nature, no one seems to really think that nature is a really important part of the solution (Participant 3).
This participant’s observation of ‘none of the projects [being] essentially about nature’ may also suggest the difficulty this study has noted in the culture generally in engaging with the natural world on its own terms. This will be explored in section on the discourse in Chapter Five on the ‘Human-nature disconnect’.

Although the twenty-five projects were ‘about nature’ none of them apparently were essentially relating to nature as a ‘contributor’. As this participant described it, this involved embodied processes engaging the senses and inviting nature into consciousness as a critical presence with power and agency. An example of engaging with nature as an important part of the solution was ‘barefoot networking’, described as inviting decision-makers (for example CEOs and senior bureaucrats) to engage in simple outdoor activities in garden contexts, not unlike activities they may have enjoyed as children, such as going barefoot or building sandcastles together. These processes were seen as supportive of a collective accessing and sharing of an enlarged nature-based perspective - especially useful regarding decisions affecting nature or human-nature relations, as was the case here. This enabled group members to ‘create really innovative solutions’ (Participant 3). Nature in this example was seen not only as providing a passive context for such decision-making, but as an active participant in a sense, influencing the process and contributing to solutions.

Recognition that a more participatory relationship with nature may be less cognitive, engaging the fully embodied, sensually responsive self, was indicated by other participants. A participant noted as problematic the effect human conversation has in cocooning people from more direct engagement with what is happening in the natural world around them. For example, he noted the interview conversation itself made ‘knowing what that aloe vera is doing’ difficult (Participant 15); the tree moving outside the window was indicating he needed to pay attention to the effects of rising wind on his property.
Participants who had an Indigenous perspective\textsuperscript{20} appeared to most fully recognise themselves as participants within a natural world alive with sentience and presence. This aliveness encompassed individual elements of nature, such as a seal or birds, and also of the whole, named ‘Country’. The following descriptions concerning the recognition of a participant, an award-winning Indigenous writer, of relationship with nature are provided in some detail to more fully elucidate this particular perspective. For example, the participant spoke of his attitude to fishing and hunting in terms suggestive of an actual dialogue within the natural world responsive to nature’s sacrificial beneficence:

You've got to talk to those bloody fish, you know, half the time they jump on the line for you. I feel that strongly, that some of the fish are sacrificing themselves for me, so I've got to really love that fish...I kill a lot of things, you know, I'm always killing things, a lot of plants and a lot of animals, rabbits and kangaroos, and vegetables, obviously, and fish. So I'm killing a lot of things, so my soul is not going to survive that unless I've got some kind of permission to do that, and you only get permission from the animal...(Participant 7).

Although pragmatic dependency on food as resource remains an absolute fact of human existence, the process outlined here suggests an entirely different relationship with the food than that of one-sided utility. Dialogue entails reciprocity in this example, human decency in respect and gratitude for the fish’s self-sacrifice. (These ideas are expanded on in the section 4.5.1 later in this chapter).

Participant 7, who lived in a country town, spoke about his proximity with the animals around him as ‘[living] in the same neighbourhood, I am familiar with them’. The following quote provides a more personal example of his sense of participatory relationship within the natural world:

\textsuperscript{20} An Indigenous perspective means either being Indigenous or having worked and lived extensively with, and been influenced by, Indigenous people and culture.
There are some eels there that I kind of know personally, and people go, you know an eel, yeah, I do, and if I walk on down to the river bank, it won't leave...It knows that I'm not going to do any harm because over the period of a dozen years - that is a very old animal - it knows me from other people. Now I'm not going to say we're going to go on picnics together, but this animal is aware of me and I'm aware of it. I recognise its face, and I don't know how it recognises me, probably, from my footstep, but if another person turns up, it's gone. And the same with a seal. There's a seal sometimes inhabits the river where I live and if I go fishing it will just follow me, it's a bloody nuisance because where there's seals there's no fish, but it always makes a point of coming up, you know, comes up beside the boat and goes ‘psshhht’, and just stares at me for a moment, off he goes happy then, but strange. I love it (Participant 7).

Recognition of personal, familial relations with nature was also spoken of by a non-Indigenous participant who consciously sought to ‘live more as an Indigenous person’ (Participant 14):

...I go into the bush and they're my friends because I know their names and their habits...I have stories and relationships with a huge array of non-human, more-than-human life... (Participant 14).

Country as an entity was also perceived as having agency, an active presence initiating responses only fully explained, in the instance below, by familial elders when he grew older:

I knew that I was being moved by Country, I knew that it was affecting me, I was, even as a child, you know, in that era, there was something powerful going on. And I didn’t understand why I was so shaken, always, I'd see things and I'd be shaken by it, and I didn’t know what it was (Participant 7).
Again, this perception of the agency of Country finds echoes throughout other interviewees, including whose who were non-Indigenous. For example, the journalist who described her feelings of attachment for an Australian desert in terms suggestive of being actively engaged, called, by the Country:

It's like the desert gets a...hold of your heart somehow, that Country, that big Country, and, you know, it gets into you and it's like it calls you back’ (Participant 5).

Non-Indigenous participants when addressing their sense of a more participatory relationship with nature, typically in fact called on their knowledge of Indigenous culture to provide context and meaning to such experience. For example, a participant seeking words to describe her sense of a spiritual connection with the land (Participant 8) or, as in the following explanation provided by a participant, who, as a lonely child had experienced comfort and belonging when he ‘shook the hand’ of a spruce tree:

Well, that’s Indigenous culture stuff, it’s so obvious. I mean that is...their worldview, [it] includes the other (Participant 15).

Another Indigenous participant spoke to her sense of being ‘inextricably connected to, and belonging to, a place’, and her recognition of the agency and significance of all within the scheme of things, from the wholeness of Country to every element of the natural world, all understood as having its own history and perspective or worldview. The shift in perspective here regarding the natural world and human-nature relations is radical - from an ‘environment’ - a world of resources enironing humans - to a world of infinite, intrinsically valuable subjectivities:

...all Country in Australia has got a history that is separate and different to a human history of this place. And it doesn’t matter if it's constructed as the dreamtime, which was, you know, a creation story. It doesn’t matter whether you're a different species, so kangaroos...would have their own history of the
development of this world. So would a river, so would a dingo on Fraser Island....But from a particular worldview...everyone has its own sense of knowing and it has its own history, and it has its own sense of belonging and that’s what we need to keep in balance (Participant 10).

Significantly, the point was made that for people without the cultural context of elders to explain embodied, participatory experiences, such experiences of being more sensuously alive may in fact be experienced as trauma in a cultural context favouring more cognitive modes of being. This was the case with a participant who, having ‘always been very open to sense perception’ (Participant 14) struggled with a feelings of overwhelm until the discovery of cultural mentors began to provide critically needed context.

Participants recognised the inextricability of humanity with the natural world in a range of ways. Any notion of humanity as separate from the world around them was noted by participants invariably as irrational, and fundamentally not engaging with human ecological reality. Maintenance of planetary ecology was understood by participants as a matter of necessity - a scientific fact based on a rational view of ecological reality - as well as a matter of ethics regarding both collective human welfare and responsibility for reciprocity towards the beneficent natural world, as shall be explored in the following section.

4.3  Antecedents to recognition of human-nature inextricability

In seeking answers to the research question as to how to foster an eco-centric understanding more widely in the culture, it is relevant to explore how the sense of human-nature inextricability explored above (section 2.2) may have arisen within participants. This section examines several features of participant experience which supported connection with nature, generally in childhood and youth: the opportunity to connect with nature; learning about nature; and the opportunity for eco-centric mentoring.
4.3.1 Opportunity to connect with nature

Most participants had the opportunity for extensive contact with the natural world as children. For example, on farms, or, more likely, through suburban proximity to natural spaces difficult to build over, such as creeks, or countryside adjoining the suburban fringe. Such places provided extensive opportunity for participants as children to range freely and explore the world around them. The immersive experiences in nearby nature were deeply valued by participants:

“I grew up on what was the edges of Melbourne when I was a child, at [suburb]... even though it was suburban, it was on the suburban fringe... I was always down Port Phillip Bay, snorkelling and things like that, and I loved the ecosystem (Participant 9).

And a lot of my early childhood was then spent in the drains around the corner or down at the beach front or in the mud flats or getting mosquito bites in all the mangroves. And I think that I always just had a very outdoor connecting-to-nature way of being, in the outside world (Participant 10).

Gardens, especially vegetable gardens and the opportunity to grow food were also significant for participants. The sense of dwelling as one member of a thriving little ecosystem is beautifully expressed in the observation of one older participant that as a child one simply:

...grew up in a garden where a lot of food was grown and where you lived (Participant 4).

School also provided opportunities for suburban children to connect with nature, whilst in the playground and also walking to and from school:

...[thinking] about how much nature was in my day, you know, it was a walk to school and it was lunchtime and playtime, and then it was after school as well,
and it was on [often camping] holidays. And then, with secondary school, I walked probably 45 min or so each way to and from school, so it was, again, it was quite a long walk but I think that probably was really good mentally and physically for me (Participant 3).

Participants also reflected on the opportunity holidays provided for contact with nature. This was especially important to several participants who grew up in urbanised inner city areas. Holidays, with extended family for example on the family farm, or at holiday houses or camping in favourite places in the bush were often long and enabled immersive exploration.

...as a young boy...my mum [would take] us up...north to the cottage on the lake as soon as school was out, the very next day, drove up north and we spent three months bare-foot....I [was] immersed from sun up to sundown. We would get up, we had our little chores like washing dishes and all that, but then during the day, we either hiked or swam. We had a rowboat, no motor boat but a rowboat. So you’d go out, on the water physically, we would go fishing with the bamboo pole, you know, and worms, try to get fish, go exploring (Participant 15).

Many participants also valued time spent alone in nature away from adult supervision, seen as particularly important at times of stress or transition.

...for peace and quiet as a teenager, you know, just trying to get away from my little brothers and sisters and what have you, I used to go bush. So I'd walk to the bush and I would take my sketch pad and I would draw trees or plants or whatever for quiet time and reflective time. And I did that even when I was, you know, all of my teenage years. So I guess I've gone for quiet time (Participant 8).

...there was always bush handy and I always found it a glorious place to be, it wasn’t competitive like school. You weren’t likely to get the cane there; you weren’t likely to be abused, you know, you were there. Sure, you had to watch
for snakes and open mine shafts, falling trees, whatever, but I realised there was some great restorative and connected thing (Participant 16).

Time spent ‘alone’ in the company of animals, including pets, provided opportunity to connect vividly with the more-than-human world, experiencing a sense of community.

....I always had a dog and sometimes a kangaroo....and those roos would follow me around ‘cause I was the feeder, so they would follow me around, and eventually they grew up and they'd go away. And it was just part of the thing, you know, you’d see them every now and then, ones that you reared, and there would be that kind of recognition, and they would come up to you and they’d talk. (Participant 7).

The so-called aloneness spoken of, the participant ‘hanging out’ in the trees in the midst of other animals, is suggestive rather of an almost familial sense of comfort and of belonging:

I had quite a bit of time alone, too, so I’d sort of hang out in the trees, climbing...in the woolshed ...where there was an owl that lived, and there were possums and bandicoots. And so I really enjoyed the environment (Participant 5).

As well as the opportunity for connections provided by an accessible natural world, a strong theme in participant interviews indicated a social context of passive, benign permissiveness, informed by a sense of safety, was enabling of their engagement with nature:

...we could go off for the day and [my mother] wouldn’t worry about it because life was safe then, or there was a perception that nothing would actually happen to us or we might fall into the river or something like that. So we were able to get outside and we were able to explore as children. So I think
that part of it was having the ability or the opportunity to experience nature. (Participant 8).

...we moved when I was about 8 years old...to a suburb, but in those days we could fence off the street and skate and climb trees, and there was no, as far as I know, real, [threat], we didn't feel in any way that we couldn't just roam a bit, you know, and would be [safe]; it was a suburb that wasn't entirely built up so we could play in the mud. I think that very close interaction is important at that age (Participant 11).

The opportunity for independent play in nature supported the development of early affinities with the land, ‘kids’ knowledge’, and of social connection:

...we grew up in [name] on the [name] River...in a suburb that sort of had the river on both sides of it, and down one side there were these vast what we called The Tadpole Swamps of flooded wetlands ...where the river came in under the forest, where we used to go and catch tadpoles. And on the other side we had the limestone cliffs of Blackwall Reach that had all cave systems in them and cliffs where you could jump, you know, from 36 feet to massively deep water as long as you jumped out far enough over the limestone ledges that you could see in the water. And all of those spaces were essentially unregulated by adults that we played in, and the landscape knowledge was all basically kids’ knowledge...But our parents just let us go off in those mixed age groups going down to the river doing things that they might have shouted at if they'd been there, but that was not grossly irresponsible for people of my parents’ generation who had come through the Great Depression and the second world war (Participant 12).

...the suburb that we lived in was a long way outside of the city, was in some ways an underdeveloped community, but fantastic as a child... and there was a high degree of safety. And we just had peers in our own age so a lot of our early lives were constructed within peer groups with very little adult
intervention, which was fantastic, we only wanted to see...adults when we
were hungry...we’d come home when the street lights came on... [W]hen I
wasn’t in school and that controlled environment we were, you know,
working out our relationship with environments, and it was nice (Participant
10).

The experiences of contact with nature as children were perceived by participants as
supportive of their development as human beings. The opportunity for the
negotiated construction of peer groups and associated play within landscapes
thoroughly known to the children involved can be seen as supportive of social
functioning and the development of independence, self-confidence and resilience.
Imagination, curiosity and wonder were also fostered by such experiences, as well as
the development of what may be called an eco-centric or eco-inclusive identity as a
valued member of a more-than-human community. These points will be discussed
further in the context of the literature in the Chapter Seven.

4.3.2 Mentors and mentoring

Aside from a context of ‘benign permissiveness’ which enabled children to spend
time outside in nature free of adult supervision, many participants also experienced
a pro-ecological mentoring. Mentors can be understood as significant adults who
provided access to nature by accompanying the young person, and encouraging their
interest. Such mentoring relationships appear to have provided positive social and
relational experiences as well as encouraged ecological interest and relationship. In
the example below, the care-taking grandfather fostered his granddaughter’s
relationship with himself and with the surrounding natural environment:

[I] grew up on a [...] farm in [area]...I was very close to my grandfather, and
we spent a lot of time on the property together. And...Mum and Dad grew
[crops], my grandfather ran sheep, and so I spent a lot of time with
[grandfather] working with the sheep, you know, walking over the hills just,
because he looked after me quite a lot...when I was young (Participant 5).
Another participant spoke at some length directly to her sense of the value of time spent with the mentors in her early life:

...people have talked about significant mentors, you know, older people in your life, so my mother is someone who would always point out a bird or a flower or whatever right from when I was very young...And my uncle, her brother is a bee keeper. And so we had many, almost every, summer holiday was spent over with him in [State]. And a lot of that time was spent outside looking for blossom, you know bee keepers spend a lot of time walking around in the bush trying to see which trees are in flower so they can work out where to go and put the hives. And so a lot of our holidays were camping holidays and we spent a lot of time doing that kind of thing. So I think it was that, you know, every daytime outside, but also those sort of maybe key or sentinel times with a, with a person...a mentor [which supported her strong connection with nature] (Participant 3).

The role of mentors in encouraging awareness of the world around one which one participant called ‘that everyday awareness ... [of] something that’s easy or that’s accessible to you there and then’ (Participant 11), is indicated by the following quote which underlines both the value of such orientation and the importance of ordinary nature being readily available to most people:

...when I went to university I had a fantastic botany professor...and he inspired me to just look, not only at what our field trips were doing and all our sort of official botanising. But funnily enough he lived in a suburb on the same train line as I did, but further up the line, and so he would just point out, on the train line, what he’d see. So it was a sort of daily thing, a daily exercise you did, just to see what was happening, what was in flower...as the year went by, and I think that looking [was important]’ (Participant 11).
For some people, a mentoring experience orienting them towards nature began with a more conceptual ‘learning about’ nature. For the participant quoted below who grew up in a highly urbanised city, scrapbooking with a mentoring aunt provided the stimulus for interest in nature even before an opportunity for much personal experience arose:

One of my aunts...came every Thursday and brought clippings from newspapers which we would cut out and put into scrapbooks, which I still have. And they were always clippings of animals, occasionally plants...So I got the idea animals existed (Participant 2).

The stimulation of interest in nature primed him, as he described it, for what he called the real experiences in nature which followed, the amazement for which has never left him:

And then, my fifth birthday, out of [city] into the country... and with half an acre of land and a forest just behind. And it was just such an amazing experience because suddenly there were the animals! [laughs]. You know, real, all around me, lizards and frogs and hedgehogs and things. And you know, having been in a sense primed I suppose by these...little pictures, suddenly there was, I still remember the thrill of that (Participant 2).

The value of the mentoring experience was more culturally explicit from the Indigenous perspective. Mention was made throughout the interviews of the valuable cultural role of ‘the aunties’ (Participant 7) and other important elders guiding the cultural-ecological understanding of the community and especially of the young. The following quote from an Indigenous participant indicates the value of such culturally significant people:

...exquisite elders...[are] people who are interested and drawn to philosophy and the integrity of the world and planetary systems, and people who love and celebrate poets and artists, and people who dance in rain. Those are the kind of people who influence me (Participant 10).
Many participants also had guidance of a mentoring kind from eco-centric writers at significant times in their lives. Such writers orienting them towards nature may be understood as the ‘mentors found in books’ (Lewis 2013). Participants mentioned, for example, the writings of Joanna Macy, E.F. Schumacher, Paul Ehrlich, Ursula le Guin, Henry David Thoreau and John Seed. Exposure to thought-provoking, often philosophical reflections about human-nature relations had a profound influence on many participants, especially but not only as teenagers. Participants spoke with wonder and gratitude of individual books chanced upon which directed them towards seeking connection with nature (See reflections on serendipity in section 4.5.5). Both of the participant quotes following describe the writers of such books as elders and teachers, strongly suggestive of their mentoring influence and the sense of cultural possibility opened for them:

... Peter Burke, Patrick Sayer, Gary Snyder, those Americans...I read all of those people at that age [late teenage] and went yay, this is it! This the way to think, this is the way and the frame to think. And then I discovered permaculture at around the same age and started training in that...great elders like Wendell Berry or his people, or Gary Snyder, these people who can hold universes like a feather, you know, they're just incredible, so having those examples...They're my elders and my teachers (Participant 14).

... Joanna Macy and John Seed and all those teachers that just provide a possible path to do something. They have a little bit of an idea and then you lean on your elders or teachers for guidance in a way (Participant 15).

Participant 17’s experience provides a particularly vivid example of what may be understood as a kind of initiation into awareness of relationship with nature enabled by the chance encounter with nature-oriented literature and is provided in some detail. Although Participant 17 had had a suburban childhood with access to a backyard, his passion for nature was kindled explicitly by reading Thoreau’s ‘Walden’ in his mid ’20s whilst undertaking post-grad work:
... I bought [Walden] and it became, yeah, I was on the edge of being obsessed with it, like my copy of it is just worn, I’ve had to cello-tape the front cover on a few times, underlined, notes in every margin...More than [hugely influential], the second most influential book, whatever that may be, is leagues behind it (Participant 17).

Following the direction indicted by Thoreau, this participant sought time immersed in nature as an adult, becoming passionately eco-centric and committed in the process. He reflected on the irony of literature as the force which galvanised his intense orientation towards nature. Although he had already begun to be concerned about the environment, it was the chanced-upon Thoreau who ‘almost through his poetic expression taught me how beautiful the world is... strangely after the fact’. He pondered the meaning of this experience at the invitation of the interviewer, describing it as ‘an introduction...perhaps an invitation...an incitation’, as though Thoreau was saying to him, ‘So, what are you doing? Get out there. Open your eyes. Wake up!’ (Participant 17). For this participant it appears that reading ‘all of those sad and tragic [environmental] reports’ was insufficient to motivate him pro-ecologically. In this instance it seems that a kind of latent affinity for deep connection with nature was awoken by Thoreau's incitation to connect deeply with the natural world, which simultaneously entailed deeply caring for it.

4.3.3 Learning about nature

Participant accounts indicated that the role of learning about nature, especially through science and natural history studies at school, was significant in fostering their sense of connection with the natural world. The following quote illustrates the value participants put on such learning:

I discovered evolutionary biology as a teenager, and nature even earlier, and the world only ever made sense to me by looking at it through that particular lens. And Charles Darwin’s discovery about how species originate is just so profound and fundamental... (Participant 9).
The example of the participant who discovered with delight the real world of frogs and lizards after his scrapbooking exchanges with his aunt suggests the influence and appeal of learning about nature and conceptualising ideas about it. It also indicates the potential for such learning to encourage deep openness and engagement with nature, even from a young age. The descriptions above suggest the power of both perceptual and cognitive modes of awareness to support engagement with nature - that is, the movement of interest can go, as in these instances, in either direction. This notion of there being different ways of entering into and engaging with nature was itself the subject of reflection by a participant:

...there seemed to be two ways to highlight these issues [of engagement with and care for nature]. One is through education, or I talked about it as being an intellectual sort of thinking-through, and going, ‘Oh, hang on, without water, without good soils, without enough forests, there’s no healthy culture without a healthy ecosystem’. And that kind of thing can be thought through. But there’s a very different mode of change, and that can be through...sort of the sheer exposure to natural beauty and natural surroundings (Participant 17).

4.3.4 The primary importance of immersive experience of nature

It would appear, however, from these interviews as a whole, that the most important mode for encouraging life-long caring relationship with nature was immersive, embodied experiences in the natural world. Another participant (who loved reading) contextualised the relative importance for him of the more cognitive mode, reading, and immersive experience in nature:

...although it’s nice to read, they still need to be out canoeing. That’s what Louv talks about, too, you know, nature-based education. So we need the books, and kids reading. I mean I remember my friend...she sent a photograph to me of how proud she was because she was canoeing with her
children and the photograph was them on the bank, you know the canoe was up on the bank for a lunch break, and the all the children were reading these books, she was really proud of that. And I thought...why aren’t they looking with magnifying glasses at the grass? See that’s what I felt, and so I couldn’t tell her it was a nice photo...so yes, the kids were canoeing but then as soon as they had free time, as wonderful as it is that they’re reading...they’re missing what’s right next to them (Participant 15).

In the context of considering influences in connecting to and caring about nature, some participant observations indicated that such a need for deep connection with nature may be innate, hard-wired into humans:

...like when you go to those classic beach-side environments where you have...aqua blue water...and also when you’re in green...it makes us more peaceful or it’s calming (Participant 5).

Other participants reflected on a craving for being out in nature, amongst trees, breathing fresh air, or pondered that the joy people feel in nature, for example in whale watching, may be because:

...this sense of rapture with the wild planet...is built into us because...we’re bonded to it...(Participant 16).

One participant explicitly pondered whether such affinities with nature were innate – and therefore arguably latent – or were initiated more directly through contact:

So, I’m not sure [if] those are just the reflections of those reactions [of deep thrill at discovering nature as a child] of my sort of deeper genetic... make-up, or whether [the experiences] actually influenced [me], one doesn’t know. But I have a huge and profound sense of love and respect [for nature] (Participant 2)
The question implicit in the quote is whether such love and respect for nature arises through a genetic predisposition or is a response to the influence of actual experience in nature. What may be drawn from the experiences of participants to this study is that an ecologically-centred worldview was at least associated with immersive contact with nature. This is not to suggest that such contact with nature will lead to such understanding - several participants mentioned, for example, their less ecologically-aware siblings having experienced similar childhoods (Participant 5, Participant 6). The possibility was raised by another participant that some people may in fact have evolved to not under any circumstances feel connection with the natural world. He posits that:

...maybe some [people] are not biophilic... maybe there's a distribution, a normal distribution, there is a low-end of biophilia, you know, [people] who genuinely can't stand trees, nature, or whatever... maybe they've evolved for the new world....maybe they’ll take over from us and everything (Participant 1).

However, the suggestion here is that the opportunity for such contact may be a predisposing factor. Evidently also orientation towards the natural world may occur later in life than childhood or early youth, as exemplified by Participant 17’s experiences. Nor does this indicate that people may not gain such understanding without such immersive contact with nature, although the research suggests this may be less likely. However whether an affinity with nature is innate or arises as a consequence of immersive experiences in nature, the most significant factor associated with the development of an eco-centric worldview appears to be the immersion, preferably although not exclusively early in life (this is discussed in more detail in relation to the literature in Chapter Seven).

4.4 Eco-centric action associated with recognition of human-nature inextricability

Participant accounts indicated that their own committed action to address the ecological crisis arose from their sense of connection with the natural world. For one
participant, a scientist, his ‘reverence’ for interdependent planetary life was ‘the guiding force behind what I do’ (Participant 2). For another, a writer and Indigenous elder, his relationship with Country was ‘the core of my life’, motivating extensive mentoring of the next generation and other forms of eco-centric action (Participant 7).

The following quote from a participant, an artist, who has created an environmental sanctuary open to the public, illustrates participant motivation to act as based on a sense of connection with and care for the Earth:

...because I see all around me, my home being destroyed, as well as our home. And then it comes to a point where, you know, you have skills, in areas, and then you say what can I do to help foster a love for the Earth? To prevent the destruction (Participant 15).

The accounts of participants, all committed to a flourishing Earth, indicate that the opportunity to connect with nature in childhood and youth was strongly influential in their development as human beings who care about nature:

...we [a group of environmental activists] realised that we'd all had experiences as children when we had a lot of time outside in nature, and we felt that that had perhaps shaped us as how we were (Participant 3).

... [An] abandoned orchard...had a huge influence on me as a kid, that place, and a lot of other places too where the adult world’s management and control of nature had been loosened or abandoned. And so exploring those sorts of places was really instrumental in my own development [as an internationally regarded environmental campaigner] (Participant 12).

4.5 Holistic awareness associated with recognition of human-nature inextricability

The chapter so far has explored the meaning of the human-nature relationship to participants. Participants shared a collective recognition of being a part of the natural
world, and antecedent experiences of connection with nature, especially in childhood and youth. Evident also throughout interviews were attitudes suggestive of a holistic worldview which appeared to be strongly associated with participants’ recognition and response to their sense of connection with the natural world. These comprised: ethical attitudes; interest in other cultures; a wide view of the meaning of time; and far-sighted optimism. Participants also held an expansive metaphysical or transpersonal awareness which appears to have provided context and meaning to their worldview.

4.5.1 Ethics associated with recognition of human-nature inextricability

Participant interviews indicated strong socio-ecological concern for maintaining a healthful world for the benefit of all life on Earth, human and non-human. Participants spoke to moral imperatives to respect the finitude of the world’s resources, the rights of all people for adequate access to them, and the rights of the natural world to a continuation of flourishing. They had a clear-sighted recognition that a flourishing natural world is the basis of human flourishing. Participant understanding was of the need for an ethical system which puts:

...the welfare of people and their environment about all else, because, you know, you take care of people through having a healthy environment (Participant 9).

Participants recognised that ecological collapse would have unequal impacts, with the poorest people, especially those in developing countries, hardest hit. The following quote from a participant who had undertaken development work in Third World countries is indicative:

...as we run out of resources, population goes up, resources go down and that leaves less for the human family to share. So you could respond to this in two ways, either sharing more, the rich having a bit less, or you can increase inequality, elite resource capture, which is what’s happening (Participant 1).
This participant took particular issue with the inequalities embedded in the system privileging the wealthy developed world on the ‘higher deck’ of what he called the human Titanic. This inequality would, in the event of the expected ecological disaster, result in greater harm for those on the lower decks with limited access to lifeboats. What was required here was not only a populace awake to the dangers of the collective situation, but more moral, equity-based considerations regarding increasingly scarce resources (Participant 1).

As well as prevalent concern for social justice principles focused on equity principles, a great valuing of social diversity and social inclusiveness was also strongly evident in this participant group, many of whom worked professionally to empower disadvantaged, marginalised people attain greater acceptance and quality in life circumstances. This included participants who had worked with Aboriginal communities, for example as medical practitioner, teacher, or legal representative; with people with a disability; with community groups facing iniquitous ‘developments’; and on international public health projects with population-level outcomes.

Ethical principles grounded in some less traditionally mainstream religious or spiritual communities - for example Buddhist, Quaker, Indigenous - provided an important rationale for a number of participants for their socio-ecological work. For example:

...the Quakers have always been at the forefront of supporting...social justice things. And land rights came very readily to them...they’d be there...with their banners opposing the development of a mine that Aboriginal people object to or a nuclear waste dump or whatever the thing might be (Participant 13).

For participants, meaning and value, however, were not seen as the prerogative of a human-focused world only but inhere in the world at large, inclusive of the human, termed by a participant, for example, the more-than-human world (Participant 14). The wide natural world in all its relations was seen as providing the context for all existence and had, in the eyes of participants, intrinsic value beyond usefulness to humans. Such
an understanding clearly entailed ethical and moral obligations. As noted, participants spoke frequently in interviews to feelings of love for the natural world. Such love may be argued as the basis for the more explicit statements of ethical obligation expressed by participants, such as the following:

I think for me, mostly, it is about my children...but not just my children...everyone’s children, and all the other living things that are here. I don’t see why we should live at the expense of other things or other people, and future people and future creatures, I suppose, so I think it’s, that sense of morality,...it’s not ‘all about us’ for me (Participant 3).

A number of participants spoke directly to the concept of ‘reciprocity’ with the natural world. It was seen as immoral to merely extract usage from the natural world without seeking to respond, for example, with gratitude at least for food, warmth, shelter and so on. Beyond this, reciprocity required a practical consciousness of a sense of sufficiency and frugality with regard to such provisioning, and attempts at redress for any harms done. The practice of Indigenous peoples regarding necessary reciprocity with nature was seen as exemplary, as the following quote from a non-Indigenous participant suggests. People generally were seen as needing to:

...understand the sacredness of eating anything, whether it’s a carrot or a lamb chop, and what was required to achieve that... [W]hen I was in Alaska with the Eskimos...they ate meat and all, but there was an understanding of respect....They could talk to the animals [when] they’re out hunting, they pray that the spirit of that animal, when they kill it, will move on to another animal, or it becomes part of them. So you know, by disassociating yourself from the animal world, you can kill something and not feel bad about it, because it’s not a part of you, it’s not a part of your world. But if you have that connection,

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21 Even where the concept of reciprocity was not directly addressed, the case can be made that all participants to this study lived in consciousness of reciprocal relations with the natural world.
you can kill something in order to sustain you, but then you have an obligation to all other beings (Participant 15).

Another participant, speaking from the Australian Indigenous perspective, spoke throughout his interview of the need for an explicit ethics of reciprocity based on respect and a very clear consciousness of responsibility to care for Country:

...as long as you are loyal to the Country and you’re respectful you can...utilise Country, but ...you’ve got to show a bit of decency on how to treat Country (Participant 7).

4.5.2 Interest in Indigenous cultural perspectives

Participants expressed widespread interest in other cultural worldviews, especially but not only Australian Aboriginal worldviews. As noted above, many participants in seeking to describe their own sense of connection with Country, or participation within a more-than-human paradigm of multiple subjectivities, made allusions to Indigenous cultural understandings and norms, as they perceived them. Many participants, whether Indigenous or not, made reference to Australian Indigenous cultural forms as suggesting of a unitary awareness between themselves and the natural world. For example, a participant considered as problematic:

...that notion we have of separation, whereas all traditional and Indigenous peoples didn’t have that so they didn’t see it in those terms (Participant 12).

The following quote from a participant who spent 15 years living with Indigenous people illustrates his awareness of this understanding:

...it was clear to me right from the start that they had a profoundly different relationship to the environment around them [than mainstream Australian society], and I learnt a lot from talking to Aboriginal people about their worldview and the way in which they understood their relationship to
Country...They had a cohesive view of the world which kept Country in good shape for millennia (Participant 13).

Fundamental to this cohesive worldview was the sense of people belonging to Country, the opposite of the proprietary/extractive rights over the land recognised by Western culture, and of cultural beliefs and practices reinforcing this understanding:

...Aboriginal people...turned that [Western] paradigm on its head and basically said that we belong to Country, not that Country belongs to us, that we have ritual and cultural responsibilities for Country, we have checks and balances on our use of Country depending on the rights and responsibilities taken through mother or father’s Country. And it was actively practised and reinforced while I was there, so I actually physically saw people taking care of Country in the way that they thought was required of them. Now that’s a pretty profound difference compared to a whitefella’s notion of, you know, my house is my castle, I’ve got the right to do what I want to on my own Country, I can clear it, I can modify it in whatever way I like...that’s the underpinning principle that we tend to apply when we think about Europeans and land (Participant 13).

Interest in Indigenous cultural perspectives also entailed concern for the ongoing damage inflicted on Indigenous communities by Western culture. The corrosive effects of colonisation and consequent dislocation and, more recently, resource extraction on Indigenous communities’ health, well-being and sense of identity was noted by a number of participants.

You know, drug abuse and dislocation, and I mean it sounds somewhat jargonistic but there’s a profound alienation I think experienced by Aboriginal people who are disempowered completely and have to put up with watching, unable to do anything, as Country can be really damaged (Participant 13).
Such disempowerment and alienation can, it was implied, lead to the shattering of a cohesive worldview, one premised on inextricability with the natural world, and may be experienced by Indigenous people as a shattering of the self. This alienation was seen by another participant, a doctor who had spent time in a Northern Territory emergency department, as:

...the worst possible manifestation[s] of disadvantage...seeing how that costs everybody, it costs the environment; it costs the peoples who occupied it, it costs all of the species and it costs everything (Participant 6).

Participant concern suggested here encompassed recognition that damage to the culture was associated with damage to the health and well-being of ecologically embedded people and was also inevitably correlated with extensive damage to Country. Dislocated, substance-affected communities operating within a paradigm of disrespect for and active predation on Country are at an egregious disadvantage in their efforts to protect Country. Participant interviews indicated universal concern for the negative consequences of unrestrained usage of the land.

Ancestral cultures including those of Europe also provided examples of a worldview associated with respect for the natural world. For example:

...I think in hunter-gatherer days the vast majority of hunter-gatherer cultures, as far as I can understand from the literature, did reflect real understanding that we were part of nature, but also, an enormous respect and sense of reverence for the living world. And that's the essence of what we think is necessary in the future (Participant 2).

For another participant, the perspective of older people within the culture, such as those who lived through the Depression, was of great value, being associated in his mind with the worldviews of more traditional peoples. This was especially so in relation to more free and easy, less risk-averse, childrearing practices which he saw as highly enabling of:
...both reconnection to nature but it’s also reconnection to real human society that’s not institutionalised, that’s not all controlled through all these systems of bureaucratic relationship. So I see those things are remarkably ordinary in a lot of ways...[and] all we need to do is hear the stories of certainly the generation that’s dying off now, and they would totally validate all of these things as quite normal for not just their generation but all traditional peoples everywhere elsewhere in the world. You just go to Mexico or any place outside the very affluent world and you’d see a very, very different relationship in those sorts of things... (Participant 12).

Whilst there was significant interest expressed by participants in Indigenous cultures, the need to exercise caution with regard to romanticising them was also expressed (Participant 1).

4.5.3 Wide view of time

Participant interviews indicated a strong interest in what one participant called a ‘wide view of time’ (Participant 15). Again, Indigenous cultural understanding was invoked by several participants to illuminate the practical and ethical necessity of such a perspective on time. One participant reflected that American Indian decision-making was undertaken in a time-context extending seven generations in either direction from the present, that is, into the past and future. The view into the past was useful in gleaning information regarding decisions affecting the whole community, which included nature. And contemplating seven generations into the future heightened a sense of responsibility and forethought. These ideas find expression in the following quote which begins with reference to the possibility of a government member asking:

‘And what can I gain in knowledge from seven generations back to help guide me to a proper reasoning and feeling of this bill, whether it’s good or bad? I’ll take advice and then, especially [consider] the impact of the future generations’. We hear a lot of talk about, ‘Oh, I want my grandchildren to have a clean world’,
but do we really understand, do we hold that as a present feeling of actually holding your great, great, great grandchildren in your heart, actually feel their presence when you decide to vote on something? No, I don’t think we’re capable of that. So again, it behoves us to try to widen out...a sense of time, that the present moment is really, really wide, or bigger than we even think possible (Participant 15).

A participant who had been a politician for many years echoed this widely-shared inclusive moral consciousness of the need to act, and vote, on behalf of the more-than-human world, including unborn generations of human beings, into the future:

...we either vote for our grandchildren or we’ve had it; if we vote for ourselves as we’re doing at the moment we’ve had it...I quote Drew Dellinger’s wonderful 3.00 a.m. poem, ‘I can’t sleep because my great grandchildren keep waking me’ (Participant 16).

In this poem, far-in-the-future descendants ‘ask me in dreams what did you do, while the planet was plundered? What did you do, when the Earth was unravelling?’ (Dellinger 2017). The participant, in quoting this poem, is himself seeking to highlight the need for such awakening to long-term vision in decision-making at this time of accumulating ecological and associated social crises.

4.5.4 Optimism/hope for the future22

A deliberative optimism was also an emergent feature of a holistic worldview, associated with eco-centric attitudes and behaviours towards nature. This suggested a far-sightedness in looking beyond current human-nature relations towards a desired eco-centric future. Despite clear-sighted recognition of the accumulating facts of environmental destruction, optimism appeared to enable committed eco-centric action. For some this was a recognition that, although there was diminishing

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22 The words ‘optimism’ and ‘hope’ appeared to be used interchangeably throughout interviews.
hope for humanity to wake up to ecological reality, some remnant hope remained to motivate one:

I think, the ecological collapse is the most likely thing, but I still think it’s worth trying to prevent it...I am not very hopeful, but I don’t think it’s impossible that we might wake up, that the dominant cultures might wake up in time (Participant 2).

On the other hand, a number of participants expressed profound hope in the human capacity for change, regarding the current time as a watershed in human-nature relations, as the following quotes illustrate:

So whilst I think there are so many of our community that will look for doom and gloom, I think actually there is a lot around saying that this is the very pivotal point of the pendulum swing around disconnect, and we’re on our way back...I’m very hopeful, actually I expect it (Participant 10).

I’m perpetually hopeful that the disconnect that I’m seeing, particularly in...urbanised spaces...is [in] a cultural transition space, and that re-engagement is happening. And I’ve seen that happen in major cities like New York and London, also Sydney and Melbourne. But I’m perpetually hopeful that that reconnection has continued and can continue to gain momentum... (Participant 6).

Participants made many statements suggestive of having consciously chosen optimism as an enabling way forward for themselves and for those whom they were aware of influencing as leaders:

...you’ve got to have optimism as a political statement...it’s part of being political, to be optimistic...to keep the pessimism at bay... (Participant 1).
[It is important to let] people know that...hope is not lost...and maybe challenge that pessimism because if ...we keep perpetuating pessimism that’s what we will manifest (Participant 6).

A participant noted there is little hope for a flourishing future within current ways of thinking. She suggested, counter to prevailing logic, that actually living in alignment with an imagined eco-centric future would provide opportunity to bring it in to being:

...what happens here operates out of an entirely different paradigm...it doesn’t exist in the same terms. It’s completely different, it’s a whole new world, on the other side whereby any rational means we're doing it. That’s when things start getting interesting...there's a whole different way of thinking and in that way of thinking, in that way of being, things operate differently, and you’re not trying to do the same things, you’re not in the same world in the same way. And everything is different...you're in the world in a completely different way...in the story of interbeing. [Pause]. Yeah, it can sound like a lot of new age waffle, but it's also profoundly fascinating because I do sense it... [and] if enough people practice that a completely different way of being in the world, a different reality, exists (Participant 14).

4.5.5 Metaphysical or transpersonal awareness

Participants generally shared an acknowledgement of aspects of reality that defied a reductive rationality. This meta-reality can be understood in terms that are spiritual/metaphysical or at least transpersonal, that is, a force subsuming the individual. This understanding was associated with, and in a sense can be seen as subsuming, their recognition of human-nature inextricability. This reality had the characteristic of universal or at least planetary coherence, if not intelligence. It also was perceived as having an implicit benevolence even if purely functional, and this in spite of human behavioural effects on the biosphere.
The concept of Gaia was the metaphor most often reached for as participants attempted to articulate understanding of a coherent universal force subsuming all existence, recalling James Lovelock’s (2007) use of the term in his Gaia hypothesis. Named after the Earth goddess of Greek mythology, Lovelock’s Gaia can be understood as the dynamic functioning of the planetary biosystem, maintaining homoeostasis of the Earth’s climate through the complex interrelationships of physical matter and the processes of life itself. The following quotes speak to this shared understanding of a coherent universal context:

I kind of like the Gaia hypothesis. I quite like that idea that there’s this one planet that’s all kind of interconnected (Participant 3).

...I was created out of Gaia and I will go back to Gaia, I will be recycled through Gaia. So, sort of, for me, the very immediate sense of me and Gaia is that we are one, you know. I know I was made out of it, I will go back to it as an entity, as a single entity....And that’s fine, that’s satisfying, if that’s spiritual, that’s it (Participant 9).

For some participants, affinities with more formalised although less mainstream spiritual or contemplative groups - for example, Buddhist, Quakers, Indigenous - seemed mainly a consequence of finding others who shared their more holistic worldview, especially a preparedness to cooperate in social-ecological ethical action - for example, the Quaker working group drafting an Earth Testament (Participant 13). However the primacy of the sensibility itself, the sense of belonging within a vibrant natural world of mystery, over social or religious forms - supportive though they were for some participants, appears to have been the norm amongst interviewees. The following quote illustrates this understanding:

... [I] dabbled in Buddhism and the high faith for a while, because we all, I think, inherently want some kind of connection to something greater than self. And after a while you realise you don’t need organised religion for this...
[My] whole life is a meditation...to get a sacred spiritual sense of the presences that are here (Participant 15).

Observations about their ongoing relationship with nature elicited from many participants spontaneous explanations of feelings evoked of reverence and awe which they associated with a spiritual sense:

...for me it’s a mystery, and I accept that mystery, but it’s a mystery I respect, I have a sense of...reverence for that mystery, reverence for the whole process of life (Participant 2).

...on that trip across the [desert] this year we were camped between these big sand dunes and a full moon came up and then a total eclipse of the moon happened, and we didn’t know it was going to happen and so that, that sort of just encourages this enormous sense of awe ...(Participant 13).

Again, a number of participants from non-Indigenous backgrounds reached into an understanding of Indigenous culture to find a way of expressing a spiritual connection with Country. The following reflection concerning feelings of belongingness and love for Country highlights the participant’s wish to express her understanding of an important feeling, and the general paucity of mainstream cultural discourse related to such understandings:

I guess I feel our language misses that connection, and it might be a similar sense to some Indigenous connections with land...I’m not too sure we have a word or words to describe it, it’s possibly a spiritual connection to Country type of thing (Participant 8)

[See Chapter Five for further examination of the idea of difficulty in the discourse as regards human-nature relations].
This meta-reality was variously articulated also in terms of an interrelated wholeness such as was exemplified by quantum theory or systems theory. An Indigenous participant, providing some insight into the Indigenous spiritual worldview, attempted to bridge such ancient understanding of a metaphysical realm co-extensive with the physical world with more mainstream conceptions from science or religion:

...I started to understand, very implicitly, that this relationship [with] nature was not only within a natural environment but a metaphysical realm, and all of those things interacted. And...understanding quantum physics and the...power of connection that’s involved in that...is very similar...[W]hen I talk about ancestors, it’s just that when people die there are places where they die or where they depart from into another realm – Judeo-Christians refer to that place as heaven. There are other places in which we understand there is a departure from a physical realm into a metaphysical one, and that’s not dissimilar across a whole range of different cultures...We [people generally] don’t necessarily then think about that in an extensive way, we think, ‘Well, maybe they’ve crossed over’, we don’t understand that we have a connection to that place now. And it is as impactful now as it could be, yeah, so it’s not just a one way view (Participant 10).

Participants, especially but not only those from an Indigenous background, spoke of everyday occurrences in the natural world as imbued with an explicit spirituality. As noted, Indigenous writer Participant 7’s experiences (section 4.2.3) in communicating with the eel and the seal when out fishing, and the many other animals who would talk with him, suggests a perception of the presence and agency of Country. That ‘this is a result of you being there [and] the Country interacting with you, not the other way around’ (Participant 7) was explained to him by the elders. This presence, with such cultural guidance from his elders, he came to understand as spiritual. He told a story to help explain the spiritual affinities possible between people and Country, meaning perhaps, in this instance, mysterious, beyond logic:
I will tell you about this old lady...she was a basket weaver so she needed to get grass all the time. So I was driving her all over western Victoria looking for basket grass and in the consequence of that she was teaching me names and patterns and all that sort of stuff, so we’d learn a lot about the bush. And every time we went out we would see something unusual, we’d see potoroo, we’d see bandicoot, we’d see echidna, eagles would land on the road in front of us, you know. I would see that little wallaby that’s got the little white tip on the tail, a very unusual animal in Western District, some people thought it was gone. We would see one of them; we'd see brolga. And I said to her one day, I said, auntie, I never see as many animals when I'm not with you. And she just looked at me, like, of course, of course you...see them when you’re with me because, like, she didn’t say, (however) she’s a spirit woman, the animals come to see her. And I thought, nah, animals are animals, you know. One Subaru looks like another Subaru, they’re not going to notice that, but every bloody time, you know, yeah, spooky (Participant 7).

For many non-Indigenous participants, serendipitous experiences frequently appeared to indicate recognition of being part of a reality which, through chance encounters or events, could directly implicate one, and were recalled during interviews with a sense of gratitude and wonder. The following quotes are indicative of this phenomenon:

I’ve read [On Walden Pond] fifteen times and still get more from it...In that sort of reviewing of the literature [during PhD studies] I was drawn more and more to the environmental issues and it was through, strangely, just going from link to link on the internet – ‘environmental sustainable development’, ‘anti-consumerism’ - and I heard that little story about [Thoreau] going and living at the pond for a couple of years and philosophising and publishing a simple living manifesto called ‘On Walden Pond’ (Participant 17).

...when I was sixteen, in 19... my grandmother gave me two dollars and I went to the city and I bought a book for two dollars, a book on Buddhism, I mean, why would you buy a book on Buddhism? And I’m sitting at the station...in [city], and
there's this guy, I'm really shy, there's this guy sitting next to me with a backpack, somehow he looked at me and, he seemed approachable, and I said, are you going on a journey? Just to make conversation. And he said 'I'm going to [town]. You're the one going on the journey'. He teaches me a mantra, teaches me the meaning of it, teaches me how to say it, gives me another book, gets on his train...But there was an adult, very nice to me... making an enormous impression on me (Participant 1).

The final quote in this section is from a participant who was a scientist with influence internationally in the field of sustainability. He addressed his ambivalence at the ways this holistic context - interrelated in parts and as a whole - may be understood and articulated. This interesting reflection, towards the end of a long interview, draws together a number of the metaphysical or spiritual understandings articulated by participants in this study, and provides evidence of a contemporary struggle towards articulating an emergent, or arguably re-emergent, understanding of a world imbued with significance, meaning and possibly even presence:

I increasingly find myself [drifting] towards thinking of the Earth as alive and thinking of the Gaia ideas as appropriate, even though my personal culture is still that of the cranky rationalist. I actually feel rationally that those spiritual ideas make sense but I can't say I've had transformative experiences that have given me connection to other beings or - it's a very sort of interesting sort of relationship that I see as gradually emerging. But I certainly do see other life forms and beings as having their own consciousness, and that that’s with plants as well as animals, that everything is in some way alive, and that the dividing line between the living and the dead world, well, the Gaia hypothesis sort of [shows that]. And other work that has really influenced my thinking, systems ecology work of Howard Odum. Yeah, that division between the living and the dead Earth is an incredibly grey line, so the consciousness is everywhere as well. So in a way I'm sort of drifting towards animism (Participant 12).
4.6 Health and well-being benefits of contact with nature

Participant commentary throughout suggests a strong collective sense of the health and well-being benefits of contact with nature. The word ‘health’ for example appears 414 times throughout the interview data set. For participants as a group, their own need for contact with the natural world was evidently a central, implicit feature of their daily lives. Their commentary suggests that such contact was not only health promoting, but deeply gratifying, enlivening and positive. The following quotes are an indicative sample of this emphasis:

I know as societies we’re healthier when we’ve got green around (Participant 5).

...we need nature...for our physical health but also for our emotional well-being, even our social connectedness I think...[humans need] this minimum amount of green space when there is data on well-being that we need to live within a certain distance of a large amount of green space...(Participant 3)

4.7 Chapter discussion

This chapter examined participant relationships with the natural world. It included the antecedents to this relationship, especially recognition of the central importance of immersive childhood time in nature for fostering a sense of connection, and the significant role of mentors. Also introduced were features of a holistic awareness more generally, including a strong ethical orientation inclusive of nature, openness to other cultural worldviews, a wide sense of time, optimism, and a metaphysical/transpersonal perspective. An eco-centric worldview was indicated.

One of the most important features of participant accounts was shared recognition of being ‘a part of nature’ across a range of emphases, from the more intellectual, scientific and pragmatic, towards the more feeling, embodied and participatory. The following figure illustrates this range of recognition of human-nature inextricability.
Figure 2: Range of recognition of human-nature inextricability.

Relationship is implicit at each point of the range. Through science, the genetic and behavioural relationship shared with other species is conceptually understood and celebrated, an object of fascination. The relationship of human dependence on nature for natural resources to meet human needs for life, health and livelihood were recognised. Expression of the more emotional or affective response to nature is suggestive of the possibility, shared by many participants, of a more personal responsiveness to nature, an openness to feeling subjective uplift in association with the natural world expressed in statements of awe or love for the natural world. And expression of a sense of participation within a natural world of shared agency suggests an even more dynamic relationship, one of implicitly/arguably greater ontological significance to those participants who shared this understanding.

These features align with the research supportive of human-nature interconnectedness considered in the literature review, for example, the scientific and pragmatic (IPCC 2013, 2017; Stephens & Athias 2015; WHO 2005; Wilson 1993); the feeling connection with connectedness to nature research (Mayer & Frantz 2004; Vining, Merrick & Price 2008); the participatory emphasis with aspects of Indigenous worldview (Arabena 2010; Kingsley, Townsend & Henderson-Wilson 2013) as well as a theological/spiritual (Berry 1990; King 2005) and philosophical (Naess 1995a, 1995b; Plumwood 2002) understandings. Recognition of being inextricably connected with the natural world was also evidently associated with committed eco-
centric action, an association supported by the literature (Clayton 2007; Lewis & Townsend 2015; Nisbet, Zelenski & Murphy 2009).

The worldview indicated throughout participant interviews entailed recognition of being a part of a coherent, irreducible wholeness, articulated as numinous or spiritual by some participants. This worldview has the following characteristics: humans are inextricable with the planet that evolved them; whatever happens to the natural world inevitably impacts humanity; recognition of human-nature inextricability demands ethical responses such as commitment to social justice and, further, a reciprocity of intrinsic valuing and protection of the natural world; and a sense of co-participation within nature is possible.

These data suggest a perception of the ‘self’ as a self-in-relation-to and in-participation-with the natural world beyond the more individualised or human-centred constructions of ‘self’ in common understanding. The recognition of the intrinsic value of other life-forms and other forms of existence demands a relativising of human primacy and self-importance within the web of valued beingness. Moreover, if other life-forms are perceived as having intrinsic value, agency and subjectivity, this requires an ethical response beyond sharing resources more equitably. Response to a perceived relationship requires reciprocity; one is not simply entitled as a member of the dominant culture of the dominant species to ‘natural resources’. These findings support the value shifts required for moving towards an ecological paradigm explored in the literature (Naess 1995a, 1995b; Plumwood 2002; Townsend 1998). These include eco-centrism over anthropocentrism, alignment with nature over struggle or domination, and further, holistic values such as cooperation and altruism.

An exploration of the meaning of the inextricability of humanity and environment, antecedents to this understanding, and the holistic perspective associated with this understanding, addresses the first aim of this study: to explore the facilitators of and barriers to greater socio-cultural transitioning towards an ecological paradigm. This chapter has considered facilitators (including antecedents) of an ecological
worldview; the next chapter, Chapter Five, considers the barriers to this understanding.
5  Chapter Five: Findings - The human-nature disconnect

5.1  Introduction

This chapter explores participants’ perceptions of a disconnect between humans and nature. Consideration is given to the global situation and human-nature disconnect; the causes of the disconnect, including historical causes; attitudes of human supremacy; the discourse itself concerning human-nature relations; reductive reasoning; the power of the status quo in maintaining disconnected relations; and structural forces now operative in furthering the human-nature disconnect. The chapter concludes with a brief summary incorporating some discussion which provides context to the emerging findings.

A significant feature of the exploration of the data which follows is that the features of the disconnect which have been termed causes may also be seen as effects. For example, anthropocentric thinking, the cause of much disconnected decision-making according to participants, may also be seen as an effect or consequence of the historical process of human ecological dis-embeddedness. And ways of thinking/talking about the natural world associated with attitudes and values can be seen as informing behaviours perpetuating the status quo. The complexity of human-nature relations gives rise to many feedback loops with regard to cause and effect, an idea evident also in the several interviewee comments about this dynamic as a ‘chicken and egg’ (Participant 1) situation.

5.2  The global situation and human-nature disconnect

The global environmental crisis was understood by participants as anthropogenic, a consequence of long-standing poor human-nature relations, accelerating and potentially catastrophic to life on Earth. The following quote illustrates this understanding:

...we’re buggering the place up, it’s shocking what we do. And it’s finite, the Earth is finite, the health of the Earth, it can disappear and is disappearing. And we’ve seen how our mistreatment can have gross results very quickly.
After a long period of time of not seeing any discernible change and suddenly, smack, you hit that tipping point (Participant 7).

For participants, the issue of climate change, with its human causation and growing destructiveness towards human health and human affairs generally, was the signifier of human-nature inextricability which should have motivated people to respond to human ecological reality. Participant commentary reflected deep concern for the lack of action, for example:

...I did feel very outraged really that climate change was this huge issue but no one was really doing anything about it (Participant 3).

...when it comes to issues like climate change...we’re looking at a situation where we could have...four to six degrees of global warming by the end of a century. You know, that’s quite a, there’s quite a motivation there for us to change... there’s so many systems under threat at so many different levels, it’s terrifying (Participant 5).

The sweep of human impact on the planet was described throughout interviews in terms of a profound cultural critique - as irrational, mad (Participant 14), crazy (Participant 13), stupid, of toxic effect (Participant 12), blinkered (Participant 16), insane (Participant 1) and so on. Participants saw both the causes of and responses to the crisis as based on a failure to recognise humanity as inherently ecologically embedded within nature. A pervasive cultural sense of being separate from the natural world, recognised as a perceptual-cognitive disconnect, suggestive to participants of an unconscious culture needing to ‘wake up’. The following quote illustrates participant perspectives on the irrationality of an anti-ecological dominant cultural paradigm:

...almost no one wants to kill the planet, and yet we are all doing it...you look at it from a rational point of view and that doesn’t make sense at all (Participant 14).
The following quote illustrate the perception that what was required was a change in cultural consciousness, most frequently described as a ‘waking-up’ to human ecological reality:

...we need to wake up as a species or we're going to crash. If we leave it too late, the crash comes, it will be too late to fix it....I see the retreat of the idea of civilisation for all, health for all (Participant 1).

5.3 Causes of the disconnect between humans and nature

Participants’ accounts revealed the following perceptions of the reasons for current societal disconnect between humans and nature.

5.3.1 Historical roots

A number of participants perceived the original cause of the perceptual-cognitive disconnect from nature to be the long history of urbanisation leading to increasing physical separation of humans from proximity to nature and natural processes. Urbanisation was seen as undermining recognition of humanity’s ‘absolute dependence’ (Participant 1) upon nature, a recognition which, according to several participants, informed ancestral cultural practices protective of the environment and which was noted as prevailing within contemporary Indigenous cultures. The Enlightenment and related scientific/industrial processes were seen as further separating humans from nature. Nature’s immanence and presence perceived by Indigenous peoples was understood to have dissipated along with cultural constraints on the use of nature. The natural world no longer teemed with the potential for relationship, with all the complex protocols and awareness relationships entail; rather it was rendered an objectified site of resources available for domination and use. The following quotes are illustrative of these ideas:

When people moved...into townships and especially cities...the change in the life experience of people...had an enormous impact on their culture and their worldview... [T]hey became in a sense divorced from that natural
environment, their mindsets. And that I think was one of those crucial changes in human culture, in the history of human kind, because humans began to feel, because of the situation in which they found themselves, as not part of nature... (Participant 2).

...when I look at people who live in ecosystems, or cultures who have lived in ecosystems for a very long time, like the New Guineans or Aboriginal people, [it] just seems inevitably they do have belief systems and value systems that can serve [to protect the environment] ....We've lost our roots with that through a whole series of historical changes...[such societies, past and present] all work on a belief-based system which is they all, in one form or another, truly believe if you kill tree kangaroos on that mountain top the giant eels will wake up in the swamp and destroy your crops. So that’s why tree kangaroos have survived for 40,000 years in Papua New Guinea because of beliefs like that, otherwise they'd all have been gone long ago. [In such a] belief system...the gods are divine and they will punish you or the demons will punish you, if you step out of line; if you absolutely believe that, then you won't step out of line. For us it is different, a more difficult proposition...the gods have gone (Participant 9).

Disconnected thinking in relation to nature was also seen as aligned with a growing alienation within human identity itself, the mind now seen as distinct from, and more valued than, the body:

...the last couple of hundred years or so have really disconnected us. And during the industrial [revolution], even the Enlightenment, however marvellous that was, you know, through science and what have you, that’s that separation of mind and body [as well as] the separation of human and nature...(Participant 8).

Participants noted as particularly significant ignorance of processes indicating human status as ecological beings. For example, humans no longer growing up knowing
where milk comes from, or bread or potatoes, nor seeing connections between items bought in stores and the multiple processes involved in their sourcing, manufacturing and disposal. The following quote illustrates these concerns:

...we have completely lost our connection to nature, the two things where we can recognise that whatever else we are, we are animals because we eat and we shit. And that one of those has become sort of completely ritualised and all sources of where did the food come from has become completely removed. The other end of the process has become all completely managed by engineers, and removed and is nothing to do with fertility... (Participant 12).

A pervasive ignorance of human-nature inextricability was seen as largely the result of the historical processes described above. The reduction in the experience of ecological embeddedness was associated in participants’ eyes with a lack of recognition of human embeddedness within nature. This has effects at all levels of the functioning of society.

...the dominant cultures of the world, they have lost sight of...our place in nature, they’ve lost sight of our total dependence on the processes of life around us...(Participant 2).

5.3.2 Human supremacy/centrality - anthropocentrism and hubris

Participant interviews indicate that anthropocentrism and hubris were seen as defining features of current human-nature relations. An anthropocentric focus on the centrality of human significance was seen as incompatible with participants’ recognition of the reality of humanity’s embeddedness within a multifaceted biospheric ecosystem shared with all life on Earth. For example:

...[it is] presumptive and arrogant...the Western empirical tradition of separating humans somehow as distinct and privileged relative to what we
call the natural world...[the environment] languish[es] behind as a servant as opposed to a partner in our relations with life in its broader sense (Participant 6).

A couple of detailed examples provide a sense of participant concern about the limitations of an exclusive human focus. One participant, a public health practitioner, commented on her attempts to highlight links between human health and the health of the environment with the director of an important public health institution. She responded to his querying of the necessity, as she saw it, for the qualifier ‘human health’ as follows:

...‘because that’s what we’re talking about! I’m not talking about that but that’s what you’re talking about, you’re talking about human health, I’m talking about the health of the planet’. And I am sitting there with the director of one of the best-funded institutions in the southern hemisphere for public health, and they’ve got environment in their brief, and they still sit there and say...why do you need to put the qualifier ‘human health’, because health isn’t [only] privileging human health...(Participant 6).

A very different example of anthropocentrism was provided by an Indigenous participant who had, whilst travelling on a bus with fellow cricketers, seen a hawk swoop directly past the window - ‘it was probably the best thing seen all day’ (Participant 7) - but everyone else on the bus missed it entirely. His observation that ‘it’s a fundamental human quality to recognise the world around you and not to ignore it’ (p.10) holds an implicit critique of a perceived narrowing of human awareness. In further noting that ‘we live in different worlds in many ways...we live in different hemispheres of the brain’ he was suggesting the power of one’s worldview or mindset in determining what it is one sees and values in the world around one, his fellow cricketers seemingly completely human-focused whilst he experiences, with elation, a more-than-human reality. From these examples, anthropocentrism can be seen as associated in participant thinking with narrow, less well-informed ways of thinking.
Anthropocentrism was also associated in participant interviews with a dangerous sense that human intelligence and ingenuity, especially in the form of technologies, will inevitably prevail in the face of any threats or challenges from nature, critiqued as hubris, as the following quote illustrates:

...we've been *remarkably* successful. You know, we are successful, apart from rats and cockroaches, we're it! And we think, the thing is we think and know we can do it. So we can engineer, we can out-think most things on the planet, we can out-engineer them, and we can [out] manoeuvre our environment (Participant 8).

The culturally pervasive notion of ‘no limits to growth’ was seen as particularly suggestive of the assumption that human cleverness will overcome all natural limits. The following indicative quote, critiquing such ideas as promulgated by former US President Reagan, illustrates this concern:

... [Reagan] would explicitly say, ‘There are no limits to growth, because there are no limits to human ingenuity.’...just consume, consume, consume, grow, grow, grow, and we’ll figure it out, we’ll, yeah, technology will save the day. You don’t need to rethink your consumption practices, technology will save us (Participant 17).

Another participant noted the view, widespread in international development circles:

...that resources don’t matter anymore because ingenuity trumps resource scarcity; ingenuity is allegedly so powerful that there is a widespread conceit that we can manufacture resources from our mind (Participant 1).

By making central human interests, concerns and perspectives, anthropocentrism was seen as reducing the entire non-human world to resources for human use. And with the assumption that human cleverness can outwit all the forces of nature, hubris
maintains the dualistic notion of humanity as separate from and master of such forces. These motifs of human centrality and genius, seen to guide attitudes, values and norms of behaviour towards the more-than-human world, were perceived as a dangerous and maladapted misreading of human ecological reality.

Participant accounts infer that intelligence can best be understood as responsive to context. For example, the intelligence of the rock lobster in navigating and flourishing within its underwater terrain was provided as an example of adroit ecological intelligence mostly unappreciated by self-congratulatory humanity (Participant 15). Human intelligence was perceived as most fully engaged when recognising the holistic ‘intelligences’ within which it is embedded:

We have no idea...what we can claim as intelligence means to other species...we’re all leaves on one tree, we’ve all evolved from the same source, we’ve all adapted certain ways of survival and intelligence to co-exist, and we’re just a leaf, we’re not at the top (Participant 15).

5.3.3 Disconnected discourse concerning human-nature relations – gaps and taboos

Participant accounts also included perspectives on the factors perpetuating the sense of disconnect between humanity and the environment. Participants indicated that contemporary discourse on human-nature relations was inadequate to describe the complexity and richness of such relations which they themselves experienced. Being narrowly focused in the main on the management of nature, it was seen as devalued and open to further compromise by those vested in seeing the natural world in reductive, purely functionalist economic terms. Related to this concern, participant accounts indicated difficulty in speaking of human-nature relations directly, especially with feelings of love or awe. The failure of the cultural story, the meta-story, was perceived to be a significant feature of a disconnected discourse.
The words ‘human’ and ‘self’ and ‘nature’ were subject to reflection and qualification by some participants. As has been noted, participant accounts suggest they perceived humanity as interwoven within the natural world. The idea of a ‘self’ isolated from nature was directly addressed by several participants as a questionable cultural construct. For example:

It’s just a strange and particular convention at this time to talk about the self, and different cultures at different times don’t have that sort of concept. They can't think like that because the language...is not set up to separate things out like that (Participant 14).

And, although participants used such terms as ‘environment’ and ‘nature’ and ‘the natural world’ throughout interviews (as has also been done throughout this thesis), such terms were found to be problematic to a number of participants. For example, the idea was raised of there being no word for nature in traditional Indigenous cultures as, unlike in Western culture, there was no sense of separation between humans and nature (Participant 8).

The value of available terms denoting the natural world was also directly questioned. Common terms relating to the use humans make of the natural world, such as ‘ecosystem services’ and ‘natural resources’, were interspersed throughout the interviews, and several participants were concerned by the limited scope of human-nature relations implied. Such terms were noted as ‘functionalist’ (Participant 9), and, given their ubiquity, such functionalism can be seen as indicative of the current managerially-focused state of discussion of human-nature relations.

The word ‘sustainability’ and related terms such as ‘sustainable development’ were a particular focus of cynicism and concern. It was seen as inadequate, as, for example, in the following formulation, ‘sustainability, if you like, for want of a better word’ (Participant 9), and devalued, serving those interested in business-as-usual, as is suggested by the following quotes:
Sustainability in all policies, well, that’s a nice slogan, but how do you [do it]?... and what do we mean? Even the term, of course, is devalued [by vested interests] (Participant 1).

[We need to get] away from the words that have now been hijacked by the right, such as ecology and sustainability...If those words have been tainted, don’t use them... (Participant 6).

However, participants concerned about such language also used the word ‘sustainable’ in positive contexts. For example, despite critiquing the word, Participant 6 observes:

If we have sustainable practices for the benefit of the planet, then everything including humans will benefit from those sustainable engagements (Participant 6).

This suggests, despite the critique, that such language is currently the only available means of attempting to convey certain concepts. This ‘functionalist’ language was seen by a number of participants as necessary in order to be able to speak on the subject of ‘the environment’ at all. For example, an international public health advocate reflected on the necessity of ‘kind of speaking the language of neoliberalism [because] if we put a price on nature maybe that'll protect it’ (Participant 1). Such language, it was implied, was the only language enabling nature to be regarded with any salience.

This analysis suggests, however, that something may need to change in the language itself if humans are to recognise and value the natural world and their inextricable relations to it. Participant awareness of this need was suggested in the following quotes:

...that [term ‘ecosystem services’] just sounds good, it’s positive, okay, I accept that, you know? But then [pause] you won't fight for it, which you
have to do; you have to put your life on the line at times, to defend what you love, and you do that voluntarily, without recompense. And, so, how do we instil in others the motivation to do what’s right for the Earth?...how do you get them to go sit in a tree, sit in the forest... (Participant 15).

And that’s, I think, part of the problem with the international development language, it is still very much seeing the natural world as a servant to the species human...and I don’t think we get that... (Participant 6).

A number of participants, including some with a background in public health, expressed concern about language used in public health contexts specifically. For example, a perceived consequence of the continued domination of the health system by the medical model, with its focus on crises and acute care, was representations of the natural world as the site of harm, ‘the site of vectors of disease or even climate change’ (Participant 10). The conceptualising and discussion of nature as the site of nurturance, offering possibilities for health and well-being, was seen as comparatively limited in the public health discourse.

Participants also explicitly noted as problematic the perceived failure of public health practitioners to talk directly to the inextricable links between people and their environment. This was seen as a failure to talk ‘honestly’ about human-nature relations, relevant to both populations and individuals. The following quotes illustrate this concern:

...health practitioners deeply reinforce the disconnect and therefore disadvantage...to the planet, but also for humans...How can we honestly talk about health?...[currently] an unconscious appreciation of the importance of environment, people, place, connection, is never brought to the surface (Participant 6).

...is there anyone who would disagree with this, any intelligent person in public health? [However] the thing is, honesty is not really the done thing, is
it, on this sort of stuff... [given] the inextricable link between mental health and environmental health, and physical health...like all the evidence is there, you don’t need any more evidence it's just - okay, so why are those stories still so hard to get traction even though all the evidence is in? (Participant 14).

A further indicator of the disconnect within the human-nature discourse were responses suggesting that, although participants found many ways to convey their sense of being ‘a part of nature’ - a sense strong enough to lead to committed action on behalf of the natural world – they did not necessarily find it easy to do so. The main reason given was that it was not something they had previously thought of or been required to articulate. The following responses to a deeper probing of participants’ sense of human-nature relations, and how these could be more widely fostered, illustrate this phenomenon:

It’s hard to put into words. So I do understand the question. I think it’s a difficult thing to answer because I’ve never really thought about articulating it (Participant 6).

We can get very lost and caught up in our heads, and...I don’t really know how to articulate about that sort of question really. I don’t have, I haven’t properly thought about it enough to be able to speak sensibly other than to say it's more an emotional thing... (Participant 5).

It’s interesting to sort of be asked questions that I haven’t really thought about. (Participant 17).

The participant struggle to articulate an understanding of being a part of nature suggested in the following quote is indicative:

I suppose I think I know biologically we are [connected with the natural world]. And I'm an evolutionist, so I know how we've evolved biologically. I think culturally it's an interesting one. I also get a sense that people feel an
innate sense of connection but we don’t express it well at all...so my sense is partly conscious and partly subconscious...(Participant 8).

This participant’s circling around an understanding of the human-nature connection - ‘I suppose I think I know’ - exemplifies her difficulty in naming it. Such a ‘felt’ understanding was posited as innate, and from her previous interview comments, related to her embodied, sensory experiences in nature, such as bushwalking and gardening. However, although integral to her life, this sense was perceived as only partly conscious, and not easy to talk about. As noted previously, most participants commented on a sense of existing within a holistic, transpersonal paradigm, articulated as spiritual by some but not all participants. Several participants suggested directly that the reason for the difficulty in speaking of human-nature inextricability was that it touched on what they called spiritual, and what may arguably be seen as more holistic, values which were noted as almost self-evidently difficult to name in the current reductionist context. The following quotes illustrate this understanding:

But I certainly think it [human-nature interconnectedness] is something that isn’t talked about very often, and we don’t necessarily know how to conceptualise it or talk about it very easily. Like...I don’t find it particularly easy to know, but I think it’s potentially a function of the fact that interconnectedness is touching on the mystical, touching on the spiritual which almost is beyond words. So we can try, but in the absence of being a poet, it’s very hard to quite say what we are feeling...[so] we might need to quote the poets or quote the mystics, or the environmentalists who...have that gift of language, that can actually get as close as possible to say, ‘That’s, yeah, that’s sort of what I mean, that’s sort of what I feel,’ even if we can’t find the words ourselves (Participant 17).

I suppose I steer away from using the word spiritual because it has so many meanings for people and they're usually religious, and I'm actually not religious...so spiritual isn't a word that I necessarily need, except it's about the
only word you can think of; if it's not biological and it's not cultural, what is it?
So our *language* is very difficult (Participant 8).

Expression of cultural awareness of human-nature interconnectedness was seen as the domain of those with ‘that gift of language’ (Participant 17). It was also commonly seen as the domain of those from Indigenous traditional culture:

...I feel our language misses that connection, and it might be a similar sense to some Indigenous connection with land...I certainly have connections with...*this* Country. When you're flying back into Australia you can smell the eucalyptus, you know, you know what that smell is and you know that you're home...I'm not too sure we have a word or words to describe it; it's possibly a spiritual connection to Country type of thing (Participant 8).

However, as explored above (section 4.2.3), Indigenous participants spoke throughout the interviews to a sense of participating in a world alive with meaning. This was notable for being conveyed in prosaic and practical ways – indeed one participant commented that it was necessary to ‘look after Mother Earth as it is now, not in any...mawkish way that some people have with environmental protests, but in a solid, functional, respectful way for the Earth itself’ (Participant 7).

In addition to concerns about the inadequate and devalued discourse on human-nature relations, the general inarticulateness indicated on this specific subject, a subject indicated throughout interviews as one of tremendous importance to participants, provides further evidence of a gap operating in the general human-nature relations discourse. This lack may be particularly evident when attempting to articulate, especially perhaps as non-Indigenous person, that aspect of the range of emphases of being ‘a part of nature’ (see section 4.2) associated with more embodied, feeling and participatory aspects. For example, an interview with a scientist and cultural commentator provided an opportunity to ask him directly, towards the end of the interview, about an apparent reluctance to talk in the
interview itself of the more emotional relationship with nature which the interviewer had observed was evident in his books. He responded:

I guess I'm used to expressing it in functionalist terms ‘cause that’s the society that I live in, you know, but for me there is more behind that, it's actually values, what's important. Love is one of those things, so I do use words like that when I'm writing and...trying to make sense to myself. I mean, I talk to industrialists and unionists and politicians...most of the time, who don’t respond to that sort of language (Participant 9).

To draw a clear distinction between what may be said in books and what may be said in discussion with cultural power-brokers indicates some sort of prohibition may be at work. Even those who felt a deep connection with nature may experience a sense of taboo in speaking out about this in public - this participant’s book-writing being, as he described it, ‘trying to make sense to myself’, suggesting a kind of public offering of private reflections. This also suggests that these affinities were not easy to make conscious or meaningful, even in this more ‘private’ conversation with himself. This was not the only participant to suggest that speaking of their love of nature publicly was difficult. For example, the Australian politician subjected to ‘howls of derision’ (Participant 16) when speaking publicly of humanity as embedded within the cosmos provides context to such reluctance, and supports the idea of a kind of taboo operative in the discourse.

The failure of the contemporary cultural meta-story to account for human embeddedness within the natural world can be seen as at the heart of participant problems with the discourse, as it is also at the heart of the cultural attitudes perceived as instrumental in environmental destruction. This understanding, implicit in much commentary, was made explicit in the following quote:

...most people do not have a good grasp of the story of life on Earth, and the emergence of humans with their unique capacity for language and culture. They don't see it all as one. They learn about human, human history in history
lessons, and they learn a lot about biological evolution, but they don't understand this...as a coherent story in its own...right, the story of life and of the emergence of humans as a crucial event, biological evolution with a capacity for culture...(Participant 2).

5.3.4  Reductive and flawed reasoning impacting on human-nature relations

In addition to a functional ignorance resulting from increasing urbanisation, and associated attitudes of human mastery and supremacy over the natural world and an ecologically disconnected discourse, participant accounts indicated that reductive forms of thinking, endemic to the culture at large, were seen as particularly concerning in relation to ecological issues.

Materialism and consumerism (the activation of materialist values) were a particular focus of concern, perceived as significant cultural drivers of the current cultural paradigm impacting on the natural world. The emphasis on economic values – the ‘mindset of materialism’ (Participant 16) – was perceived as operating to exclude other values, for example aesthetic or relational values, and as rampant and insatiable:

...we’ve been overtaken by an age in which everything is valued according to dollars, and so things like beauty, wildness, love, have no value; they’re priceless but they, in the order of our society, have no value...I heard this on radio this morning...that we’re the richest, most secure people in Australia, now, who have ever existed on the face of the planet in materialist terms. And you know what? *We want more* (Participant 16).

The valuing of what many participants termed ‘greed’ was seen as reducing human potential itself to what may be achieved through consumption: as a society ‘we value peoples’ ability to consume’ (Participant 10).
Dualistic thinking was noted by a number of participants as evident, and unhelpful, in much discussion regarding ecological issues. For example, the use of either/or, as in ideas of nature as a ‘pristine perfect paradise’ or as a ‘tooth and claw horrid wilderness’ (Participant 12), or of humans as either the ‘blight on the planet [or]...god’s agents in creation’ (Participant 12). Polarised approaches to ecological issues which saw the discussion and debate in terms of ‘black or white’, or the protagonists in such discussion in terms of ‘us and them’, were also noted with significant concern. Such approaches were perceived as incapable of providing a sense of ecological reality. Even though participants on the whole arguably expressed more politically liberal views, they were explicitly concerned with any form of polarisation whereby the interests of one group - one ‘side’ of the issue- sought to dominate those with differing views. The following quote is indicative:

...green as I am, and bound to nature as I am, I have come to see that zealot who is green as dangerous as the zealot who is about, well, say extreme market economy or something like that. I actually think any of those extreme one-sided sorts of thinking undermine the whole (Participant 4).

The idea of ‘othering’ (Participant 6) arose in interviews, being a form of dualistic thinking particularly discriminating against those with differing world views – such as Indigenous peoples – and was seen as reductively disabling wider perspectives and understanding:

...what we've done through mono-cultures...is make marginal all these other incredible ways of being and telling and doing and acting and being human...(Participant 10).

A highly institutionalised form of reductive thinking was what several participants termed ‘silo thinking’. This was seen as encouraging institutional ‘bunkers’ in defence of established practices, thereby disabling more holistic communication. Examples of silo thinking impacting on human-nature relations ranged from inflexible work practices impeding disabled clients’ access to nature, for example by
helping them to grow vegetables, to the senior fisheries official speaking at a catchment conference on the importance of fisheries who observed, when asked about deteriorating water quality, ‘we don’t do water’ (Participant 6). The consequences of such silo thinking are social as well as ecological; fish abundance, a food source, is dependent upon the quality and abundance of water would inevitably have an effect on the livelihoods and health of people in the catchment. The following quote from a public health academic who coordinated a university health/environment course and attempted over many years to encourage greater transmission of course ideas between fields, well illustrates participant concern with silo thinking:

...everyone just gets locked into what they’ve been doing...For example, in a university the funding comes to a faculty, and never get between the dean and his money. So if you say, well, I don’t care, I’m going to teach [an environment and health unit] to any student who wants to be taught this, they can come in, or our students can go over to planning and they can do however many subjects they like because I think that will be really great, well, people go ballistic about that because it's money going out of a particular bucket. So our whole way of funding and operating makes it so hard for people to work across disciplines or across faculties or across silos (Participant 8).

Many participants shared concern about long-established institutional practice (not only in universities) which rewarded specialised so-called expert thinking over more connected, systemic or holistic ways of making sense of the world:

You don’t get promoted if you’re a generalist in a university by and large, you have to be an expert at something and you have to spend a lot of time doing that...[the] way our organisations are structured make it difficult (Participant 8).
Participant accounts indicate the implications of such narrow thinking included reduced comprehension and therefore responsiveness to complex issues, such as environmental issues, which become functionally isolated to disciplines intrinsically interconnected in the real world. Such approaches are especially dangerous in further entrenching poor human-nature relations. A narrow conceptualising of issues impacting the environment was seen as disabling the more holistic understanding and debate such inherently complex issues were seen to require. That this ensures only part of the complexities of a situation are available for consideration and debate in collective decision-making was seen as a boon for those with vested interests.

Another form of what participants clearly observed was a diminished, reductive common form of reasoning were pervasive fears for children’s safety. These fears were seen as increasing the distance between children and the natural world. Participant accounts suggest that, whilst such controls had their place, and may be directed at the world at large, not just nature, the current emphasis represented over-consciousness of possible but unlikely environmental dangers. An emphasis on ‘bumps in the pavement’ (Participant 12) was seen as particularly misplaced in the context of extreme and likely environmental dangers, such as escalating climate change. The following quote illustrates this concern:

...my feeling is that our society has become so over-conscious about health and safety and rules and regulations. I know all sorts of horrible things do happen so there have to be some rules, but I think we’ve lost that sort of natural [way], it’s much more difficult to have a contact [ with nature] (Participant 11).

Moreover, such fearful thinking was seen as a loss not only for children denied such access, but indicative of cultural deficits in human-nature relations accumulating over the generations. One participant observed that ‘so much has been lost over time’ (Participant 3), meaning cumulative losses of nature and its diversity, and the loss of culturally-mediated access to nature, including mentoring experiences transmitting a
love of nature between the generations. The following quote illustrates this understanding:

...[parents] don’t really know how to even go about providing time in nature for their children...[They] see nature as threatening or dangerous or you might get sunburnt or you might get an insect bite or...you wouldn’t let your children walk to school because they might get hit by a car, or they might be abducted. You know, there’s this real sense of fear and dread I think for a lot of people. And they don’t get those positive wonderful experiences (Participant 3).

5.3.5 Power of the status quo

Participant accounts indicated that disconnected human-nature relations were strongly associated with the power of those vested in maintaining the status quo. The power of the status quo was especially evident in the web of influence exerted over governments and people, and in the induction of young people into the values of the dominant (disconnected) culture.

The power of the status quo was seen as pursuing and maintaining the interests of privileged groups at the expense of other people and the environment. The main features of such power, as emergent from these interviews, were seduction, coercion, doubt and denial. These were perceived to be exercised by those invested in the current paradigm at all levels of society, from the political, to community, to professional, and were associated with the habits of the population. For example:

I think the richer people who have the most power and influence...[those] who are running the show, are leading the whole rest of society...down a very dark alley...we’ll need two more planets minimum by the end of this century just to keep up with the materialist demand and the growth economy that...has the world by the throat (Participant 16).
Participants indicated, directly or indirectly, concern for the ‘business-as-usual’ approach of those with vested interests in maintaining a fundamentally anti-ecological paradigm. These included military, pharmaceutical and media entities, and especially extractive fossil fuel and their derivative industries. These interests were criticised for their power to destroy the planet through unabated extraction and consumption. For example, a participant spoke of ecologically damaging business interests, especially unrestrained extractive industries such as in mines: ‘those few who would like to keep building their wealth’ (Participant 9). He was deeply concerned at the damage done to what he called ‘the Commons’, the environment and the people with it, by constructing ‘that mine where it’s not needed or required’ (Participant 9).

To speak out in defence of ‘The Commons’ or the environment as such was to invite opprobrium from powerful forces. Discourse on human nature-relations was seen as mediated throughout culture by powerful industrial, business and political interests, and as entailing a narrow and highly protective focus on resource extraction. Attempts to broaden the discussion to include recognition of wider environmental and social implications of the human-environment interface were met, in the experience of many participants, with various forms of suppression and coercion. Suppression – or ‘taboo’, a term used by several participants – included disallowing at international fora ideas raising possible causal relationships between conflict and resource/environment issues, for example access to oil. This discussion was experienced as ‘taboo...it was not something that could be discussed openly’ (Participant 1).

A more personally virulent example of coercive attempts to silence ecological, and related social, concerns was the heavy-handed action of a mine operator to prevent the participant as a young journalist researcher from making public her empirical data linking a mine with mercury tailings. These tailings were leaching into a local river,
affecting the fish eaten by locals, and had significant public health implications. The participant involved observed:

...I just thought what they were doing was outrageous...they were trying to suppress my work. And I thought it was inappropriate and wrong and I wanted to make people aware of it (Participant 5).

Aside from corporate forces brought to bear on those who directly challenged resource-focused powerful interests, emergent also from interviews was a form of suppression of speaking out publicly - and especially passionately - about a sense of interconnected human-nature relations. The following quote provides a vivid illustration of a collective of powerful forces – in media and government – seeking to silence a voice speaking of a holistic understanding of humanity within nature:

...I gave that speech [to Parliament] in [date] about global democracy. Basically I led into it by talking about our unique place in the universe...and for weeks [the media] went berserk about it; the man’s loony, he’s mad, he’s raving, he’s, whatever. I was talking about a thing that Nobel Prize winning scientists are talking about all the time, our place in the universe...Wherever we see it around the world we can say, you show me somebody who’s talking about our connectedness with the planet, and I’ll show you somebody who’s threatened (Participant 16).

Not only was the raising of environmental concerns which directly conflicted with powerful interests the focus of suppression, actual words with environmental meaning were seen as the focus of suppression in more diffuse ways. Examples of the latter include ‘climate change’ or ‘ecology’, or even more general discussion

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23 The effects of environmental toxins unleashed on populations through human economic, particularly extractive, activity has been well documented. For example, McMichael’s fifteen year epidemiological Port Pirie study providing robust evidence of the effect of lead on brain function, specifically on the IQ of exposed children (Patz 2014, p.449).
about the environment. A clear instance of this idea was provided by a generally outspoken participant from the public health field who, in order to have any chance of undertaking pro-ecological research, perceived the necessity for himself and co-writers of a recent grant application on environmental change (Participant 1) to:

...taboo the word ‘climate change’...it's virtually not in there, you know, Whether or not we’ll be successful, I mean how far do you play it, but with politics very much involved...(Participant 1).

Government was in fact seen throughout the interviews as subject to the will of corporations, through a mix of seduction and coercion. Participants observed governments as benefiting from the power and support corporate entities wielded. They were seen as under the ‘influence’ of extractive industrialists (Participant 16),‘captured by business’ (Participant 9), or, as several participants named it, ‘seduced’ to support the continuance of business-as-usual practices highly lucrative but environmentally disastrous. The following quotes indicate this strong concern evident throughout the interviews:

...governments...are controlled for the most part by corporate interests. So, government is a big part of the problem because they allow the destruction of nature, the legal destruction of nature...they allow the corporations to go in because the corporations seduce them and say we’ll give you this money (Participant 15).

[Government ministers] have all been compliant,...all very compliant to the vested interest (Participant 4).

Of significant concern to a number of participants was the coercive power currently being summoned by government at both Australian federal and state level on behalf of corporate interests in the form of mooted legislation to suppress individuals who stand up for environmental (and related social) interests against the extractive industries, particularly mining and timber. This was seen by participants as a
particular example of democratic government, ostensibly charged with the well-being of the whole population, aligned with corporate interests actually acting against the people and their long-term interests. The following quote illustrates this concern:

There’s no mandatory jailing for rape or murder or violent robbery in [State], but there will be for standing in defence of a wild forest full of rare and endangered species...that legislation hasn’t just popped out of the minds of those politicians who are in there busily saying they’re going to have this, it’s come from the high priests of materialism, from the logging and mining industries (Participant 16).

The governments generally aligned with business were seen as largely governments in denial of environmental issues, particularly climate change, and in a position to influence the population in such denial:

...I’ve heard this said, people don’t believe climate change is happening because if it was the government would do something so therefore it can’t be happening and it must be just a conspiracy theory...because they’re not worried then I don’t need to be worried either (Participant 14).

Several participants who expressed concern at such co-option of government by big business called into question the functioning of democracy itself, observing that there was little hope of ecologically-centred policy and decision-making until there is fundamental systemic political change. The following quote illustrates this understanding:

...to me the government at the moment is not representative, it is not truly representative of democracy, it’s increasingly captured by business; so I think whatever is done at the government level will be corrupted one way or the other until we change the system (Participant 9).
The involvement of vested interests in actively promoting polarised thinking was also a feature of many interviews. Participant concern for dualistic thinking prevalent in society was noted above (section 5.3.4). Such thinking was seen as obscuring the complexity and interrelatedness of important issues such as those related to the environment. The following quote is illustrative of the utility of such positioned thinking to vested interests:

...action on climate change [is] seen as something that you would only espouse if you were a Greenie. If you see yourself as a Liberal Party person you're not likely to say you want to act on climate change, even though you might be perhaps concerned about it, so I think [there is] the politicisation of issues...I think very clearly there are fossil fuel industry and associated people who are spreading misinformation and doubt... So I think there's definitely dark forces at work. I think that’s not an irrational or conspiracy theory thing to say, I think that’s clearly true (Participant 3).

Professional self-interest at the expense of human-nature relations was perceived by a number of participants as another form of seduction or co-option by the status quo, the gain being a confirmation of ‘standing’ (and remuneration and influence) within the current paradigm. Professional behaviour in the field of public health, a field dedicated to the long-term health of populations, raised significant concern in this context. For example, the senior public health academic whose ideas on the interconnectedness of environmental resources and population - and resource scarcity and conflict - had been treated as ‘taboo’ at international fora observed that there were : ‘[t]oo many senior US people involved, wanting to protect their salary, prestige and influence’ (Participant 1). However, as described above, he himself admitted to removing words indicating the dangerous state of human-nature relations signified by the words ‘climate change’ in order to maintain funding (section 5.3.5).

Another senior public health academic/practitioner spoke of the ‘dead hand’ of older experts in the health field, ‘heads of everything...the expert...top-down generation’
(Participant 4), seen as still largely entrenched in the way things were done, and basically unwilling to share power. They were also perceived as closed-minded to wider considerations, including uncertainty with its potential for creativity.

The habits of ordinary people pursuing Western individualistic, consumer lifestyles were also understood by participants as having a cumulative destructive impact on the environment. They were perceived by many as making a major contribution to maintenance of the business-as-usual approach promoted by powerful interests. The lack of rationality in collective materialist thinking seen as reducing and commoditising the entire natural world, and the entrapment of individuals seeking unattainable happiness through ever more consumption, were noted as driven by powerful, seductive interests. People live in a ‘consumption-driven society, where we’re all consumers rather than citizens’ (Participant 3); people are ‘told’ continually, by the media, corporations and government, that the meaning of their lives is to aspire to ‘more’ within a paradigm of growth without limits. The following quote illustrates these concerns:

We’ve been told so for so long, and are still told, if you get the nice carpet and the big house and the flash car and the holidays in Bali, you will be happy. And so everyone chases that dream, and when they find themselves feeling a bit empty inside they think the solution is, well, they haven’t got enough and forever pursue more. And here we are in a state of the world where we’re facing potentially forms of ecosystemic collapse (Participant 17).

However, although entities such as governments, big business and the media were seen as having sway on the minds of the populace, the people themselves were also held to account throughout interviews as sharing responsibility for the consumer society by the choices they individually made. This included lifestyle choices as indicated in the previous quote, and voting choices:
...governments almost exactly reflect the people who vote them in. So, I don’t think we can blame governments, I think we have to look at ourselves (Participant 16).

A particularly strong participant concern was the induction of the next generation of children and young people into the values of the dominant culture with its disdain for the natural world and simultaneous promotion of consumerist culture. The notion of cultural induction can be understood from participant interviews as a consequence of the values and direction of the culture as a whole. Implicit in interviews was the notion that children and young people absorb cultural values in a sense osmotically, simply by living in it: ‘[children] are living in that sort of economic paradigm where consumption is valued’ (Participant 3). Participants particularly noted the role of education and the influence of role models on the younger generation.

Schools in particular were highlighted as having a major influence in the induction of children into materialist, individualist society. This was seen as having ongoing effects on poor social and ecological awareness (and, arguably, self-awareness). The following quote illustrates this pervasive participant concern about the influence on education of the capitalist paradigm based on a valuing of ‘greed’:

It is not good, it is not something to be proud of, to be the owner of 30 coal mines. It is not good to exploit legislation so that you don’t pay taxation at all despite the fact that you own 30 coal mines, that’s not good, it's not smart. Whereas, in fact, some of those schools’ ethics are that the individual is the prime, and whatever you do as long as it’s onwards and upwards...as long as you haven’t broken the law, you can cheat all you like, but as long as you haven’t failed those pretty artificial laws that select something as being a crime and not the other, which is this massive greed (Participant 7).

Participants critiqued individualistic self-interest whereby acquisition was equated with a successful life at almost any cost to others and the environment. It was seen as a poor basis for the collective and cooperative action the environmental and social
challenges required for a realistically sustainable future. An education framework based on, and furthering, exploitative values represented a childhood induction into a morally and ecologically impoverished culture.

On the other hand, participants also commented on the simultaneous failure of the school system, and of government policy, to directly meet the needs of children to understand and connect with nature. It was noted that there was no Australian Minister for Science, indicating a cultural context undervaluing a comprehensive view of science (Participant 3). Whilst a narrow version of science underlying vested interests was seen as holding cultural sway, a more rounded, eco-centric view of science, aligned with the humanities and real opportunities for connection, was seen as lacking in education:

...*despite* us knowing that nature is great for relieving stress and helping focus and enhancing concentration and imagination, all those great things we know about nature...[nature] is just missing [from the curriculum] (Participant 3).

This was attributed to the ecological ignorance of educational professionals and perhaps also a passivity indicating a dereliction of duty, given the known benefits of such an orientation. Understood as more sinister were direct actions by government bureaucrats against attempts by proactive teachers to promote an ecologically-inclusive curriculum. The following quote illustrates this concern:

...there used to be an environment teachers’ association; they used to band together and develop curriculum materials. Now I suspect they went the way of that environment centre down at [town], you know, just being throttled by government (Participant 13).

Related to the induction of young people within an ecologically impoverished school system were other forms of cultural initiation. Role models were recognised by participants as having significant influence in inducting young people into the culture, influencing them in ‘the social norms of what we value as a society and what we
don’t’ (Participant 3). The inductive role of ecologically-minded ‘elders and teachers’ (Participant 14) in awakening participants themselves in childhood and youth to a more-than-human worldview was a strong theme in the interviews (as explored in Chapter Four). Present day ecologically-minded teachers and elders were spoken of in interviews, and, arguably, interviewees themselves could be regarded as such. However, current induction of young people into dominant cultural values, as noted, were generally seen as problematic. Participant concern centred on their observation that cultural role models often represented, or were promoted by, corporate/media interests, as is suggested by the following quote:

...I think the richer people who have the most power and influence, the mining industry, the logging industry, the resource extractors, the developers, the mega-millionaires, the CEOs of the top 200 companies with their average $7 million income, who are running the show, are leading the whole rest of society, wishing they could be them, down a very dark alley (Participant 16).

The elders of traditional Indigenous culture represented for a number of participants a distinct contrast with such prevalent cultural role models. Unlike modern culture which was seen as glorifying youth, the present moment, and novelty (consumerist cultural values highly mediated by vested interests) respected elders of more ecologically centred cultures were seen as transmitting eco-centric values and priorities. This included a long view of time within which to hold future generations in awareness. The following quote illustrating this understanding suggests modern culture in contrast as considerably adrift, having lost its ecological/cultural moorings:

...I think the difference and the reason why it’s very easy to have a disconnect [from nature] in the Western cultures than it is from other cultures is that predominantly it’s the difference between a youth worshipping culture and an elder wisdom based culture. And so if you have elder wisdom based cultures then you...have to still honour and still pay respects to and still listen and take heeding and warning and the morality from a group of elders who
hold council. Whereas what we do is now immortalise...the present (Participant 10).

5.3.6 Structural forces maintaining human-nature disconnect

This section examines participant understanding of what may be called structural forces operative throughout the world. Participant accounts indicated that these forces will likely have an increasing effect on human-nature relations over time, and will need to be factored more consciously into decisions affecting the future. These structural forces include the diminished natural world itself, information technologies, and the inertia now built into environmental processes. Powerful interests vested in the status quo were seen largely as beneficiaries – for the time being – of these structural forces.

An ever-more diminished natural world for people to connect with was seen as having significant impact on human-nature relations. Not only do pervasive fears related to risk and safety keep people indoors, especially those with little agency such as children where they will most likely be engaged by various media, the ongoing encroachment by business-as-usual interests on nature was seen as resulting in less and less accessible and attractive natural environments for people to form bonds with. The increasingly urbanised world of degraded environments in which most people live was perceived by participants as disabling the opportunity for immersive access to nature which this study suggests may support feeling a part of the natural world. Much participant commentary reflected on a natural world that had changed significantly since their childhoods, the following quote being indicative:

...my childhood was a place with, goodness, lots of bushland around, a beautiful vibrant marine ecosystem in the bay which is now quite sadly altered... (Participant 9).
It was noted by participants that people can hardly be expected to care about, or stand up for and protect, something they do not recognise as missing or significant. (This idea is discussed further in the following chapters).

Participant commentary also indicated that information technologies, in particular the online/screen forms, as phenomena with a kind of structure and force now significantly operating within culture and requiring consideration in all human relations, including relations with the natural world. Despite recognising the real and potential benefits of such technologies, participants generally observed the ubiquitous presence of the online virtual world as interfering considerably with people’s ability to connect with the real world, environmentally and socially. The following quote illustrates this pervasive participant concern:

There seems to be very much a culture that’s looking inward...not at their actual surroundings, as if it were something, you know, boring to do....I think this is happening in so many areas, not just looking at nature. I find you read about people just not being able to meet other people, perhaps they are near each other and within range but people are so plugged into their [devices]...there are missed opportunities...it's as if technology were getting in the way...(Participant 11).

This phenomenon was seen as especially problematic for young people. For example, children living in the country were seen, according to a participant, as in particular need of opportunity and encouragement to connect with the natural world as they were observed as feeling the need to catch up ‘on their iPads and everything’ (Participant 11) with their more urbanised peers, such was the perceived reach of these technologies. The ever-present engagement of the internet was seen as a kind of enchantment:

That's the danger, that is the dark side of the noösphere, so much virtual reality, it is part of this cornucopian enchantment (Participant 1).
Normalised extensive time focused on a screen in lieu of immersive, life-enhancing
time in nature was seen by another participant as changing the actual structure of
the human mind, particularly of very young children. This was perceived as having
negative effects on children’s well-being. It was also seen as potentially
compromising survival abilities in a more uncertain future, as the following quote
illustrates:

...people have had their brains scrambled by media technologies....the
content is certainly bad, like the endless violence...But for very young children
the medium itself is structuring the mind in a way that’s not anything more
than a by-product of the media itself. It’s basically, a video image is edited
and cut and spliced and put back together and it scrambles the pattern
language, the developing pattern language, by which we interpret the world.
And that pattern language is the necessary precursor to skills in reading
landscape which are the basis of our animal survival in the natural
environment and feeling at home in it (Participant 12).

Participants noted with concern that young people's extensive relationship with
technology was highly culturally-mediated, and, whilst it acted to sever or obscure
access to the natural world - that ‘scary’ (Participant 17) real world – it simultaneously
facilitated induction into the values of the materialistic, individualistic cultural
paradigm. That such a dynamic served powerful vested interests was evident to
participants. A particular example of this was provided in relation to Indigenous youth
culture. The shift of concern described below, the different outlook of younger
Indigenous people shifting towards more mainstream- including consumer- values,
was perceived as leaving traditional culture behind, and with it the ecologically
embedded value system which would support fighting for the integrity of Country,
inextricably interwoven with traditional identity. That this erosion of a deep sense of
connectedness with Country served dominant paradigm interests - for example,
mining and political - can also be inferred by the concerns this participant raised
throughout the interview:
... with the passing of these old generations...there’s a shift...there’s no doubt that younger people have got a different outlook...they’ve got...the internet, they’ve got communications that were unheard of in their parents’ time, they’re spending less time in ceremonial camps, some are going away to school...there are influences that on the one hand offer the benefits of education for instance, but also see an increase in pressure on traditional ways of doing things and thinking...(Participant 13).

A further potent structural feature of the current state of human-nature relations was the inertia embedded into human affairs coupled with the displacement in time of effects. This were seen as exploited by those with vested interests:

...the global situation is changing, but we’re at risk of course of not getting to safety in time, and being overwhelmed. It’s the lags...[and] the inertia (Participant 1).

Lags indicated that effects of this cumulative impact of collective human behaviour on the natural world will be borne later in time, or elsewhere, likely by people other than those responsible. And, in the view of participants, by those least able to do so, for example the poor of the developing world. Such lags were suggestive of the distance between cause and effect, a feature of human action on the environment, and the difficulty in holding those responsible to account. In the following participant joke, originally told by Paul Ehrlich, demand can be seen as the dominant modus of a business-as-usual, no-limits-to-growth, economic paradigm. The lags (time/distance) of the inertial force of such cultural norms are not infinite, the consequences will not remain distant always:

...there is an economist falling from a tall building, and an ecologist...But the economist is very blasé, and the ecologist is terrified... and the economist says, ‘don’t worry demand will create a parachute’. But of course to get the parachute to work in time you need to unfurl it before you get to the ground. So he told that joke in 1989, it is an old joke, and there are variations, ‘okay
so far’, that's another version of it, okay so far, we're falling but we haven't hit the ground yet, everything is fine.... we're in denial, [economic] forces are extremely powerful...(Participant 1).

Several other metaphors were used by participants to illustrate the inertia of the current system, such as the ‘behemoth [of] capitalism’ (Participant 3), and that of the Titanic travelling catastrophically towards the iceberg (Participant 8, Participant 1). The Titanic metaphor was suggestive of a narrow view from the high deck of time and of social value and consequence: ‘if you’re up on the high-deck on the Titanic everything’s fine, that’s the illusion of culture...’ (Participant 1). It is from the socio-cultural ‘high-deck’ that decisions are currently made, or fail to be made, which guide the whole cultural enterprise. These metaphors suggest the difficulty of deflecting such forces from their trajectory, of confronting and transforming their inertial force; lags in the system mean that, whatever decisions to change behaviour towards the environment to ‘turn this ship around’ (Participant 8) are made, the effects of current practice on the planetary biosystem will travel widely and far into the future.

The Titanic as a metaphor for the inertial force of the collective failure of rationality to meet the challenges of current planetary crises is evoked by many commentators at this time (Daly 2000; Plumwood 2002; Butler 2014). The warning regarding the iceberg has been given, the captain decides, remarkably to double the engine speed and retire below to sleep. Confronted with a possible change of course causing delay and likely loss of business, the environmental disaster looming in the form of the iceberg cannot be permitted reality. Plumwood makes the meaning of the analogy clear, suggesting that not even the ultimate risk of the ‘death of nature’ can be permitted to change the ‘triumphant progress of the ship of rational fools’ (Plumwood 2002, p.1). The crisis is calling such forms of rationality to account.

The inertia in the current socio-cultural paradigm was seen as embedded throughout the structures of society, inherently entrenched in and further entrenching the current ecologically dangerous default paradigm, making it very difficult to transition to an ecologically-centred alternative:
...we live within structures that make simple living very hard, and make consumerism almost necessary or at least the default way of life. So it’s very clear to me...how significant those legal and political structures are, and how they can often lock people into high consumption ways of living, even if they don’t want to be a part of that. So it’s clear to me that the structures need to change (Participant 17).

5.4 Health and well-being effects of disconnect between humans and nature

Participants were concerned about the particular negative health and well-being outcomes consequent to a lack of opportunity for contact with nature individually and collectively. These included poor physical outcomes, such as cardiovascular problems and obesity, and psychological and emotional effects such as stress and anxiety. The following participant critiqued modern lifestyles as mostly indoors, bounded by a variety of screens and highly repetitious. This quote is indicative of much commentary concerning the effects of hyper-urbanised lifestyles on access to the natural world and its benefits. He observed:

...you’ve probably come across the phrase nature deficit disorder...I think that’s a serious condition that...many of us suffer, [and we need] to somehow facilitate more exposure...more opportunities to be in the bush, to be sort of away from so much concrete, to hear more birds, to swim in wild rivers, to wake up with the dawn chorus, to sleep under the stars. These are experiences that are increasingly being cut off, and that we don’t get to enjoy very often...And I think it really does affect our psyches... (Participant 17).

Ethical/social justice concerns were also raised about the health and well-being of those who, through age or disability, were reliant on others such as carers for access to nature:
...hundreds and thousands of people [in Australia] are in the hands of people who have lost touch with all it means to put your hand in the soil, enjoy it, grow something, enjoy it, eat it (Participant 18).

Despite the prevalence of participant concern for human health throughout the interviews, the fact on which they were most focused and the galvanising factor for their profound ecological commitment, was the phenomenon of the overarching environmental crisis, its causes and its effects on planetary flourishing encompassing human health and well-being.

5.5 Radical changes are required

This chapter has explored participants’ concern for a dangerous narrowness of perception of human-nature relations evident in the cultural mindset. Humanity, inextricably interwoven within the fabric of the planet in which it evolved, was understood as having significantly lost this recognition, at least in the West. The dominant worldview was seen by participants as irrational as it was disconnected from inextricable human ecological (and related social) realities, and as a consequence dangerously and potentially disastrously maladaptive to the global situation currently constellating across the planet. Urgently required was a profound paradigmatic eco-centric shift in cultural values and assumptions towards recognition of and ‘clear and adequate’ (Plumwood 2002, p.3) behavioural responsiveness to human ecological-embeddedness. The following quotes illustrate the perception that what was required was a change in cultural consciousness, described in terms of changing thinking or waking-up to human ecological reality:

...until there is some kind of transformation or revolution or a radical change in those dominant cultures there is really no hope of that transition to bio-sensitivity or ecological sustainability...(Participant 2).
...we need to wake up as a species or we're going to crash. If we leave it too late, the crash comes, it will be too late to fix it....I see the retreat of the idea of civilisation for all, health for all (Participant 1).

I think we could give a really good quality of life to everyone alive on the planet, and have a very vibrant natural system, but it will take some changes in the way we relate to the world and changes in our technologies and changes in our politics and in our thinking...(Participant 9)

Although some participants perceived hope in changes taking place, the main change seen as necessary was more fundamentally the change of worldview from disconnect to one of connection, or reconnection, with the natural world. Participants strongly critiqued the potential for technological ‘fixes’ or economic behavioural change strategies – for example, ‘green consumerism’ – to affect the required changes. The following quote illustrates this relative emphasis:

I think too many people think that we can probably apply technology and apply efficiency gains to the existing way and create a green consumerism. And I guess what I try to do is to say technology, though it will be important in the transition, won’t save us, cannot save consumerism, and that sustainability actually and justice implies something radically different (Participant 17).

Participants perceived the core of the transitioning required to be a shift from misinformed, reductive reasoning towards ecologically rational reasoning founded on recognition of relationship with the natural world - ‘to be alive and in a world that is still pretty much intact’ (Participant 7). Such a relationship was perceived as supporting health and well-being, including diverse other perspectives still extant and calling out for response, such as those of Indigenous peoples; and as cultivating a more holistic identity, individually and collectively. Such connections would, participant accounts strongly infer, enhance individual and collective capacity and
resilience in the task of meeting the complex issues, especially ecological issues, confronting humanity at this time.

As alluded to in the methods chapter (Chapter Three), when asked a question about how a sense of interconnectedness with the natural world may be fostered more widely in society, many participants responded in the first instance with suggestions about addressing the environmental crisis, particularly climate change. This may be indicative of the difficulty in the discourse discussed above (section 5.3.3) in making conscious and articulating the arguably innate but hard-to-name understanding of human-nature inextricability. However, it may also indicate that the stark reality that, important as transitioning the cultural worldview eco-centrically over time was to participants, most critical was the need for a collective re-awakening and urgent responsiveness to poor human-nature relations, as particularly evidenced by climate change. The following quote illustrates this understanding:

...obviously [we need urgent] action on climate change because unless we act on climate change there's not going to be any nature left, there's not going to be us left very, very soon (Participant 3).

The transition required has therefore a long-term focus, a fostering of eco-centric understanding, particularly in the next generation/s, and a more immediate galvanizing of attention to stimulate ecological action.

5.6 Chapter discussion

This chapter has explored participants’ understanding of the disconnect between humans and the natural world. Although humanity was understood as inalienably ecologically embedded, recognition of this fact was seen to have been almost extinguished as a means of guiding cultural values and priorities towards the natural world. While relationship with nature was intrinsic to participants, this relationship was perceived as dangerously broken in the culture at large. The main features of this disconnected cultural worldview were perceived to be: pervasive culture-wide ignorance of human-nature inextricability; attitudes of human supremacy informing
priorities and behaviour; a discourse disconnected from the reality of human ecological-embeddedness; common forms of reductive reasoning and approaches to complexity seen as impacting human-nature relations; and the power of those invested in maintaining the status quo of disconnected relations. Structural features such as the diminished status of the natural world, the power of online technologies, and the lags and inertias inherent in human activity within the biosphere were seen as further complicating human-nature relations.

Public health experts Tait, McMichael and Hanna (2014, p.104) argue that the ‘lack of ecological understanding’ in urbanising societies of the vital relationship between humans and the rest of the natural world is at the heart of the damaging resource-based human interaction with nature. There is much support in the literature for the idea that the origins of human alienation from the land began with early agriculture and gradual moves away from the natural world into townships and villages, gathering momentum at the time of the Enlightenment and onset of the Industrial Revolution (Boyden 2004; Plumwood 2002). A phenomenon of ‘understand-predict-control’ in relation to the natural world has been associated with scientific and technological progress. Whist this phenomenon has brought great benefits, including economic growth, social development, material prosperity and better health, paralleling such changes is a ‘mindset’ and a set of values which place a high value on individualism and materialism (Hanlon et al. 2012). The evidence suggests that this is becoming increasingly adverse for the future of health (Hanlon et al. 2012).

The recognition of human dependence on the natural world, not only for functioning ecosystems for survival but also for opportunities for psychological, cultural and spiritual well-being, as evidenced by the literature (Townsend et al. 2015), is seen as dangerously attenuated in the collective mindset (Tait, McMichael & Hanna 2014, p.105). Participants in this study indicated the necessity for an urgent and radical reorientation of the culture – values, attitudes, behaviours – towards an ecologically-centred paradigm and sustainable future.
The profound changes seen as necessary by participants align with those of many cultural theorists (e.g. Brulle & Antonio 2015; Hamilton 2015) including those from public health. McMichael (2009, p.11), for example, suggests the risks of climate change are, finally, ‘the signal’ to awaken governments and the people more generally about the need for ‘rapid and radical mitigating actions’. These findings, in the context of the literature (e.g. Berry 1990; Flannery 2010; Plumwood 2002), also indicate that reductive ways of thinking associated with the current paradigm, including in relation to the natural world, may be poorly adapted to the demands of the moment. A wider perspective inclusive of other values, such as ethical, aesthetic, and political, as well as ecological (Bateson 1988), is required to meet the challenges of an inextricably linked planetary system under extreme anthropogenic duress. That the solutions cannot be found within the terms of the current paradigm, evident to participants, is echoed in the literature. Plumwood, for example, affirms that humanity already has the technology to support living ‘on and with’ the Earth (2002, p.3); it is, rather, a question of culture and values. An ‘environmental culture’ (Plumwood 2002) is required that fully recognises, values and responds to the natural world and absolute human dependence upon it.

The first two findings chapters, Chapter Four and Chapter Five, have elucidated participants’ perspectives on the meaning of connection with, and disconnection from, the natural world. These understandings relate to Aim 1 of this study and are foundational for considering more directly in the following chapter, Chapter Six, the means of transitioning towards an ecological paradigm.
6 Chapter Six: Findings - Transitioning towards an ecological paradigm

6.1 Introduction

Chapter Four explored participants’ understandings of humanity’s inextricable relationship with the natural world. From this holistic perspective, Chapter Five then considered the features of the disconnect between humans and nature. This chapter considers the cultural orientation participant accounts indicated was needed to catalyse change for a flourishing planetary future. Four theoretical propositions for transitioning towards an ecological paradigm emerge from these findings and are presented below. These are: 1. re-awakening a sense of connection with the natural world; 2. developing eco-centric discourse; 3. fostering holistic approaches (reasoning/behaviour) to complex issues impacting the environment; and 4. challenging those vested in the business-as-usual status quo. The chapter concludes with a brief discussion giving context to the emergent findings.

6.2 Re-awakening a sense of connection with the natural world

As explored in Chapter Five, participants recognised an urgent need for fostering an eco-centric cultural paradigm, including renewed understanding that people are inextricably part of the natural world. The following sub-sections explore the means, as indicated by participant accounts, by which this could be achieved.

6.2.1 Experiences in the natural world, especially for children

Participant accounts indicate that the revival of experiences in nature, especially immersive experiences for children, was the critical initiative for awakening recognition of relationship with the natural world. The following quotes illustrate this understanding:

....child contact with nature is the main thing really. Children have to know and feel, they have to have that opportunity, that is the number one thing (Participant 14).
...children just [need] to be outside in unregulated interaction with the natural world, and it doesn’t have to be anything fancy, so I think that is the most fundamental thing (Participant 12).

Motivation to care for the natural world, seen as critical for the future, was perceived by participants as supported by direct experiences in nature. The association between the committed eco-centric action of participants themselves and their immersive experiences in nature adds weight to this idea. The following quotes illustrate this view:

[We humans need to k]now our roots in [nature], be in love with it, if we have any hope of protecting this Earth, before it’s mined and destroyed and logged and ravaged with pesticides and insecticides. So then the question now is how do we reach the populace to get them out, to experience what it means to walk on the Earth in bare feet...(Participant 15).

...the more you kind of expose yourself to sort of more, I guess, untouched or less interfered with natural systems the more you see how beautiful they are and how dependent we are on them. And you sort of want to do what you can to protect them...it’s been said – don’t know by who – that it’s very difficult to love that which you do not know (Participant 17).

As noted in Chapter Four, ease of access to nature was enabling of participants’ relationship with nature as children – for example whilst walking home from school, gardening, exploring a puddle, swimming in nearby waterways (section 4.3.1). A significant means of fostering the waning connection with nature was seen as protecting and reinstating where possible accessible parkland and reserves, especially in areas of high population density. The following quotes are indicative:

...so that it’s not just National Parks, so there’s places that are quite near just ordinary people’s ordinary lives that could be enhanced so that there’s an opportunity close at hand to interact (Participant 11).
... [it is important to] giv[e] people an opportunity to connect with nature... So even though people live in the city... it’s really important that things like birds and wildlife... are still able to live and exist in a city, because then people do encounter it, and connect with it (Participant 5).

... there is data on well-being that we need to live within a certain distance of a large amount of green space. So... let’s bring that into legislation. And how do we bring that about so that if we’re knocking down a building maybe instead of putting up another building we can create a park? So I think we need to think differently about all that (Participant 3).

Access to gardens was also important. Many participants reflected on the satisfaction they had derived from gardening, especially growing their own food, as children (section 4.3.1). Participants noted that an important feature of modern life was the disassociation between the production and disposal processes of natural resources, including processes involving the growing and processing of food and the disposal of waste (section 5.3.1). Fostering children’s opportunity for gardening was seen as dependent on both accessible spaces and on programs encouraging involvement. Activities which supported children accessing vegetable and fruit gardens in order to experience the food cycle, such as Stephanie Alexander’s school program, were valued in terms of the health, social and education benefits, and also as ‘one way to open that door’ (Participant 5) into connection with the natural world. The following quote illustrates participant recognition of the need to develop more such gardens in cities:

... funding [is needed] to create more urban green spaces... especially in disadvantaged areas... neglected and over-built and very hot [areas] and, so in those areas I’m sure, they should be re-looked at... [to] make these allotments [and enable people to] and grow food and interact... in that space, that space is so important, not only for the growing of the food but for the social interaction (Participant 11).
Participant accounts indicate significant valuing of the ‘wilder’ natural world outside of urban areas. Access to areas such as National Parks and ‘the bush’ generally, ‘Country’ in Indigenous terms, was a significant factor in fostering their own love of nature (Chapter Four). This access was largely dependent on the role of mentors, such as teachers and family members (discussed further below).

An enabling cultural context provided opportunity for many participants to range their neighbourhoods freely as children. Participant comments implied that this freedom was understood by parents and guardians as largely safe (section 4.3.1). This opportunity was associated in participants’ reflections with much joy, and with the development of some valued attributes, such as independence and cooperative play with other children. In contrast, participants perceived the current risk-averse culture regarding children’s access to nature as widely and unnecessarily disabling (section 5.3.4). The following quote illustrates the need to allow children freedom to explore, as well as the benefit of more natural environments for making positive connections:

...[it is necessary to have environments] where babies are crawling round and find the strawberries and put them in their mouth along with the snails and whatever, and explore the world in that oral sense. And obviously it’s better that they do that in a garden rather than on the street with cigarette butts and left over bits of refuse of a dirty urban environment. So there’s obviously some environments that are more conducive to that process of rebuilding that connection. And then the next level up is accepting the risks that occur with that, of children doing things in unregulated ways (Participant 12).

Depending on how hopeful participants were of humanity moving towards an eco-centric future, especially urgent mitigating steps to decarbonise human activity on the planet, the future ‘radical changes’ required were perceived by several participants as including adaptation to a drastically altered low-energy and possibly post-catastrophe environment. In such an environment the need for competence in human engagement with the world around them was seen as especially important. Orienting children of the future towards the environment took on particular urgency
as a public health priority - especially regarding perceptions of risk - in the minds of such participants. The following quote is indicative:

...[public health concerns should include] obviously the obesity epidemic, basic fitness, and capacity and resilience to deal with the energy [needs] in the distant future. You know, if we thought being fit and healthy was important in the current economic paradigm, boy, is it going to be important for the world kids are going to face decades down the track...right through to being able to walk long distances and carry things again and all of those sorts of things (Participant 12).

6.2.2 Eco-centric education – a mentoring process

Participant opportunities for contact with and learning about the natural world were significantly dependent on older people, generally family members or teachers. Such individuals were portrayed in Chapter Four as eco-centric mentors for their role in directing the attention of young people towards the natural world. Induction through such mentoring was significant for most participants becoming aware of belonging within a more-than-human world (section 4.3.2). Induction of children and young people into relationship with the natural world is intrinsic to future eco-centric cultural transitioning:

[Q: How can people regain a sense of connection with nature?] With kids it’s pretty simple...We’ve got to take the kids to a natural area where there isn’t a power-point close, and spend time with them and point out things to them and do all the things we like to do – well, I certainly did as a kid myself – there isn’t a substitute for that. People do like to watch David Attenborough, but how much better to sit on a headland somewhere and watch a sea eagle out over the ocean (Participant 16).
...exquisite elders...are the kind of people who influence me...[and] every time I try to do a talk or public lecture I'm always trying to be influential in the same way that they've been influential for me (Participant 10).

As noted, the cultural context which would induct younger generations eco-centrically was seen as largely absent. In its stead, participants perceived there to be worrying default cultural processes initiating young people into a hyper-consumerist, individualist culture (section 5.3.5). Eco-centric education was perceived as essential for the induction of young people into an eco-centric paradigm.

An eco-centric education, as emergent from interviews, highlights the need both for contact with the natural world and for learning about the natural world and the human place within it. These priorities reinforce the need to address other cultural objectives, for example regarding access and risk, as discussed above (section 6.2.1). Four particular features of an eco-centric education arose in interviews. These were the opportunity for all children, no matter what their demographics, to: 1. engage with nature within school settings, both inside and outside classrooms; 2. experience immersive time in the natural world, such as school camps, at some appropriate time in their development/schooling; 3. Learn about nature; and 4. Engage respectfully with Indigenous culture. The following quotes are illustrative of these ideas:

...a policy [would be useful] that looked at the education of children so that every child got to go on a nature-based camp every year, and that school grounds had to meet certain standards not only with, you know, their educational requirements, but also how much nature is in their school ground, so that when children were going outside they were getting some time in nature. That we are also bringing nature in, so that within...classrooms there is nature. So there are plants or maybe greenery, that kind of thing, so nature coming in as well as nature going out (Participant 3).

I’m...really impressed with the way [his children’s] school... [is] trying to establish relationships with Aboriginal communities, just to expose the kids to
different things. Exposing them to outdoor activity experiences where they have to develop a lot of self-reliance in unfamiliar bush settings...one of the consequences of which is that they develop a lot of respect for the Country they go to...I’d love to think that every school has to do that (Participant 13).

Participant interviews indicated that they were well informed about the natural world and the human place within it, and greatly valued learning about nature. Early science and natural history lessons were seen as important in developing their sense of connection with the natural world (section 4.3.3). A cultural devaluing of the sciences, particularly the natural sciences, and the impact of this on education was noted with concern (section 5.3.5).

However, the outlines of an eco-centric education as emergent from interviews extend beyond science to include the humanities, and especially literature. For example, so-called nature writers, writers of natural history and those writing of their love of place, such as Henry David Thoreau or John Muir, acknowledged as highly significant to participants, were seen as essentially directing and inspiring the reader into engagement with nature (section 4.3.2).

Whilst generally seeking to support cultural moves towards opportunities for greater childhood engagement and immersion in the natural world, participants were nevertheless clear-eyed about the falling-away of such opportunities in an increasingly urbanised world. The sense of connection noted as likely in more traditional cultures was seen as simply ‘impossible to reinvent’ (Participant 9) in this emerging world. The hope, as some participants saw it, was for a cultural recognition of connection to prevail based on a clearer understanding - if not experience - of the human place within the planetary ecosystem. This suggests the need for a valuing of pro-ecological education, at least with regard to learning about nature. This is arguably supportive, as participants suggest, of conceptualising being ‘a part of’ nature which this study, echoing the literature, suggests is a characteristic of those likely to behave pro-environmentally.
6.2.3 Role of information technologies

Participants expressed strong concerns about the power of information technologies to direct attention, especially of young people, away from ecological and social connection into an ever-expanding virtual or screen world. This was seen as negatively impacting connection with nature as well as health and development outcomes (section 5.3.6). Participants also recognised that information technologies were now an inextricable part of human culture, especially for young people, and that any program of cultural change must take note of them:

’[Young people] have to be appealed to with this technology, I think...because that is the language’ (Participant 11).

A number of participants noted the potential of online technologies to positively engage and inform people about the natural world and human place within it. Examples ranged from nature programs and place-based information ‘apps’, to reportage on environmental issues such as the IPCC Reports. Several participants noted the most useful were those directing people, especially young people, towards actual engagement with nature. The following example, from a participant currently resident in the United Kingdom, illustrates this idea:

...programs like...Birds Australia, or here there's the RSPB or Garden Watch or even private companies, are into this, like...the butterfly watch. So everybody has these apps and you can digitally monitor what's going on in your garden, or in the park or wherever you see [butterflies]. It sounds crazy, but people love to do this, and it's a sort of practical way of engaging them...so that digital monitoring would be one way of using the same language but getting people out there... [these apps] are quite cunning so that you have to actually have

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24 Information technologies are understood as including all media used for transmission of information/ideas – that is, all screen or audio media, including smart devices, internet, and applications for social media and promoting ‘virtual reality’.
gone and taken a photo and seen the thing, it's not all virtual as it were (Participant 11).

On a much larger scale, the possibilities for the systemic qualities of information technologies to support the development of more collective consciousness was also noted by several participants. For example, the potential of significant ideas, such as the meta-story of humanity’s place within the biosphere, ‘going viral’ and influencing many people:

I think humans are capable of being one mind, but not a mass mind...an incredible, coherent, sympathetic understanding. I think that’s absolutely realistic...I don’t think it’s pie in the sky, I don’t think it’s a shovelling smoke...what else is the whole Twitter thing, what else?...you should stop thinking the mechanics of it, and [think] of the ideas that envelop the world, and you can go round the world in a flash, going viral if you like (Participant 4).

[See discussion in section 6.3.1 regarding ‘Renewal of stories, myths and beliefs concerning human-nature relations’].

6.2.4 Awakening in today’s adults recognition of human-nature inextricability

Whilst eco-centric cultural shifts over time were seen by participants as requiring the fostering of ecological awareness in new generations, the crisis in human-nature relations required more urgent awakening of recognition of human-nature inextricability amongst today’s adults, the current decision-makers and those responsible to a significant degree for children’s access to nature. Attaining a feeling connection with nature in adulthood was acknowledged as more difficult but nonetheless possible. The following quote likens this to learning a language, which, whilst easy for children, requires much repetitive exposure for adults:

…it is possible...because...once you do...a 10-day walk in Tasmania...you do feel something. Then you go back to Sydney...and then what happens, it kind
of drops away and you get caught up again in the life you know. So you have to almost come back again and re-experience it, and [if] you do it enough, then yes. So it’s like learning a language, you do it for one week in a crash course, you will pick up some words, you go away, you no longer continue the course, you’ll forget. So you have to keep studying, studying (Participant 15).

Nevertheless, this perspective suggests potential for awakening/re-awakening in adults what may be a latent connection with nature. Several participants gave examples suggesting such latency could, given the right context, be evoked, particularly for those who had experienced immersive contact with nature as children. For example, a participant illustrated a process she had facilitated with a group of experts who were ‘stuck’ in professional roles during a meeting on environmental issues. They were invited to recall their seven year old selves:

I would suddenly freeze the meeting and say ‘I want to ask a different question’... I would say, ‘Would everybody consider what environment they were living in when they were seven?’... always - and I’m not sure it would now be true but this is over the last few decades - everybody remembered something really vivid and really personal about rivers, streams, animals... what came out was some complete bonding with a natural system. So it was in everybody. But the fact that we were sitting there trying to marry environment and health was not leading on to any sense of reality... it was only artificial social frames. And when I did [this]... it always changed the conversation, always... [in] the direction of a more overview, relational discussion on what we were on about (Participant 4).

The resolution within the group of professionals may be associated with the dawning of a collective sense of similar experience in, and shared valuing of, the natural world. Such processes facilitating a sense of connection with nature in professionals are perhaps particularly important as such people have wide social and professional influence. A more immersive process was detailed by another participant. She noted the importance of supportive contexts to give professionals:
...permission to speak...[and] hav[e] the experience of what it means to be profoundly connected to something [in the natural world]. And often what you have to do is evoke an emotional response and provide for them a safe way to transition, because it is a life transition... (Participant 10).

6.3 Promoting an eco-centric discourse

As explored in Chapter Five, participant accounts indicated problems with the discourse regarding human-nature relations which further entrench the disconnect between people and nature. The following sub-sections explore the means, as indicated by participant accounts, by which a discourse more responsive to human ecological reality could be achieved.

6.3.1 Renewal of stories, myths and beliefs concerning human-nature relations

Norms of behaviour and cultural priorities were seen as arising out of a substratum of cultural memes - beliefs, stories and myths. As noted in Chapter Five, current cultural memes were seen as founded on a dangerous misreading of the human place within the biosphere, such as anthropocentric and hubristic notions of humans as separate from and superior to the natural world (section 5.3.2). Such a discourse indicated a failure of the dominant cultural worldview/story to account for human ecological embeddedness, a lack of recognition of what one participant termed ‘the story’ (Participant 2). What was perceived as urgently required to inform cultural priorities was the development and promotion of a renewal of stories about the interconnectedness of all life on Earth, and the human place within it. This renewal would take account of the wealth of scientific information which has arisen over the last few centuries. The following quotes illustrate this understanding:

[There are two levels in society] one is the functional aspect of how you conserve anything, and in our society that needs laws and whatever else, but there's also a belief base that that functioning system comes out of. And...I think that the Judeo Christians foundations and even Anglo Saxon foundations
of it are probably not going to serve us well, and we need a much more global, holistic Gaian belief system which will slowly seep in hopefully and change things...Does that make sense? So there's two levels for us, we all have ideals and beliefs that motivate our shaping of society and our legal system (Participant 9).

... the question...I’m concerned with at the moment...is not so much how we might change the economic system or the transport system, because I think that will follow naturally, it is how to get this change in understanding in the dominant culture. That is the most crucial how question, how to get this story [i.e. the story of life on Earth] understood and shared by everybody... (Participant 2).

The central story of life on Earth including human inextricability with the natural world is one which science has, in the view of participants, already made abundantly clear, and to which writers and artists have been alluding for centuries. It was named in various ways by participants, for example the ‘bio-history’, ‘bio-story’ or ‘bio-narrative [which] include[s] human capacity for culture’ (Participant 2) and the ‘story of interbeing’ (Participant 14). This story was seen as needing deliberate renewal and promotion throughout the culture to counter the current human-centred focus, including self-serving misinformation spread by those with vested interests. This new story has the potential to spread, according to one participant, throughout the population ‘like a virus’, as religious ideas spread in the past (Participant 2). This is especially so given the potential of information technologies, as discussed above (section 6.2.3). It needs to be told in myriad different ways to reach all people, and was seen as a powerful basis for change (Participant 2, Participant 14), as the following quote illustrates:

...we hope there’s our new watershed...understanding the story...And when that happens, if it happens, then it leads to the bio-perspective, which means appreciation that it really matters, because it underpins our whole existence, the processes of life. So the health of those processes of life really matter in
terms of our health and well-being, and so that [leads to] a difference in values or priorities...So that is logical...it is real and the vast majority of people don't know that story... (Participant 2).

6.3.2 Renewal of the discourse/language concerning human-nature relations

This study provides evidence that an eco-centric transitioning will require renewal of the discourse about human-nature relations. Analysis of participant commentary suggests that current usage was perceived as inadequate to reflect ecological reality, for example, in such disclaimers as ‘sustainability, for want of a better word’ (section 5.3.4). Concern was also expressed about the objectifying language which positions nature in terms of ‘ecosystem services’ or ‘natural resources’ for exclusively human benefit. In particular, difficulty in speaking publicly, especially feelingly, to one’s sense of connection with the natural world suggested a kind of cultural taboo; for example, the participant subjected to ridicule for his parliamentary speech referring to the human place in the cosmos. Speaking initially, in the interviews themselves, of a sense of inextricability with the natural world was also noted by a number of participants as not easy to do. These data suggesting a common difficulty in finding words to adequately express concepts of central importance to all participants indicate significant gaps in the discourse concerning human-nature relations. The cultural unwillingness to even hear these ideas, such as experienced in the ridicule noted above (section 6.2.3), is also suggestive of a powerful taboo at work.

The implication here is that, at this time of poor and deteriorating human-nature relations, such gaps and taboos require urgent attention in order to renew the fundamental concept of human-nature inextricability within common discourse. Indigenous participants to this study, in particular, openly expressed a deeply emotional and participatory sense of connection with nature. For them the natural world was alive with meaning and subjectivity (section 4.2.3). Participant accounts, in deferring frequently to the perceived Indigenous cultural norm of recognition of human-nature inextricability (e.g. section 4.2.3), suggests attention to this
understanding may prove beneficial in the development of eco-centric language for the future.

6.3.3 Promotion of collective eco-literacy

The need to promote ‘eco-literacy’ throughout the population was mentioned by several participants. An eco-literate population, in the context of these data, is one which recognises and responds to the inextricable links between people and their environment and is founded on actual relationship. The promotion of eco-literacy can be seen as central to the eco-centric work of participants, and the underlying objective of much of their interview commentary as explored throughout this study. The following is an example of the need for greater eco-literacy, especially in the cultural technological context:

I think a lot of young people get very connected with social media and devices and technology, and I think that stops them going out and interacting...you’re not connected with your senses. And so much of connecting to the natural world is... about being in touch with your senses...Fritjof Capra talks about eco-literacy, and...what are ways in which we can be aware of our connection with the natural world? Well, part of it is ...developing eco-literacy, developing awareness of that connection and having the language to connect...(Participant 5).

Once again, Indigenous experience was perceived as highly eco-literate. The following participant, having spoken of her own intimate understanding of the bush, observed:

I go into the bush...[and] I have stories and relationships with a huge array of non-human, more-than-human life, and so many people just don’t have that, they’re just absolutely ecologically illiterate. And my literacy is higher, still like probably one hundredth of any Indigenous person, or one thousandth, and I know a lot (Participant 14).
Eco-literacy as emergent in this project is founded on actual relationship with nature in a cultural context of recognition, understanding and story-making concerning human ecological relations. It includes, as Participant 5 suggests, having the language to speak of these relations. Eco-literacy can be functionalised through an eco-centric education, and through the public promotion of eco-centric ideas and stories. Activating the media to promote eco-centric literacy was perceived as necessary, for example as responsive to eco-centric role models and leadership initiatives and campaigns, as will be discussed below (section 6.5.2).

6.4 Promoting holistic approaches which impact human-nature relations

As was noted in Chapter Five, participants expressed significant concern about widespread reductive attitudes to complex issues, especially those impacting on the natural world and consequently on human health and well-being. Reductive approaches as emergent in these research data include dualistic thinking, silo thinking, dismissiveness and ‘othering’ of differing perspectives and those who hold them, and ‘short-termism’ (section 5.3.4). Such approaches were seen as unhelpful in seeking to understand and resolve complex issues. On the other hand, participants were observed to hold attitudes indicating open-mindedness, curiosity and inclusiveness. These approaches have been termed holistic. A holistic approach (section 4.5) comprises an inclusive ethics, interest in other cultural perspectives, a wide view of time, and recognition of a subsuming transpersonal and/or spiritual field. This field was spoken of in terms of systems when considering action for transitioning culture. Optimism and an embodied attentiveness to the presence and agency of the world around them were also features of participant holistic approaches to change. An observation was made regarding the ‘capacity within us to open to more and more layers of the world’ (Participant 14). It can be argued from participant commentary that activating such capacity was seen as essential to positive resolution of complex issues, especially regarding human-nature relations.
6.4.1 Ethics

Participants’ eco-centric understanding was intrinsically ethical (section 4.5.1). A pro-social/social justice perspective was understood as fundamental to cultural transitioning towards an ecological paradigm. Participants believed that a flourishing natural world into the future will be attained only with a more equitable distribution of the world’s natural resources within and between societies. In addition, participants felt that beyond a narrow definition of human interest, respect for and a cherishing of such ‘resources’ – for example, through recognition of the widespread Indigenous understanding of reciprocity – will be a critical component of a flourishing eco-centric human future. This may be summed up in the notion that ‘...to have a rich human future we need a rich physical environment’ (Participant 1).

6.4.2 Systems thinking

As noted in Chapter Four, participants spoke in terms suggestive of a metaphysical or transpersonal context to their experiences of and attitudes to the natural world (section 4.5.5). However, when talking of possibilities for activating eco-centric change, participants frequently addressed ideas related to systems thinking. Systems thinking in the context of this study can be seen as addressing prevalent reductive thinking, such as silo thinking, which was observed as disabling a necessary flow of ideas across professions and disciplines (section 5.3.4). Systems were seen as a basic dynamic of reality, such as the socio-ecological system; they were seen as complex, interconnected, and, rather than understood using old notions of cause and effect, subject to infinitely complex feedback loops. When thinking about how eco-centric change may occur, participants observed that it could arise from a seemingly small event, action or idea originating anywhere within the system - any level of society, any person, any place. The following quotes illustrate this understanding:

...[change] could emerge out of any point of any system...anywhere [even] in a *fragmented* system, I mean, if you really believe everything’s connected to everything else, then of course you can do it from anywhere in the system (Participant 4).
...they call it the butterfly hypothesis...this chaos theory thing. You should put into that system, complex as it is, a meaningful new idea, it might spread in the system, and it would have ramifications through the whole system to the advantage of humans, and so on. [Human ecology] is a very complex system...[however] let’s not concentrate too much about complexity, let’s put in something which isn’t there now, and that’s understanding the story of life, which is a story which has meaning for us all, a real story. Throw that into the system, and make sure it spreads in the system, the hypothesis is that...there will be ripples and the whole system will modify as a result...our hypothesis is that it will spread like a virus within the system...(Participant 2).

Participant understanding of systems and systems change appeared to motivate action and a sense of their own agency in a situation of mounting ecological crisis which ‘logic’ suggested to most would likely have calamitous outcomes. That is, it provided a rationale for some optimism or hope (as discussed further at section 6.4.4 below). This understanding also appears to be behind their belief in all eco-centric action at this time as potentially hugely significant.

6.4.3 Dialogue

Participants found the ways commonly used to discuss complex issues- such as those concerning the environment- to be often reductive and inherently unfavourable to eco-centric outcomes (section 5.3.4). These included dualistic (either/or), and polarised, often politicised, discussion (e.g. ‘us and them’ positions). Participants recognised eco-centric outcomes as reliant on more inclusive, open-minded approaches, and the concept of dialogue was raised as a way of including ideas rather than foreclosing on them prematurely. For example, in the discussion of contentious issues, a participant advised:
...changing...oppositions into relationships...simply...replace ‘but’ by ‘and’ and...‘or’ by ‘both’, what it does, just try it...You simply can't go on thinking the same way (Participant 4).

And, rather than contributing to polarised debate from any position (including the eco-centric), or disengaging from those with whom one differs, participants reflected on the necessity for willingness to reach out and respectfully engage with those with divergent views. The following quotes illustrate the value participants placed on dialogue:

[I would talk with] anybody in the world, I don’t care, I'll take any job anywhere with anybody, Hitler if he asked me...Everyone is capable of thinking more broadly, and indeed enjoys it when they do it. Everyone is stuck in polarised frames, doesn’t matter what they’re doing. [What is needed is] dialogue...Turning any communication into dialogue (Participant 4).

I'm an environmentalist but I'm never going to lie down in front of a bulldozer, but I will try to talk to the bulldozer driver, I'll try to change his mind...if people start refusing to drive bulldozers, the world changes...each of us has got this huge responsibility for the Earth...[people need to talk] not in a violent, confrontational way...[And] if someone doesn’t believe you, bad luck, speak to their daughter, if she doesn’t understand or doesn’t respond, speak to her child, and I've found that that works (Participant 7).

6.4.4 Optimism

Participants found many sources of optimism (or hope, the terms often used seemingly interchangeably) in eco-centric changes already underway, such as the

25 It can be argued that a number of participants’ perceptions of the growing need for ‘peaceful, non-violent civil disobedience’ (Participant 3), which will be discussed further below (section 6.5.3), arose in response to the breakdown of other forms of dialogue.
significant uptake of renewable energy. However, optimism appears to have been a deliberate choice for many in the face of the otherwise overwhelmingly negative facts of current poor human-nature relations (section 4.5.4). Optimism may also be seen as a reflection of participant views on the interconnectedness of reality, signifying that an eco-centric change may originate from anywhere in the ‘system’, as discussed above (section 6.4.2). Optimism was perceived as a powerful tool for personal action, as well as a force for energising others to promote change:

I’m talking about optimism rather than pessimism, because optimism gets you going whereas pessimism knocks you out (Participant 16).

The implication is that an intentional attitude of optimism is likely to be supportive of eco-centric transitioning. Such an attitude is not founded on a false optimism that things are fine as they are, or will improve without widespread and profound change. Rather, it empowers people with a sense of personal agency to take positive eco-centric action, even within the constraints of a challenging situation.

6.4.5 Wide view of time

The idea of being open to a wider vista of time, such as Indigenous communities were understood as sharing, was strongly suggested by participants as necessary in supporting transition towards an eco-centric worldview (section 4.5.3). Such a view situates the current political/cultural moment within a wider context, making available the insights of previous generations and the needs and imagined desires of future generations. Where short-term thinking was seen as favouring the status quo, a wide view of time makes available other intelligence and other imperatives. The following quote illustrates this:

[We need to] start thinking in politics, let’s say this bill, how will impact seven generations from now? And what can I gain in knowledge from seven generations back to help guide me to a proper reasoning and feeling of this bill, whether it’s good or bad...We hear a lot of talk about, oh, I want my
grandchildren to have a clean world, but do we really understand, do we hold that as a present feeling of...actually holding your great, great, great grandchildren in your heart, actually feel their presence when you decide to vote on something?...So...it behoves us to try to widen out...a sense of time, [and recognise] that the present moment is really, really wide, or bigger than we even think possible (Participant 15).

6.4.6 Opening to other, especially Indigenous, cultural worldviews

Although caution was expressed about either romanticising or appropriating other cultural ideas, especially those of Indigenous peoples, openness to other cultural paradigms was seen as offering insight into other ways of envisioning human-nature relations and thinking about the future (section 4.5.2). Participants explicitly expressed concern at a prevalent foreclosing on the perspectives offered by other cultures (section 5.3.4). In addition to interest in and respect for other cultural perspectives evident throughout interviews as a whole, particularly Australian Aboriginal perspectives, a number of examples of the potential inherent in openness to other perspectives were provided, for example, those affecting the education of children (section 6.2.2) and land management. A participant who spent many years with Aboriginal people spoke of the value of:

...bringing Aboriginal natural resource management and conservation outcomes together. [Such as] early dry-season savannah burning on [land] because I see that as a way of producing really significant greenhouse benefits, biodiversity benefits [as well as] economic benefits to traditional owners (Participant 13).

Indigenous participants in particular recognised themselves co-participant in an inclusively ‘alive’ world of inherent value and meaning (section 4.2.3). Such an understanding was considered in spiritual and practical terms, the one not excluding the other. It can be argued that this view of and responsiveness to human-nature
inextricability is likely to be highly valuable in seeking insight into improved human-nature relations at this time.

6.4.7 Opening to the agency and contribution of the natural world

Another approach, emergent from interviews, to supporting more holistic engagement on issues affecting the natural world was opening to the contribution of the natural world itself. As noted, many participants, especially those with an Indigenous perspective, shared recognition of the subjectivity and agency of the natural world, and of themselves therefore as participatory in a more-than-human world (section 4.2.3). Unlike the perceived prevailing understanding of the natural world and its elements as mere resources, objectified and reduced for human use (Chapter Five), an embodied attentiveness to the world around one was understood as potentially making available fresh information and insight. For example, the ‘barefoot networking’ process described earlier (section 4.2.3). In this process - perhaps an activating of the seven-year-old self - nature was understood not simply as providing a passive context for decision-making, but as important to finding solutions (Participant 3).

A participant spoke directly to her sense that making the effort to open one’s awareness widely to the surrounding environment invited creative insights beyond what may be (reductively) named or even consciously understood. Calling on her understanding of Indigenous culture, she reflected on:

...the process that nature itself is taking us on...if you think from an Indigenous point of view, you think of the dreaming and the background as a kind of spirit that wants to unfold, and if we’re able to actually catch the spirit in the background of the community or the organisation through those moments of connection...when actually you find yourself shifting into another space, you can draw on that dreaming spirit and come back revived with more innate direction and creativity to do the things that you want to do (Participant 18).
Participants recognised relations with a natural world of inherent value; for many, necessary eco-centric changes were likely to originate from anywhere within an interrelated planetary field, and for a number of participants, the possibility of the initiative for such changes arising from embodied engagement with and openness to the natural world itself was clear and significant.

6.5 Challenging those vested in the business-as-usual status quo

Participants believed the cultural status quo - with its disconnect from the natural world - was largely maintained by those with vested interests. The status quo was seen as aligned with complicit governments and the consumerist habits of the population (section 5.3.5). Participants were concerned about the inability of political leaders to be proactive against dominating ideas of economic rationalism. Government was also seen as prepared to act against citizens speaking out in concern for ecological damage through the development of legislation limiting protest. The co-option by the status quo of more ecological ideas now circulating – e.g. ‘greenwashing’ – was seen as troublesome. A matter for particular alarm was the induction of children into the anti-ecological consumerist paradigm (section 5.3.5).

A further approach to the radical cultural changes participant accounts suggest was needed was therefore challenging the power of the status quo itself. Participants themselves were clearly motivated to engage in eco-centric action challenging of the status quo (section 4.4). There were three main ways this challenge could be effected: through widespread promotion of more frugal eco-centric lifestyles – an implicit challenge to those with corporate interests vested in the habits of consumerist populations; through leadership to confront the powerful vested interests more directly; and, when other means have failed, engaging in civil disobedience. These ideas are now examined.

6.5.1 Promotion of eco-centric lifestyles

Participants critiqued consumer lifestyles for their disastrous effects on the more-than-human world (section 5.3.5). The materialist values encouraged by vested
interests and to which populations have become habituated - notably values of selfishness, individualism, irresponsibility and insatiability - were also seen as associated with much unhappiness and discontent through the unappeasable questing for happiness from material possessions and conspicuous consumption. The consumer lifestyle was widely observed to have fundamentally failed in facilitating the health and well-being of people and planet, now and into the future. This suggested the positive possibility of an opening within cultural consciousness for change as it:

... [raises] the tantalising possibility that we could respond to the problems and actually increase our quality of life... [at] a small fraction of the impact that the existing ways have. ...it would be very hard to imagine humanity giving up the fulfilling way of life or changing their ways fundamentally if there wasn’t some vision of a better alternative. And I have complete confidence that there is a better alternative that is a small fraction of the impact that the existing ways have... (Participant 17).

What was seen as widely needed was promotion of more frugal lifestyles attentive to a rich appreciation of the natural and socio-cultural world. The following quote is indicative of a way of life participant accounts suggest required promotion throughout the community:

...this notion of simple living and voluntary simplicity - this idea that for humans material needs are far more modest than we often think. And if we think through our essential basic needs we can find that they are easily acquired, directly acquired often, and that once we have acquired those basic needs we should not forever pursue material stuff, and we could seek the good life and non-materialistic sources of well-being (Participant 17).

That such an orientation is implicitly challenging to consumer culture was noted:
...civil disobedience can be doing anything from going to a rally and letting people [concerned about the environment] know, or writing to your politician... [or] it can be just not participating in the rampant consumerism of our world, or at least modifying that. So don’t have an enormous house that you don’t need, buy local food, you know, there are things that you don’t have to participate in, and it is... disobedient because our whole world revolves around conforming. So just don’t do stuff (Participant 8).

Role models were noted by participants for their influence in often inducting – or seducing – citizens as consumers, especially young people, within the mainstream materialist paradigm (section 5.3.5). A powerful role-model alternative was envisaged in people admired and respected within the community speaking up on behalf of, and actively modelling, eco-centric lifestyles. The following quote illustrates this idea:

I think it helps when respected people are talking about these issues publicly...[people] in positions of influence, so teachers or health professionals...it just becomes a day-to-day thing that if it's just talked about in a regular kind of way in an everyday setting, then it normalises those ideas and concepts for people....It’s like any sort of social change isn’t it, it’s a matter of normalising it...it’s sort of about that tipping point, isn’t it, and having enough people doing that. But in the beginning what you need is highly visible people doing it and I think that’s already happening but we need perhaps more people doing it (Participant 3).

6.5.2 Leadership

Although participants recognised the potential for change to arise from anywhere as everything is interconnected (section 6.4.2), the profound eco-centric shift perceived as necessary was seen as most likely arising from the direction of, in simple terms, the people as distinct from government. As noted, participants spoke strongly throughout interviews of perceived co-option of government by vested interests and
observed that governments change when the people themselves demand it of them (section 5.3.5). There was much emphasis therefore on the need for cultural leadership to influence people generally and encourage them to action. The significance participants as a group gave the idea of leadership can be extrapolated from the commitment of their own lives to promote eco-centric action. The following quotes are indicative of this pervasive understanding of the need to raise eco-centric awareness through formal, and more informal, leadership:

...my eye is very much...focused on leadership...because there are quite a few people want to do something but there's very few leaders to look to, and so that’s something that I’m prepared to be no matter what the cost...You know politics is only made possible by the will of the people, and I think that what we’ve done is we have completely given [governments] too much power and too much authority and too much control and what we've forgot is what it means to have will of the people. And the will of the people can respond incredibly well... [if] fighting for something bigger than themselves (Participant 10).

...my view, after having thought about this a lot...it comes back to that question of strategy, is to say, well if we’re going to change the world, or try to send ripples out [to] leverage change, where should we direct our energies? And I think at this stage in the game, late though it is, it’s better to talk to your neighbours, talk to your community, work at the grass roots level and then hope that as more people do that it filters upwards...to go from where we are today to try to put pressure on the governments (Participant 17).

The potential for change to arise from any part of an interconnected system was also noted by participants; top-down, bottom-up, middle-out approaches were all needed and it was therefore perceived as possible for leadership to arise anywhere (section 6.4.2). As noted, participants saw a role for public health as the cultural agent with particular responsibility for the long-term health of the population. This was seen as
‘inextricably linked’ (Participant 8) to the long-term flourishing of the natural world. A robust critique of the field in failing to speak up more strongly in recognition of human-nature inextricability at this time implicitly suggests a role for public health to do so in future (section 5.3.4). Past instances where public health advocacy had been effective in changing culture were described as indicative of the cultural-change role the field had played in the past and could likely again. The initiative of John Snow in intervening in the cholera epidemic in England in the 1800s was provided as an example (Participant 2). Other instances of more recent public health advocacy were noted, such as VicHealth’s anti-bullying campaigns (Participant 14). Just as Landcare was seen as exemplary of the power of dialogue to find commonalities across divergent interests (Participant 4), VicHealth was highlighted for its cross-sectoral public health advocacy (Participant 3).

The need for leadership in fostering widespread eco-centric awareness, especially in those sectors currently making decisions, was evident in the following quote:

We need to be better at educating health professionals and teachers, educators, urban planners, politicians, people from all these different sectors about how important our nature is for us (Participant 3).

Participant 3’s unnamed ‘we’ was suggestive of all who are aware of the need for the engagement of influential people to activate cultural change. It can also be seen as indicative of the need for a more evident and robust leadership to support eco-centric transitioning.

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26 Landcare is a highly successful community-based voluntary movement supported by government funding that coordinates people from a wide range of interests, including farming and environmental, to take action on shared land management issues (DELWP 2016).

27 VicHealth is the world’s first health promotion foundation (VicHealth 2016). Its establishment in 1987 brought together a range of interests on an anti-tobacco/anti-smoking platform; since then it has worked across the community on issues ranging from gender equality, binge drinking and obesity (VicHealth 2016).
Public health advocacy challenging powerful tobacco interests was particularly noted as exemplary of healthful cultural change and recognised as a potential model for eco-centric cultural change. The following quote indicative of recognition of the public health role as cultural change agents was provided in the interview in a context of considering public health’s role in an eco-centric shift:

...you know how cigarette smoking has been turned around quite dramatically, the attitude towards cigarettes has changed dramatically in our culture, and some people say...that’s an example of a real cultural shift...yeah, that’s the famous public health example (Participant 14).

6.5.3 A role for civil disobedience

As discussed above (section 6.4.3), dialogue was understood by participants to be a powerful tool to support engaging with those with different views. However, a number of participants spoke of a willingness to consider civil disobedience in the face of perceived entrenched disconnected thinking about human-nature relations and the refusal by those with vested interests to enter into such dialogue. Peaceful, non-violent civil disobedience disruptive of, or ‘disobedient’ (Participant 8) to, cultural norms operative in human-nature relations, which participants believed to be wrong, was understood as reasonable and possibly requisite. Civil disobedience was acknowledged to have more significant consequences for those engaging in it at a time of governments seeking to enact punitive laws prohibiting general public protest about environmentally destructive development (section 5.3.5). The following quotes illustrate what may be understood as the rationale for considering such a step:

...bearing witness is this notion of drawing attention to a wrong by...your very presence there. [For example, the] freedom rides on a bus to stop violence against black Americans, you could see lots of examples. A group of old Quakers got together in the Hunter Valley I think last year and stopped the coal train by just getting on the rails with their banners, I mean that’s what
they did...because the more frustrated people feel and the more egregious the problem they’re confronting, the more willing they are to take direct action, and...the Quakers have had a long, proud history of that (Participant 13).

...I think, unfortunately, that we are so far away from where we need to be that it's almost too late for that incremental change from a climate perspective. And I think that perhaps to bring about that radical change that we need...we would need to have a level of civil disobedience on an enormous scale, with people who, you know, scientists and all sorts of people that you wouldn’t expect to be behaving in that way, to be doing that. I think we've started to see that with Maules Creek in NSW, and I think in the US it’s clearly happened with coal with people like James Hansen and his activities....that’s what I think may be needed, ‘cause it seems to me we have catastrophic events like bushfires and other things which are clearly evidence of climate change, and yet people seem to just forget about them. So either we need a whole lot of those, which is awful, or we need massive unrest and action from people...I can totally understand with people who...have tried and tried and tried doing it the right way and the nice way, and going to see their local parliamentarian, and writing letters, and writing submissions, and doing all those things over and over and over again and then, you know, I can see that you get completely exasperated and just want to do something, a bit more action. I don’t think I would do anything to actually harm anybody of course, but I’m talking about a peaceful protest. What’s happening is not peaceful to [the planet] from the other way (Participant 3).

6.6  Humanity at a crossroads

The findings from this study indicate a strong awareness amongst a cohort of culturally influential eco-centric individuals of humanity being at a crossroads in its relations with the natural world. The choice was between continuing along the current trajectory of ever-widening separation between humans and nature, or pausing before the seemingly irrefutable evidence of the consequences of this
collective paradigm to consider other options. This was understood as an awakening to a sense of human-nature inextricability and the alternative eco-centric future which may be envisioned. A common term used by participants to signify the required waking up to ecological realities was the need for a further evolutionary step. The evolution required was not biological, but rather an evolution in consciousness. The following quote exemplifies this understanding: ‘I think the only hope is… the possibility of a… transition in cultural evolution’ (Participant 2).

It was noted that a cultural shift of the dimensions required to realign humans environmentally has never been done before and will not be easy:

... no species has ever done anything like this before, so we can't look back on history or pre-history for any guidance really, we have to work this out for ourselves (Participant 9)

In a similar vein, several participants spoke in terms suggesting that the Enlightenment of the 18th century was incomplete. For example:

... the so-called Enlightenment... was partial because it was associated with the idea which began with urbanisation... that nature’s out there to be conquered (Participant 2).

The ‘deliberative’ evolution envisaged can be seen as a furthering of the human enlightenment project:

We're very fortunate that we can make that transition deliberatively rather than just through evolutionary experience and evolutionary shaping. So we have a very coherent global culture now, and an increasingly coherent national culture. And it's easier for us to think our way through things rather than adapt in a more evolutionary way (Participant 9).
However, many participants expressed concern whether eco-centric changes underway would gather momentum sufficiently to prevent the worst of the predicted biospheric and consequent social effects:

...there is hope...the global situation is changing, but we’re at risk of course of not getting to safety in time, and being overwhelmed (Participant 1).
Will we use our collective intelligence and our hearts to alter our direction pre-catastrophe? (Participant 16)

This sense of humanity at a cross-roads is illustrated by the following participant quote:

I think there are some bigger movements happening around the place where people understand they’re getting sick from sitting in front of a computer for 16 hours a day, and is that really the way I want to live my life; the answer’s probably no, that’s not really worth it, that’s not what it means to be human. And I think that until we actually go back and ask that question again, what does it mean right now to be human, what is our human ability, what is our human worth, what do we value and what do we value together, those are the courageous conversations of the next ten years that need to happen (Participant 10).

6.7 Chapter discussion
This chapter has described the emergence of a substantive theory for change in the form of the four theoretical propositions for transitioning towards an ecological paradigm: 1. re-awakening a sense of connection with the natural world; 2. developing eco-centric discourse; 3. fostering holistic approaches (reasoning/behaviour) to complex issues impacting the environment; and, 4. challenging those vested in the business-as-usual status quo.

The nature of this research into a complex cultural phenomenon means that themes are inevitably multidimensional and interwoven. For example, the power of the status quo derives to a significant extent from cultural ways of thinking and talking
(the discourse) about the natural world; there is no real separation. Themes draw out the distinct emphases of the cultural forces at play as evident in the dataset, enabling a sequential presentation intended to build a picture for the reader. Elucidating the particular themes was not intended to be reductive - this would be contrary to the nature of the enquiry - but a way of untangling participant ideas for consideration in response to the study’s aims.

The findings indicate that it is necessary to awaken attentiveness to the need for urgent mitigating action to forestall as many of the preventable outcomes of anthropogenic environmental destruction as possible, a perspective that finds support in the literature (Flannery 2010; IPCC 2013; Tait, McMichael & Hanna 2014). Participant recognition of the structural ‘inertias’ and ‘lags’ already embedded in the planetary system and leading to an ever-diminished biosphere underline this urgency (section 5.3.6). However, also crucial for long-term planetary flourishing is transitioning the human-nature paradigm fundamentally from one of usage, domination and carelessness towards an ecological paradigm founded on a realistic awareness of the place of humanity within the biosphere. The four theoretical propositions are not discrete in suggesting directions towards an ecological paradigm, but rather, complex, mutually reinforcing and holistic.

The findings suggests that the fragile, complex web of meaning associated with the idea of the ‘natural world’ is increasingly endangered in contemporary culture, an indication of human-nature relations in distress. As Participant 9 noted, ‘everything’s nature’, from the plastics surrounding us to the microbes in our bodies, suggestive of a further potential shift in the long history of the meaning of the word ‘nature’ (Williams 1983). Participant reflections on humanity at a crossroads at this time in its relations with the natural world are echoed in a growing literature. Historian Harari (2011), for example, suggests that humanity is poised on the brink of a technological transition that will increasingly subsume the human into the artificial - e.g. intelligence - and the virtual. The likely direction, in his view, will be dictated by ‘unstoppable’ science. In the closing section of his book, ‘Sapiens: A brief history of
mankind’, Harari (2011) challenges the reader to ask themselves, ‘What do we want to become?’

The following chapter examines the four theoretical propositions emergent from these findings in relation to the study aims, including the role for public health, and in the context of detailed discussion of the literature.
Chapter Seven: Discussion - Catalysing change and the role for public health

7.1 Introduction
Chapters Four, Five and Six presented thematic findings from interviews with participants, culminating in Chapter Six’s presentation of four propositions for cultural change. These propositions relate to the first aim of the study: to explore the facilitators of and barriers to greater socio-cultural transitioning towards an ecological paradigm. In the first part of this chapter (section 7.2), findings are considered in the context of existing literature. The second part of this chapter (section 7.3) relates to the second aim of the study: to consider the implications of findings, especially for the field of public health. Specifically, section 7.3 considers the pro-ecological role for public health, as elucidated in the literature review (section 2.8), in the light of the four propositions for change. The actual mechanisms for implementation of these propositions were not a primary feature of this research which is focused on wide-ranging eco-centric cultural change. (However, ideas related to implementation are given some consideration in Chapter 8). The chapter concludes with a brief discussion.

7.2 Aim 1: Cultural transitioning towards an ecological paradigm
The first aim of this study was to explore the facilitators of and barriers to socio-cultural transitioning towards an ecological paradigm. The findings of the three previous chapters suggested four interrelated theoretical propositions for transitioning towards an ecological paradigm: 1. re-awakening a sense of connection with the natural world; 2. developing eco-centric discourse; 3. fostering holistic approaches (reasoning/behaviour) to complex issues impacting the environment; and, 4. challenging those vested in the business-as-usual status quo.

The inherent interrelatedness of cultural phenomena, particularly as it relates to eco-centric cultural change, is corroborated by the literature. The dynamic between the cultural dimensions evident in this study finds resonance in Macy and Brown’s (1998, p.17), three ‘mutually reinforcing’ dimensions which they perceive lie at the heart of
the required eco-centric transitioning. These are: 1. actions to slow the damage to Earth and its beings; 2. analysis of structural causes and creation of structural alternatives; and 3. a fundamental shift in worldview and values. This study’s findings suggest, for example, that underlying the multi-level structures of society are the beliefs, attitudes, norms and values embedded in worldviews. According to participant accounts, collective eco-centric behavioural change – such as in relation to fossil fuel usage or urban transport alternatives – is likely dependent upon changes in understanding and perspective related to underlying worldview. However, this study suggests, for example, a generational eco-centric change in worldview will likely be based to a significant extent on contact with nature, which requires the implementation of a green urban policy in the immediate future (section 7.2.1).

This research likewise supports Plumwood’s contention that there are features of human-nature relations that lie at the heart of the ecological crisis as they ‘work together and reinforce one another’ (2002, p.237). Addressing the ecological crisis requires addressing the roots of ecological irrationality in ‘ignorance, interest and illusion’ (Plumwood, 2002, p.237). As demonstrated in this study, ignorance implies inadequate knowledge of human ecological reality, interest implies poor political structures bending always in favour of ecologically disconnected and socially destructive interests, and illusion implies ‘badly adapted and human-centred ethical, philosophical or spiritual worldviews’ (Plumwood, 2002, p.237).

The four theoretical propositions arising from this research are mutually reinforcing in addressing the requirements for eco-centric change envisaged by cultural theorists. As Macy and Brown (1998) observe in relation to their three critical cultural dimensions, their mutual reinforcement results in them being embedded in the very ‘structure of our thought systems’; processes to address them must also therefore reinforce one another. These interrelated propositions are now discussed in the context of the literature.
Section 6.2.1 indicated that a critical facet to fostering ecological cultural change was promoting early childhood immersion in and appreciation of the natural environment. Participants had all experienced immersive time in the natural world as children; this was seen as central to their sense of being ‘a part of nature’ (Participant 9). Such immersion was especially supported through nearby natural environments, and permission to access them. These findings align with literature indicating that childhood experience affects the identity and worldviews of individuals (Kasser, Koestner & Lekes, 2002; Gold, 2002; Zohreh 2013). It is through everyday encounters and experiences that individuals, learning throughout childhood, reinforce language and cultural values in adulthood, thereby sustaining and reproducing culture (Hanlon et al. 2012, p.63).

Research into human-nature relations confirms that a sense of connection with nature arising through actual experience and relationship is associated with environmental concern and pro-environmental action (Louv 2008; Townsend & Weerasuriya 2011; Perkins 2010). Research also indicates that such connections are more easily formed in childhood (Burke 1996; Guiney & Oberhauser 2009; Kals, Schumaker & Montada 1999; Louv 2008).

Plumwood points to the importance of experience, context and relationship in her argument that ethical eco-centric action valuing the more-than-human sphere arises from actual relationships in the natural world. The more ecologically embedded such relationships, such as through proximity to the natural world and other creatures, the more likely a practical interspecies – ‘dialogic’ - ethics may develop (2002, p.186). Psychologist Melson’s (2005) research on children’s relationships with animals adds weight to Plumwood’s thesis, further suggesting the developmental potential of such relations. Melson examines the development of children beyond the ‘humanocentric’ to the ‘biocentric’. He notes that animals - pets, farm animals and wild creatures – contribute to attachments to others and hence in the formation of emotional bonds.
Experiences of sensory, non-verbal communication, of nurturing a dependent being, as well as the cognitive fascination of interacting with animals support cognitive and social, including moral and ethical, development.

The idea that context is central to the children’s development (Bowes & Hayes 1999) aligns with research indicating that connection with nature translates, for many people, as love of place; people are likely to become roused to environmental action when their particular beloved places are threatened (Anderson 2004). Sampson (2016), author of ‘How to Raise a Wild Child’, echoes this view in arguing that fostering a love of particular, local places, especially in early childhood, is essential to restoring a flourishing planet. Louv’s (2008) analysis of research into environmentalists’ formative experience confirms these ideas, suggesting that almost all had immersive experiences of the natural world as children which led to some kind of transcendent experience, promoting deep and lasting care. That such immersion in the natural world is supportive of the creation of strong bonds of reciprocity with nature aligns with Plumwood’s argument and is explored in a number of studies (Hinds & Sparks 2010; Moran, 2006). The concern of such writers and researchers is not only for the health and well-being of future generations of children, but for the circumstances supportive of the next generation of committed eco-centric people.

Wilson’s (1993) biophilia hypothesis argues that, despite ever-increasing urbanisation, affinities inherent within humans for ‘developmental and evolutionary creative kinship’ with the natural world have not been eradicated. The learning and meaning-making of children will be supported by providing opportunity for this affinity to take root and thrive. The decline, however, of opportunities for children to encounter animals and healthy natural environments is decried in much literature (Gill 2007, 2008; Kahn & Kellert 2002; Nabhan & Trimble 1994). As described in Chapter Five, the increasing ‘extinction of experience’ (Simaika & Samways 2010) within nature was perceived as linked with loss of accessible natural environments and a risk-averse culture. The literature confirms environmental deprivation is associated with environmental degradation, with individuals failing to care for that
which is unfamiliar to them; this has important health and well-being effects, as well as effects on behaviour affecting the environment (Townsend & Ebden 2009).

Further, the ‘extinction of experience phenomenon’ is now increasingly associated with various feedback loops or cycles operative in human-nature relations (Nabhan & Trimble 1994). Orr (2001, p.291) observes that children’s view of nature is increasingly distant, abstract and utilitarian. Kahn (2002) points to ‘environmental generational amnesia’, a problem both urgent and unrecognised. The environment experienced in childhood is taken as the norm against which further environmental degradation may be measured, suggesting incremental slippage of awareness over the generations (Kahn 2002). Ever-increasing environmental impoverishment leads to ever less concern. Such cycles impact the environment, as well as lead to losses in childhood experience and development; an accumulating loss to humankind facing an uncertain future (Louv 2008).

This research suggests that the range of understanding of human-nature inextricability, explored in Chapter Four, from the scientific and pragmatic through to the feeling, embodied and participatory, is associated with childhood circumstances offering opportunity and support for connection with the natural world. A sense of being ‘a part of nature’ signified by this range was linked to well-being and to committed eco-centric action, associations confirmed by the literature (Levin & Unsworth 2013; Mayer & Frantz 2004). It can be argued that activating more widely recognition of humanity’s inextricability with the environment across the range indicated by participants is essential for a more creative and sustainable culture into the future.

The ‘necessary conditions’ (Townsend 1998) for fostering multi-faceted, enriching and ecologically beneficial understanding are now considered. Fostering children’s experience in the natural world appears to be largely dependent on addressing issues of access and permission.
The research literature supports the notion that contact with nature, such as activities in natural spaces in cities such as parklands and reserves, and through gardening including food gardening, has multiple beneficial health and well-being effects for children and adults (Townsend et al. 2015). Gill’s (2007, 2008) UK research on child well-being supports the need for ‘space-oriented’ urban design policies which enable easy access to welcoming, accessible parks and public spaces, including more permeable boundaries around institutions such as schools.

More broadly, the literature suggests widespread benefits of urban design incorporating access to nature. Recent work on ‘biophilic cities’ is based on what may seem to some contradictory notions, namely, that the future of humanity is inevitably urban, and that, following EO Wilson, humans have an innate need for contact with nature to be happy, healthy and productive (Beatley 2011) [author’s emphasis]. For sustainable urban researcher Beatley (2010), sustainability must include biophilia; transformation of cities and neighbourhoods to protect and restore biodiverse natural environments is not optional but requisite.

An urban focus is essential and inevitable in considering eco-centric change as cities are both the dominant human habitat and the nexus for most economic activity (Macmillan & Woodward 2008). The work of others confirms the value of eco-centric urban planning. Friel et al. (2011) observe that it helps shape inclusive, healthy cities and others call attention to the ‘co-benefits’ of eco-centric urban design (McMichael 2013; Thomas & Capon 2011) such as lowering energy use and offsetting urban heat islands whilst providing opportunities for physical activities with positive social and community cohesion impacts. Urban planning can structure environments to widely support the social determinants of health whilst designing for climate change mitigation and adaptation (Hanlon et al 2012; McMichael 2013).

Findings suggest a risk-averse culture impacting children and young people’s access to the natural world (section 5.3.4). UK child advocate and planning consultant Tim Gill’s (2007, 2008) work on the effects of a risk-averse society on child development and well-being confirms current levels of concern, especially in relation to child play in nature, as evidence of an overreaction. Gill argues that increasingly overprotective
adult watchfulness over the past thirty years has contributed to a stifling of childhood autonomy, freedom and development. For example, whilst eighty per cent of seven and eight year olds went to school on their own in 1971, by the 1990s this had dwindled to just nine per cent (2008, p.136). The perception of risk – justified or not – in a more fragmented society together with increasing loss of urban green spaces, are seen as significant contributors to this situation. Expressing concern similar to that of participants, Gill observes that experiential deficits in free play, especially in natural spaces, in taking responsibility and in making choices also amount, in his view to ‘risks’ to children’s mental and physical health, and ability to cope with life (2008, p.137).

On the other hand, Gill (2007, p.139) cites a UNICEF twenty-one country overview of child well-being which found that where children enjoy comparatively high levels of everyday freedom prior to adolescence, they had the highest levels of subjective well-being (for example the Netherlands and Scandinavia). They also had the best outcomes around behaviour and risks, and family and peer relationships. He argues that children need greater license for autonomous contact with local places and people such as previous generations experienced. His proposal for a space-oriented approach to children’s well-being includes strong support for community activities encouraging communal oversight and responsibility for children’s well-being in a context balancing the needs for protection with the need for freedom. Niehues et al.’s (2015) research on the influence of parental risk perception on children’s activities supports Gill’s valuing of autonomy and risk-taking within a context providing adult connectedness and guidance. They concur that risk and uncertainty are not only valuable but essential for children’s development of well-being, resilience and happiness.

As noted in Chapter Four, the benefits of direct contact with nature are apparent in the experiences of participants to this study. The literature supports the significant and irreplaceable benefits of access to nature (Townsend et al. 2015), including in developing resilience to cope with life in childhood (Maller 2009; Razani et al. 2015). Child development studies add weight to the importance during childhood of the
opportunity to directly experience nearby ordinary nature; children need to ‘be free to climb trees, muck about, catch things, and get wet – above all, to leave the trail’ (Pyle 2002, p.xvii). These considerations indicate a more realistic community understanding is needed of the risks and benefits of enabling children greater independence in exploring their world (Maller 2009).

Gill (2007 p.140) makes a strong case for a ‘radical shift’ in public policy to support children’s opportunity to access and experience some free play within the natural urban spaces as also supportive of environmental sustainability. Children playing in local green spaces will grow up ‘more mindful of their impact on the planet’.

Section 6.2.2 indicated that a critical facet to fostering an ecological cultural paradigm was an eco-centric education. Findings suggest an eco-centric education is a cultural induction, or mentoring process, into recognition of human ecological realities, including the possibility of a child developing their own relationship with nature. Such an eco-centric induction, a central feature of more ecologically embedded cultures, was serendipitously available to participants through relationship with nature-oriented adults. The need for an eco-centric education system finds much support in the literature (Kellert & Wilson 1993; Liefländer et al 2013; Louv 2008). Kellert and Wilson (1993) note the potential for a fascination for life, arguably innate, to be ignited early in life through simple education processes. For example, reflecting on the fascination of famous scientists with the simplest forms of life - Darwin’s lifelong interest in earthworms, von Frisch’s with bees, and Nobel Prize winner McClintock’s with corn - they ponder the ‘bioaffiliation’ potential for primary school children to choose a particular creature, such as an ‘ant, a bee, cricket, dragonfly...to study and report on repeatedly during his or her first six years of school’ (1993, p.11). Bioaffiliation is noted to have multiple benefits; benefits for learning, for expanding the sense of self, and for caring about the natural world. ‘As you work at these things they become part of you. And you forget about yourself’ (McClintock cited in Kellert and Wilson 1993).
For Bateson (1988, p.7), a balance is required in education between the ‘rigour’ of quantitative, scientific frames, and imagination as embodied in the arts. He suggests the need to foster, for education and cultural outcomes, ‘wider perspectives’ which balance these ways of thinking (1988, p.243) and focus on the ‘pattern which connects’. He argues that fostering multiple abilities, including aesthetic, empathetic and creative abilities, in recognition of the pattern connecting all living creatures is critical at a time of growing ecological threat to the survival of the biosphere (Bateson 1988, p.8). Theologian and environmentalist Berry (1990, p.92) echoes Bateson’s understanding. An eco-centric education situating humans inextricably within their ecology is seen as supporting the ‘activation of the possibilities of the planet’. An eco-centric education is fundamental for transiting towards an eco-centric culture.

Regarding adolescents’ relations with nature, Kahn and Kellert (2002) point to literature suggesting a hiatus at this phase, attributable perhaps to developmental drives such as those for autonomy and peer interaction for example in shopping malls (or more likely today, via social media). However, research also indicates much ongoing interest and appreciation for nature in this age group, suggesting that the issue may rather be a lack of opportunity (Kaplan & Kaplan 2002). High-school programs directed at the management and protection of land and wildlife are noted as successful in encouraging engagement and promoting an ecological identity. The opportunity to exercise agency and autonomy appears to be significant here (Kahn & Kellert 2002).

Traditional cultural mentors were responsible, the anthropological literature suggests, for inducting/initiating the young into cultural values (e.g. Yeh 2012). It is evident from this study that transmission of ecological values was largely dependent on the good fortune of having ecologically-aware mentors present when young, mostly as either relatives or teachers (section 4.3.2). Many participants spoke of such encounters, including with what I have termed ‘mentors found in books’, in terms of serendipity (sections 4.3.2, 4.5.5). In the absence today of a strong eco-centric culture, educators are arguably the likely agents for such culture-wide (as distinct from more family-oriented) ‘mentoring’ of the young. Policies are indicated here for
community-wide and intentional – as distinct from individual and chanced-upon – education processes offering the opportunity to direct young people into attentiveness of their inextricable relations with the natural world. Such ‘mentoring’ processes may be understood as supportive of cultural transitioning towards an eco-centric cultural worldview.

An eco-centric education founded on contact with nature has also extensive health and developmental benefits. Research into the benefits of contact with nature to enhance health and well-being has been noted. The case is made for redesigning schools incorporating nature-related features on the basis of this understanding (Sharma-Brymer & Bland 2016). Further, research indicates that young people gravitate to such areas in school grounds in preference to more structured and supervised areas, enhancing the likelihood of physical activity and associated health, well-being and resilience outcomes (Sharma-Brymer & Bland 2016). Redesigning schools in this way is seen as particularly necessary given widespread fears about risk and safety for young people engaging in outdoor activities (Sharma-Brymer & Bland 2016).

Eco-centric education practices are already underway in many countries. American Louv (2008), for example, notes examples of schools sited in ecologically-diverse, rather than only aesthetically pleasing, grounds. The opportunity for engagement, research, exploration and play in ecologically diverse areas has been shown to provide multiple cognitive and health, including mental health, benefits (Louv 2008).

In Australia, the current University of Technology Sydney (UTS) initiative in ‘indigenising curricula’ is intended to provide all students with some understanding of the eco-centric Indigenous worldview. This initiative is based on the recognition that Australian culture, far from originating in 1788 with the landing of the Europeans of the First Fleet, has its roots in the 50,000 year old Indigenous culture. Understanding of Indigenous culture is understood as needing to be ‘at the heart’ of Australian culture, and curricula at UTS now require all students to pass a unit in Indigenous Studies incorporating Indigenous culture (A2016).
Louv (2008, p.24) suggests that with accumulating scientific research into our fellow creatures, including the many similarities they share with humans - such as composition in whale song - a certain wonder is inspired, as evidenced in this study. However, many theorists and researchers agree that the accumulating losses of opportunity for actual connection with the natural world cannot be replaced by these ‘hyper-intellectualised perceptions’ (Louv 2008, p.23). Learning about nature ideally takes place within mentoring contexts valuing real, immersive, experience.

Section 6.2.3 indicated that fostering an ecological cultural paradigm required grappling with the positive and negative effects of information technologies, particularly for young people, and a willingness to promote discernment and limits. Whilst participants recognised that the use of such technologies was inevitable, and had, moreover, potential to enhance social and ecological connectedness, serious concern was expressed at their potential for increasing diminishment of contact with the real world, and the effects of this diminishment on social and ecological development.

The research literature confirms participant understanding that information technologies may be harnessed in support of pro-ecological understanding and endeavour, for example, the use made by cultural institutions such as museums, science and art institutions of online-mediated processes to direct attention towards the natural world. These applications arguably provide context for, and limits to, technological usage.

‘Citizen science’ is receiving much attention in Australia and internationally as a means of encouraging educational institutions and the community generally to observe, note and share information about nature with scientific and other bodies. It is receiving increasing support and attention from those interested in connecting people, especially young people to the natural world. Various information technologies, especially the internet and smart devices, enable dispersed, real-time science to be shared and analysed by experts (CSIRO 2013). The benefits are
reciprocal – with significant national conservation projects often benefiting from a wide span of observant, front-line citizen scientists. Citizens themselves learn about and connect with nature, and with other interested people. Louv (2011) sees significant potential in the recruitment of young people as citizen scientists to provide a powerful antidote to what he has termed nature deficit disorder. Citizen science encourages young people to connect with nature whether in cities or the countryside, and, through observation, to learn to care for it and thereby ‘serve the kinship of all species’. Australian citizen science projects which encouraged engagement of young people include NSW’s Great Koala Count and ACT’s Centenary Bioblitz (CSIRO 2013).

However, much of the literature echoes participant concerns about the ability of information technologies to further entrench conceptual remoteness from human ecological reality, and from likely sources of well-being, including social well-being, and happiness. These understandings align with Kellert’s (2002) work examining the effect of diminishing direct contact with healthy natural process and diversity on the physical and mental development of children and adolescents. Concurrent with more regulated and constricted contact within human-constructed contexts is increasingly vicarious contact. Vicarious contact is through representational experiences of the natural world, whether realistic or fantastic, including via screen media. Kellert (1993) argues that ‘the child’s direct and ongoing experience of accessible nature is an essential, critical, and irreplaceable dimension of health maturation and development’.

Many educators, scientists and commentators reflect on screen-absorption of the young as a threat to children’s mental and physical health (Gill 2007, 2008; Hills, Okely & Baur 2010). Psychotherapist Kardaras (2016) researched the phenomenal rise of social media over the last decade and reflects that for a species ‘hardwired for social connection’ this should, in theory, be beneficial. However, he draws on the growing body of research to suggest immersion in the digital world and social media can lead to many psychological problems, from addiction to depression, and that young people may be particularly susceptible. It is not coincidental in his view that this rise in usage has coincided with the decline in mental health especially amongst
teenagers\textsuperscript{28}. Of particular concern is research showing that too-early exposure to screens can affect the development of small children’s brains, a view evident in this study, impacting on the development of empathy and other interpersonal skills (Kardaras 2016). The potential for humans becoming less social in an increasingly complex, more densely populated world where greater social skills will be required is seen as problematic.

Despite these concerns, the Australian rate of internet use in schools is the highest of all OECD countries (Stewart 2016). It has been suggested that there has been a comprehensive societal assumption of the educational value of technology to today’s young people, especially screen-based technologies (Orchard 2016). In the light of current statistics showing one in four young Australians are experiencing mental health problems, and with suicide now the biggest killer of young Australians, Orchard (2016) questions prioritising of screen time over both other modes of learning, and over time spent simply ‘laughing, playing, drawing, cartwheeling, kicking a footy’, all things known to be good for children’s mental health, resilience, and confidence building.

Excessive screen time is also seen as a threat to the long-term sustainability of the planet (Louv 2008; Flannery 2010; Sampson 2016). Sampson for example, observes that if a flourishing planetary future depends on ‘transforming the human relationship with nature’, the current gap between children and the natural world currently being filled by screen-time is ‘one of the greatest and most overlooked crises of our time’.\textsuperscript{29}

\textsuperscript{28} Research suggests negative impacts of online socialising may be due to it interfering with actual face-to-face encounters, and being exhaustingly overstimulating. It also may provide an unrealistically positive view of others’ lives, as posted, inducing feelings of meaninglessness. Yet, the dopamine released through connection, novelty and reward, human needs well-serviced by access to the online world, can also be highly addictive (Kardaras 2016).

\textsuperscript{29} Other relevant research suggests that the arrival of virtual reality technology encouraging the experience of a simulated, virtual nature has some interesting implications for connection with local natural environments. Opportunity to access and connect with local nature was seen as essential by participants, in line with much literature for nurturing a sense of connection with the natural world. The research of Levi and Kocher (1999)
Although many researchers, echoing Wilson’s biophilia hypothesis, suggest an innate tendency in humans to affiliate with nature, the idea that people may grow up to experience ‘biophobia’ is seen as a result of the ‘culturally acquired urge to affiliate with technology’, with man-made items and in environments under human control (Orr, 1994) [italics added]. The understanding that such a tendency is acquired and indeed culturally-mediated suggests a role of culture in addressing it. Although learning about the natural world and human relations with it may be supported by innumerable screen applications, this study - which echoes much literature - suggests that opportunity for immersive contact with the natural world would most likely support the recognition of and responsiveness to being inextricably linked with the natural world, likely the strongest basis for acting to protect it.

The experience of a country Victorian school is illuminating. Kambrya College recently rose from the bottom ten percent to the top 25 percent for academic achievement. The turning point for many of the disaffected year nine boys was when they went hiking with a teacher at Wilsons Promontory for a week, carrying provisions but no screens. From failing – and hating – their education, they returned and began to ‘get stunning marks’ (Orchard 2016). There is much research on the positive effects of nature-based adventure programs for disaffected adolescents (Louv 2008; Pryor 2009).

Section 6.2.4 illustrated the importance of awakening in today’s adults a sense of connection with nature as a critical facet in fostering ecological cultural change. Whilst re-awakening a sense of connection with nature through long-term cultural change processes, especially those directed at children, was seen as imperative, equally important and even more urgent was the need to galvanise through all means available immediate action to prevent further ecological losses. Encouraging in adults a sense of connection with nature – recognised throughout this study as associated

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indicates that, whilst virtual reality technology may increase support for iconic areas, such as National Parks, widespread use is likely to reduce engagement with and preservation support for local natural environments.
with that willingness to act eco-centrically - was seen, like learning a language, as more difficult but still possible in adulthood. Re-igniting the arguably latent sense of intrinsic affinities with nature (Wilson 1993) was seen as particularly conceivable for those ever-diminishing numbers of adults who have, somewhere in their memories, the experience of the kind of free-ranging childhoods participants also experienced.

Cultural commentators affirm that the issue of disconnected human-nature relations, seen as a crisis to many (Louv 2008; Roszak 2001; Sampson 2016), needs addressing amongst both adults and children. Child educators Louv (2008) and Sampson (2016) argue that children given the opportunity will innately respond with fascination to the natural world, as confirmed by participant accounts. For children to be given this opportunity, it is, however, ‘the grown-ups who must change’ (Sampson 2016). The ‘education’ or awakening of adults, the wider public, is critical to a valuing of the natural world and to perceiving the well-being and developmental benefits of connection, especially for children. Aside from promoting eco-centric awareness in the next generation, the calls from international organisations, from the IPCC (2013) to the World Bank (2012), are clear that the current generation must urgently act to mitigate environmental destruction particularly of the climate. This thesis suggests a missing link, so to speak, to such action is addressing the sense of disconnect in human-nature relations. Central to the required eco-centric action is re-invigorating awareness of the inextricability of humans and nature.

Participants observed that when group members were asked to recall their own childhood experiences in nature, fresh ideas and a more collegiate atmosphere emerged. The literature supports the possibility that humans have an innate affinity with the natural world and that this may be evoked under suitable conditions (Louv 2008; Roszak 2001; Wilson 1993). Louv’s work (2008), for example, aligns with the use made by participants of processes evoking the seven-year-old self amongst adults to awaken, through memory, a sense of re-connection with nature in support of eco-centric decision-making. Louv observes, as did participants, that prejudices dissolve when groups are asked to talk about nature, making way for innovative, eco-centric thinking.
Group processes described by participants also provided opportunity for immersive experiences for adults in nature, as well as for support in making conscious the feeling connections arising. Research suggests that evoking feelings of connection with nature is significant in eco-centric behaviour (Mayer & Frantz 2004). Such processes offered validation for a transformative experience and ‘permission’ to speak from this awareness, a permission which otherwise, this study suggests, is significantly withheld in the current cultural context. Responsibility to share the enlarged understanding within professional groups and more widely within the community is implied.

The current literature on the dangerous state of human–nature relations is arguably indicative of urgency in attempting to stir this perceived latency into consciousness. The notion of re-awakening a potentially latent sense of connection with nature takes on particular significance at the current time. Immersive contact with nature, arguably the norm for previous generations, has become rarer and in all likelihood will continue to rapidly diminish in the absence of major cultural shifts such as this study, echoing much research, indicates are needed. As noted above (section 7.2.1), the literature indicates that the extinction of experience of contact with nature, especially immersive contact, is increasing exponentially. The opportunity for any intentional processes to support today’s adults - in particular influential professionals/decision-makers - benefitting from such recollection may be finite at this time.

Today’s adults are not only decision-makers but are raising the next generation. Sampson (2016) notes the importance for today’s adults, disconnected from nature as many of them may be, to learn how to ‘mentor’ young people’s connection with nature and love of place, essential, as he sees it, for children’s health and well-being. In his view, fostering a child’s connection with nature requires adults questioning and re-evaluating cultural priorities in a world pushing children into ever-deeper screen-absorption. It requires a willingness for adults to not be the ‘expert’, but rather to open to new or renewed habits of observation and presence, rediscovering a sense
of humility and playful wonder. Learning how to mentor the young eco-centrically is an important means of re-awakening eco-centric understanding between generations.

7.2.2 Proposition for change 2: Promoting an eco-centric discourse.

Section 6.3.1 illustrated the importance of the renewal of stories, myths and beliefs concerning human-nature relations in fostering ecological cultural change. The story of the human place on Earth was seen as having been lost through long processes of urbanisation and technological development, anthropocentric and hubristic cultural memes highlighting humanity’s pre-eminence having become paramount. Participants perceived the need for the development and promotion of a renewal of stories about the interconnectedness of all life on Earth, and the human place within it, in order to better inform cultural priorities.

The overall significance of cultural myths in informing worldviews which affect society’s priorities and actions is the subject of scholarship (Valsiner 2007). The story humans tell about themselves and their place in the world and cosmos at large is central to the direction of the culture; Korten (2015) observes that as humans, we ‘live by stories’. He further observes that the stories now powerful throughout society will lead to certain self-destruction. Participant concerns for articulation and promotion of a compelling alternative narrative to the existing anthropocentric, consumerist, corporate-driven story is a core feature of much of the cultural commentary (Korten 2015; Plumwood 2002; Roszak 2001). A central theme of much literature on human-nature relations focuses on the dangerous anthropocentrism of the current dominant story (Bateson 1987, Plumwood 2002, Roszak 2001; White 2011). Stephens’s (2012 p.3) analysis is indicative, ‘Perhaps this is the great hubris of recent human history – the assumptions of the anthropocentric view of the global ecosystem: seeing our planet only for its services or its threats, and viewing ourselves as somehow external to the integrity of the ecosystem’.Aligned with the dominant story, the future-oriented envisioning of a dangerous, ecologically-devastated world harrowing humanity is becoming a significant - and compelling - cultural narrative, especially for the young (Anisimovich 2014). The prevalence of this imagined bleak or
horrific human future evident in much popular culture confirms that the current story is failing to envision an inspiring future\(^{30}\)

Macy and Brown (1998) write of ‘choosing our story’, Suzuki of ‘Inventing the Future’, the title of his 1989 book, and Korten entitled his 2015 book ‘Change the Story, Change the Future: A living economy for a living earth’. This critical literature can be summarised as arguing that the current cultural story based on valuing money, consumerism and individualism is founded on profound disregard for human ecological reality. Roszak expresses this forcefully in his analysis that unless the future envisaged is as inspiring as the dominant materialist, technologically-oriented ‘Promethean’ worldview it will fail to engage people. Changing the direction of culture requires changing the story. For Moore Lappe (2011) the challenge to create a new story evokes a critique of the ‘no-limits-to-growth’ concept as anti-intuitive and bound not to resonate with populations, the notion of ‘growth’ itself being a positive idea. What all agree on is the need for a future vision emphasising both the creative ‘growth’ potential of the human mind – which, unlike ‘natural resources’ is endless - and on the creative cooperative potentials of human community (Brown & Harris 2014, Holmgren 2009, Moore Lappe 2011). A related idea, echoed in these findings, is envisioning an expanding ‘unending’ planetary future, based not, as now, on relentless planetary exploitation and disconnected technological development, nor on space exploration beyond a ruined Earth, but on exploring and understanding the infinite frontier of a richly biodiverse world (Plumwood 2002; Wilson 1993).

Participants observed that the new story needs to be expressed variously to reach all people. However the direction of this story is the same, aligning with the literature; human ecological realities must be central for envisioning a positive future and for

\(^{30}\) In a cultural context of increasing dystopian discourse in future-thinking (e.g. Harari (2011), this thesis concerning transitioning culture ecologically is ‘utopian’ in the sense understood by cultural theorist Jacqueline Dutton (Big Ideas 2017) as arguing for ‘a better way of being in the world’.
creating the new story (Eisenstein 2013; Flannery 2010; Hanlon et al. 2012, McMichael 2011; Roszak 2001).\(^{31}\)

The overall purpose of a new story is to provide hope, meaning and direction (Hamilton 2010). The pervasiveness of calls for a ‘deliberative’ (Participant 9) rethinking of the current paradigm and its myths as evidenced by this research and the literature reviewed for this thesis, is arguably suggestive of a changing story, a challenge to the old norms. Marshall (2011, p.268) confirms this understanding, suggesting that myths of human interconnectivity with the natural world, whilst still uncristallised, are gaining in currency and beginning to support a more eco-centric cultural direction (2011, p.268). The rising sense of urgency in the population regarding the environmental crisis may further predispose people to new ideas (Hanlon et al. 2012). A potential is also envisaged for a deliberative development of a ‘unifying narrative’ by cultural agents (Bushell, Colley & Workman 2015).

Section 6.3.2 illustrated the importance of the renewal of the discourse itself in fostering ecological cultural change. Participant commentary suggested current usage regarding human-nature relations as inadequate to reflect ecological reality. Gaps in the discourse were evident, for example words to speak of a feeling of being ‘a part of nature’. Prohibitions were also evident, for example with regard to speaking the truth of climate change and its inextricability with human outcomes. The language of ‘sustainability’ was also seen as co-opted by vested interests. At this time of poor and deteriorating human-nature relations, such gaps and taboos require urgent attention in order to renew the fundamental concept of human-nature inextricability within common discourse.

It can be argued that the failure of the discourse is aligned with the failure of the central cultural ‘story’ to account for human ecological embeddedness. Bateson

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\(^{31}\) A feature throughout the literature of cultural renewal is the notion of what Macy (2007) calls ‘the Great Turning’. That is, the processes of transitioning, of changing direction on Plumwood’s (2002) ‘ship of fools’, or Butler’s (2014) Titanic, are themselves part of the new story.
(1988, p.223) points to the ‘self-validating power of ideas: ‘that the world becomes...how it is imagined’, and, it is suggested, how it is imagined is associated with what may be spoken of it. Philosopher and social theorist Foucault, for example, argues that discourses ‘govern the variety of ways in which it is possible to talk about something and thus make it difficult, if not impossible to think and act outside of them’ (Allen 2003, p.18).

The concerns of participants about ways of talking about the natural world and the related ways of framing the conversation about meeting environmental challenges, is reflected in the literature. For example, Stephens (2012) reflects this study’s participant concerns in her observation about the falseness of many claims made about sustainability. And, whilst Plumwood (2002, p.68) agrees that an ecologically rational society would be ‘sustainable’ – that is, would maintain ecological relations coordinated with social organisation - she observes that the often-invoked term ‘sustainability’ in fact acts to trivialises and normalise massive processes of biospheric degradation through too narrow and (anthropocentric) self-serving a focus (Plumwood 2002, p.29). Sessions perceives the language of sustainability, for example ‘sustainable development’, as hubristic and lacking humility in its emphasis of ‘management over restraint’ (Sessions 1995, p.385); it is inherently dangerous in its denial of the limits that will be necessary for actual transitioning towards ‘sustainability’. Public health experts Tait, McMichael and Hanna (2014, p.104) affirm the primacy of ecosystems, and question, albeit without further analysis, the ‘presumption’ behind the commonly used term ‘ecosystem services’, suggestive of a critique of the anthropocentric focus behind such understanding. The problem may not be such concepts but the uses to which they are put in the current paradigm.

An implicit prohibition or discounting in professional discourse of an open conversation about the inextricable relations between humans and the natural world, especially perhaps engaging more imaginative, or feeling understandings, as noted by participants, also finds corroboration in the literature. Indigenous academic Arabena (2014), for example, observes that there ‘were few places in the academy where [she] could openly discuss’ her relationship with Country.
For theorists such as Eisenstein (2013), an emphasis on ‘ecosystem services’ affirms the utilitarian, data-driven ways of thinking which need challenging. He observes that arguments based on protecting ecosystem services fail to persuade people to eco-centric action, as participant accounts noted. What is needed instead are appeals to what moves people, love of ‘our beautiful planet’ and, more particularly, love of the local, present and concrete – ‘this forest, this mountain, this, river, this tiny plot of land’ (Eisenstein 2013, p.148). As Dooris (2013) observes, the complex issues facing humanity such as ecosystem collapse underline the crucial importance of focusing on the local, on ‘place’.

Hamilton (2015) also expresses concern at terminology which aids the objectification and commodification of the natural world in order that it be ‘valued’. He is addressing, as did participants, a common argument that, like it or not, for nature to have any meaning it is vital it be valued in economic terms. To be priced is, however, in his understanding, to exist as a separate item, and not as part of wider relationships and potential relationships. To put a price on nature – as the notion of ecosystem services suggests - is reductive, a validating of the very terms, values, discourse and understanding which require deep cultural questioning in his view (Eisenstein 2013; Hamilton 2010).

The English writer Robert Macfarlane (2015), in his book Landmarks, reflects on how the presence of a word may bring to vivid consciousness the actuality of what is spoken about. For example, a ‘fugitive phenomenon’ such as ‘the sparkle of morning sunlight through hoar-frost’ resonates for him in the old Devon word ‘ammil’. Whilst making the case for a wider cherishing of many such precise and evocative embedded dialect words, he expresses concern that the opposite phenomenon is underway. He notes with unease the removal from the new edition of the Oxford Junior Dictionary of many particular and, until recent times, common words - such as acorn, conker, dandelion, nectar, newt and pasture - whilst simultaneously the words of the new ‘technoscape’, such as blog, broadband, celebrity, MP3 player and voice-mail have been inserted. For Macfarlane, loss of meaning has parity with the loss of wildlife and
vegetation, and is even harder to measure. He perceives the vibrancy of land-evoked, and evoking, vocabularies as imaginatively stimulating and encouraging creative and convivial relations between people, and between people and nature. Gemmell (2015) refers to Macfarlane’s description of the losses from, and ‘cold’ accretions to, the Oxford Junior Dictionary to suggest, further, that the losses of very particular words for the natural world are related to a loss of ‘cherishing’ of nature in all its particularities, and the loss of the need to protect it. As dictionaries respond to usage, this is seen as a concerning cultural phenomenon which also further entrenches the making-invisible, and therefore the making more vulnerable to destruction, the multifarious diversity of the natural world.

Speaking from his sense of an urgent necessity for recognition of the pattern which connects all living things, Bateson argues explicitly for what he terms a relational semantics. He suggests that the basis for definition could be relationship, ‘as all communication necessitates context, [and] without context, there is no meaning’ (1988, pp.17-18). Hence, in his view, a sentence such as “Go’ is a verb’ is wrong because it lacks relational context. Indigenous academic Arabena’s (2010, p.263) observations for progressing humanity from modes of ecological and social dominance towards valuing of the beingness and perspective of the entire Earth community reflects this profoundly relational perspective. In her view, there is a need for a common language synthesising ‘knowledges’, *experienced-based* understandings beyond conceptualising or belief, together with a foundational ethics inclusive of all life on Earth. She raises the potential for ‘new cognitive constructs’. Body-referent systems, as evident in the English language whereby the orientation of the observer’s body is the locus for making sense of the world, would give way to recognition of other (notably Indigenous) understanding of people in location (Earth or Sea), in community and part of the entire ‘bio-spiritual’ reality. Arabena (2010, p.265) reflects that an Indigenous spatial reference could help create concepts overcoming the ‘dualistic schisms that pervade Western anthropocentric knowledge systems’ as self would be perceived as connected to everything. Central to this synthesising of knowledges and various perspectives on human relations with the
natural world are the collective possibilities of creative dialogue (as discussed further below).

Arabena (2013) also observes that linguistic diversity has been shown to correspond with the living diversity of ecosystems and cultures, deducing for example that over 300 ecosystems associated with the knowledges and languages of Indigenous peoples were maintained in Australia over the millennia prior to colonisation. Although much has been lost over the last two and half centuries, ethical and ecological necessity supports a belated valuing and protection of Indigenous languages and culture. Such a focus would strengthen the long process of reconciliation in this country and support recognition and valuing of Indigenous peoples and their eco-centric worldview (Arabena 2010).

Some researchers are currently turning towards Indigenous culture to expressly seek understanding of terms absent from the cultural discourse which may begin to stand for much-needed eco-centric concepts. For example, Michelle Maloney (IUCN World Parks Congress 2014), of the Australian Earth Laws Alliance, reflects that the clumsiness of language concerning human-nature relations makes it difficult for people to name and therefore understand the links they may feel with the natural world, a phenomenon evident in this study. There is a need to find ways through language to embed this understanding, and she notes work currently being undertaken with Indigenous people to ‘map out’ possible ways of achieving this.

The work of Kingsley and Lawson (2015) aligns with Maloney’s intention in offering alternative Indigenous words and meanings to open up discussion regarding, for example, a ‘unified understanding of nature’. Where Williams (1983) notes the word ‘nature’ is ‘perhaps the most complex word in the language’, Kingsley and Lawson take issue with the word itself as inevitably indicative of a separation of society and humanity which functions to trivialise an objectified nature. Nor is the notion, related to Wilson’s (1993) much-quoted biophilia hypothesis, of an ‘innate love of nature’ adequate in their view to comprehend the nested interplay Indigenous peoples recognise in human-nature relations. An Australian Indigenous word such as ‘Ngurra’
is suggested as capturing the meaning of this ‘multi-layered and holistic relationship’ Indigenous people have with their environments, with culture, identity and practices ingrained in Country. The researchers offer this term as supportive of a more inclusive discussion regarding the natural world. The notion of Caring for Country implied by Ngurra goes deeper than land management; it implies looking after one’s home as the foundation of being and the basis of all community. The researchers note that such ideas are needed to transform Western discourse to fully incorporate values responsive to human ecological reality whether one is Indigenous or not. Exchanges between Indigenous and non-Indigenous knowledge systems are seen as integral to finding common understanding for healing human-human relations, and human-nature relations. Caring for Country is the fundamentally needed transformative element for reconciliation in Australia between non-Indigenous and Indigenous people, and with Country (Arabena 2010; Lawson & Kingsley 2015).

Albrecht (2011, 2012) supports the need for neologisms at this time to begin to heal the rift in human-nature relations. Gleaning concepts and neologisms from the exploratory work of Eric Fromm, EO Wilson, Richard Louv and others, and adding many of his own, he has created a ‘psychoterratic’ typology, that is, a typology of Earth-related mental-health or psychological concepts. The proposed typology is founded on recognition of human inextricability with and responsiveness to the natural world. It includes states such as solastalgia – a term used by a participant to this study and in increasing usage in the research literature and popular culture (Albrecht 2012). Solastalgia is defined as an emplaced, existential melancholia, a form of homesickness, at the perceived desolation of a loved local environment. This term is balanced in Albrecht’s typology by (WH Auden’s) ‘topophilia’, being intense love of particular and peculiar places. An example provided is the powerful affinity for Country felt by Indigenous peoples. Other terms include Louv’s Nature Deficit Disorder, disorders such as obesity and ADHD associated with the disconnection of children from nature, and ‘ecoanxiety’, referring to non-specific worry about humanity’s relations to its increasingly fragile ‘support systems’. Of particular interest in view of this study are terms such as ‘eutierria’ which Albrecht offers as a description for ‘good and positive feeling of oneness with the earth and its life forces’.
A term such as this can be seen as responsive to gaps made evident through this research of ways to express and normalise evidently profoundly-felt connection with the natural world. Albrecht argues that the new and evolving psychoterratic language to describe and ‘re-place’ emotions is supportive of eco-centric cultural transformation and action; with ‘words to say it’, people are empowered to confront the destructive forces causing, for example, solastalgia.

Systems expert Meadows (2016), observes that there are no precise definitions for values such as justice, democracy, freedom, truth or love; nor can they be quantified. Meadows argues that if important qualitative values are not spoken about, their presence acknowledged, they will cease to exist. American writer Annie Dillard’s (2016) observation is cautionary in this context, ‘All those things for which we have no words are lost’. This research suggests a double imperative with regard to speaking of the deep feelings of connection many people feel in relation to the natural world: it is important to find words that support clear articulation of feelings of connection with nature.

**Section 6.3.3 indicated that transitioning towards an ecological paradigm requires promotion of collective eco-literacy.** The promotion of eco-literacy widely throughout the population is critical to understanding the eco-centric work of participants, as evident in much of their interview commentary.

The need for heightened eco-literacy in the general population can be extrapolated from extensive commentary in the literature seeking to discuss and promote understanding of human relationships with the natural world (e.g. Flannery 2010; Hamilton 2010; Macy 1998). Book titles such as Flannery’s ‘Here on Earth’ (2010) and McCalman’s ‘The Reef: A passionate history’ (2014) are indicative of this desire to promote understanding of human relations with nature. Internationally popular nature programs such as David Attenborough’s Planet Earth also suggest a hunger for greater understanding. This burgeoning commentary is evidently finding responsiveness in the population.
7.2.3 Proposition for change 3: Promoting holistic approaches which impact human-nature relations.

Section 6.4 introduced the necessity, as emergent from participant accounts, for promoting a range of holistic approaches as a means of moving towards an ecological paradigm. Central to participant commentary was recognition of a reductive paradigm operative in human affairs at this time, impacting critically and dangerously on human-nature relations. Participants themselves were observed to hold ‘holistic’ open-minded attitudes of curiosity and inclusiveness. The holistic approach evident in these findings embraces an inclusive ethics, interest in other cultural perspectives, a wide view of time, and recognition of a subsuming transpersonal and/or spiritual field, often spoken of in terms of ‘systems’ when considering action for transitioning culture. Optimism and an embodied attentiveness to the presence and agency of the natural world were evident as holistic approaches to change.

A focus of much of the literature is on the reductive nature of the current paradigm and on the necessity to address this with more holistic ways of thinking (Hamilton 2000; Hanlon et al. 2012; Plumwood 2002; Roszak 2001). Roszak for example observes a ‘narrow-gauged logicality’ or, citing Lewis Mumford, the ‘mad rationality’ endemic to current ‘human relations with the nonhuman world from which our human world rose into being’ (2001, p.72). Making an analogy with the point-by-point legalistic precision of a paranoid person proving his case, Roszak (2001, p.72) argues that each current instance of ecological abuse proposed by way of ‘species-by-species, cost effective analysis’ founded on ‘sound economic principles’ makes sense only within a ‘tiny universe of unquestioned assumptions’; however, echoing Bateson, the pattern as a whole is ‘insane’. He questions, in a paradigm of disconnect, where the line would ever be drawn that would prioritise the interests of ‘the owl…the dolphin, the redwood tree’ over any ‘loss of profits, jobs, conveniences to the planet’s dominate species’ (2001, p.72). Social theorist Giddens (1984) confirms in this regard that seemingly rational actions undertaken by individuals in one context may have unintended and indeed irrational collective consequences.
For Plumwood (2002) the ‘othering’ seen as attendant to an anthropocentric dualistic rationality - disconnecting humans from the ‘other’ of nature - is both an ethical and prudential failure. It is profoundly destructive as it encourages a sense of human self-containment and autonomy which, being illusory, obscures the ways other organisms support human life. Dualistic rationality is also associated with the misuse of power and privilege. The diminished ‘other’ is ever-available for exploitation. This includes not only the natural world but women and people of other cultures. As Bateson (1988) reasons, the processes of deductive logic have led to obscuring recognition of patterns of interconnection between phenomena (and people).

A local (Victorian, Australian) example of ‘siloed’ thinking with ecological and social impacts, is provided by planning experts regarding the use of the concept of ‘urban’ in much policy and commentary (Rickards, Gleeson, O’Callaghan & Boyle, 2016). The recent Resilient Melbourne Strategy consultative process, for example, is critiqued for framing regional Gippsland as merely a source of energy (coal) whilst simultaneously discounting collaborative decision-making input from the region. This was despite the proposed changes having regional impacts as Melbourne city moves to less reliance on coal. Although the authors acknowledge the future is unmistakably urban, they challenge thinking which limits increasingly urgent considerations of ‘urban-resilience’ within spatial boundaries, rather than more fluid, ‘cross-boundary’ and ‘processural’ thinking. More processural rather than spatially-bound thinking would, it is suggested, support a more complete understanding of the complexity of ‘urban’ issues, and a more informed, and inclusive, resilience. A feature of a culture which has lost a sense of ecological embeddedness, of being part of an interconnected whole, is, arguably, a susceptibility to such reductionism and therefore vulnerability to its effects. On the other hand, a significant example of a more holistic and rational responsiveness activated at and between all levels of society to address environmental degradation is evident in the recent multidisciplinary, international Lancet Commission on Health and Climate Change report (Watts et al. 2015, p.1904). ‘Top-down and bottom-up’ approaches, for
example, are acknowledged as mutually reinforcing at all levels of power-sharing and governance.

Default reductive reasoning is particularly concerning in proving incapable of addressing the environmental crisis threatening all life on Earth. Human ecologist Boyden (2004) notes that human cultural evolution has become maladapted to ecological realities, and requires holistic transformation. New modes of ‘holism’ are needed to reorder powerful divisive knowledge systems into ‘patterns based on collective decisions and actions’ (Arabena, citing Brown 2010, pp.260-261). From the Indigenous perspective, Arabena (2010) observes that institutional barriers and narrowed perceptions of reality are endemic to the knowledge systems of ‘Empire’, the dominant culture. From this perspective, ‘colonisation’ is recognised as the ongoing perceptual suppression of ecologically-centred and socially-just knowledge systems. The challenge is to recognise commonalities as Earth citizens, and to value, respect and learn from difference. Arabena (2010, p.266) sees the interconnectedness of the phenomenal Universe, and ponders the potential of greater understanding of ourselves as potentially interconnected, ‘in open paradigms of consciousness’ for supporting moves towards a more collective synthesis of ‘knowledges’ supportive of a sustainable future. This thinking lies at the heart of what Arabena terms the transdisciplinary imagination, a coherent sharing of knowledges to tackle the ‘wicked problems’, such as human-nature relations at this time, a perspective shared by others (Brown & Harris 2014; Wooltorton et al. 2015).

Analysis of participant emphasis on holistic approaches suggested these were needed to enhance collective reasoning, flexibility and resilience at this time. Whereas reductive forms of thinking by definition reduced access, as participants saw it, to the information and insight needed to collectively solve complex problems, opening to more holistic, inclusive and relational ways of thinking was seen as promoting hitherto inaccessible or less known areas of knowledge and insight. The holistic approaches outlined below (section 6.4.1) were widely used by participants, and described throughout interviews as positive means for approaching complexity. It is
suggested that such approaches may prove useful in promoting eco-centric transitioning.

**Section 6.4.1 indicated that ethical inclusiveness was a critical facet to fostering ecological cultural change.** An ethical perspective was seen as both socially just and open to appreciative engagement with the natural world through activation of the notion, central to Indigenous thinking, of ‘reciprocity’. This perspective was understood to inform attitudes and behaviours behind the valuing of nature’s provisioning ‘resources’ and their equitable distribution, critical to achieving transitioning to an ecological paradigm.

The necessity for a realignment of societal values in a more inclusive ethical direction finds much support in the eco-centric literature. Public health experts are among the most outspoken for the need for a more ethical re-alignment of values as integral to an ecological culture. Growing inequities between the rich and poor, and developed and developing countries are the subject of much concern, with many noting the links between inequities and the ethical challenges of overconsumption and sustainability (Hanlon et al. 2012; Tait, McMichael & Hanna 2014). Reductive scientific values are seen as obscuring more inclusive ethical and ecological understandings (Hanlon et al. 2012). The lack of responsiveness to these issues is perceived as a collective failure, including from the public health field, as will be discussed further in relation to the role for public health below (section 7.3). Hanlon et al. (2012, p.145) argue for the emergence of a ‘new form of ethics...that sees the connected nature of all people (indeed, of all life) as essential for any transformational change regarding such widespread inequity’.

Moral philosophers such as Plumwood (2006) and Hamilton (2010), and scientists such as Flannery (2010) and Boyden (2004), argue further that an ethics inclusive of the natural world is the basis for a realigned human participation on the planet, a precondition for a liveable future for all humanity. Plumwood makes central the necessity for re-situating humans ecologically and the more-than-human world ethically. The findings from this study suggest that promotion of ethical
responsibilities directed simultaneously towards the human community and beyond it to the more-than-human world will be essential to successful eco-centric cultural transitioning. The implication here is that there is a need for promoting more widely social-ecological models – such as those developed in the field of public health – which emphasise social justice as inextricable with ecological goals. Beyond this, the incorporation within such models of ethical constructs which focus on the more-than-human world also seems urgently indicated. Such inclusive models would promote the need for reciprocity towards the natural world, perceived as significant by participants to this study as well as by theorists and researchers.

Section 6.4.2 indicated that systems-thinking was seen as imperative in shifting towards an ecological paradigm. For participants, inextricable human-nature relations were a mirror of indivisibly interconnected reality, understood in terms suggestive of a metaphysical or transpersonal context. Possibilities for activating eco-centric change were founded on notions of systems thinking, a counter to the prevailing reductive and conceptually disabling thinking of such concern throughout interviews. Eco-centric change was understood as potentially arising from any direction within interconnected, systemic relations.

Much literature supports the necessity for a systems approach to complex issues. Scientists, philosophers and public health experts argue for a necessary synthesis within and between the forces that shape life and the human mind and human culture (Bateson 1987; Boyden 2004; Roszak 2001; Harris & Brown 2014). Plumwood (2002, p.14), for example, argues that the ‘nested’ complexity of both the emerging ecological catastrophe and possible solutions must be considered systemically, and include cultural forms of thought affecting choices and organisation. For Dyball and Newell (2015), the perceived needed ‘biosensitive’ cultural paradigm shift will result from systemic social and ecological responses creating feedback loops that encourage cultural shifts in worldview.

A systems approach as outlined by Meadows (2016) applies to the ‘small issues’ confronting the individual and the big issues confronting humanity, such as
environmental issues. It has a number of distinct features which resonate with the findings of this study. A systems approach will consider the good of the whole, which at times may seem counter to the narrow interests of a part of the system – for example the long-term interests of sawmills require the long term health of forests. It will, as in Native American (and other Indigenous) cultures, expand time horizons, and the wider the spans of time, the greater the benefit – and, environmentally, the greater the survival chances. And, as phenomena are ‘nested’ within each other, with actions now affecting the far future, attention is needed to both short and long-term actions and their effects – that is, the whole system. Expanding thought horizons beyond training and discipline to ‘follow a system wherever it leads’ is also inevitably transgressive of thought-boundaries and professional silos. As Roszak (2001, p.172) also notes, a core feature of systems-thinking is the notion of ‘emergence’, that is, when defining (and limiting) ‘boundaries’ are crossed, new and surprising possibilities may arise. Such thinking supports open-minded engagement with other disciplines, other cultures, other worldviews.

Although uncertainty lies at the heart of systems, Meadows (2016) affirms that they can be designed and redesigned in pursuit of a future which, though unpredictable, may be envisioned and ‘brought lovingly into being’. Meadows advocates listening to what systems tell people, and working responsively between systems properties and human values, a ‘dancing with systems’ based on more than the ability to calculate. It needs a full human response, an ability to pay close attention, separating fact from falsehood, to engage, in an echo of Bateson’s (1987, 1988) emphasis, both rationality and intuition, as well as compassion, vision and morality. Meadows’ idea of paying close attention to what is important, not only to what is quantifiable, is another feature of systems theory which align with these findings.

With regard to the relations of ethics to ecosystems, Meadows emphasises the moral imperative as also the practical one; as everything is interlinked one cannot separate oneself or one’s group from the ecosystem or the rest of humanity. Plumwood’s (2002) argument that an environmental ethics is also pragmatic and prudential, and Wilson’s (1984) ‘deep conservation ethic’, align with this understanding.
Systems approaches are receiving much focus currently from the field of public health. Public health experts Hanlon et al. (2012) suggest that greater systems-based analysis of multiple links between dynamic factors - such as well-being, inequalities, economic growth, obesity, energy, food and transport - would allow entirely different imaginings of interactions to emerge, stimulating healthful cultural transformation. Brown et al. (2011) argue for better recognition of the interplay between the complex climate variables impacting health - from direct impacts such as heat waves to indirect such as impacts on water and air quality. Health impact assessments of climate change are needed, and must incorporate complexity of these interacting variables impacting health and as well as cross-organisational management of impacts. McMichael (2013) perceives the interconnectedness of social cultural and environmental factors implicit in the environmental crisis as a ‘syndrome’ requiring new, more systemic, ways of thinking. Parkes and Horwitz (2009) draw attention to the importance of a systems approach to considering human and environmental health in their use of water, literally and figuratively, as a vehicle for understanding catchment complexity and the required integrated cross-sectoral responses. The recent Rockefeller-Lancet Commission on Planetary Health (Whitmee et al. 2015) challenges those interested in health to, as a priority, keep the focus on a systems-thinking approach. This will help address historical failures in transdisciplinary research, and challenge the inability or unwillingness of public health to address issues of uncertainty within decision-making frameworks.

Participants noted the public health approach to tobacco control provided a model of the approach to systemic change required. In the instance of tobacco control, health expert Chapman (1993) argues persuasively against reductionist policy approaches, the ‘messy gestalt’ inherent in the multiple variables of tobacco use and control requiring rather comprehensive polices. The point of comprehensive policies, such as advertsing bans, prices increases, health education, warnings, is not so much in their additive effect on demand, rather, it is in the synergism produced, each of the platforms for changing nurturing the others. The case for a greater role for public
health in engaging in systems thinking more broadly is made in the second part of this chapter.

Eisenstein (2013) further challenges common notions of cause and effect from a holistic, systems perspective, pointing to the unprecedented transformational power individuals and their choices may have on interconnected reality. One of the most striking features of this study were the indications that participants were already living lives profoundly congruent with their eco-centric interconnected worldview. That is, they were ‘being the change they wanted to see in the world’, and, consequently also modelling that change to others. Participant 14 commented directly on the intention of ‘being the [eco-centric] change’ required. She noted that doing so raised possibilities beyond the reductive logic now indicating little hope for a flourishing future: ‘now it gets interesting’, she suggested. Cultural theorists also note the importance of modelling the eco-centric change required as a means of encouraging others in the community to do so (Holmgren 2009, Brown 2015). The necessity for, and systemic power of, public health practitioners modelling ‘radical’ cultural change was highlighted by Hanlon et al. (2012). Practitioners are challenged to ‘be the change’ (Hanlon et al. 2012) in a socio-cultural eco-centric transitioning.

Much of the literature concerning human-nature relations – not only that specifically relating to theology – discusses or describes a spiritual sense of inextricable connection with nature. Bateson (1988, p.20), for example, writes of the ‘sacred unity of the biosphere’. However, a difficulty in speaking to the non-material values in today’s cultural context is observed in the literature. This is implicit in Kellert’s comment on the observation he had made that the connection between biophilia and ethics is spiritual: ‘At last I’ve come to the word so hard to express: spirit’ (Wilson & Kellert 1993, p.37). Eisenstein (2013) cautioned that the emphasis of concerned individuals on ‘greenhouse gas emissions’ affirms the dominant quantitative-focused mentality, while making the qualitative – ‘perhaps even the sacred’ – invisible.

For Indigenous academic Arabena (2013) there is a confluence between the irrefutable evidence from human ecologists and Earth system scientists and
physicists – such as those working on the IPCC reports – and the systemic understandings of Indigenous peoples in the recognition of the entire universe as an interdependent system. Logic suggests the purposeful response to this understanding is to create a new story as foundational for renewed eco-centric relationships between people, and between people and Country of which people are a part. Arabena further maintains that the relationship that humans have had throughout time with the ‘bio-spiritual’ realm remains possible, and not only for Indigenous peoples, although denied and denigrated in the dominant paradigm bent on monetary profit (2010). For Arabena, all of humanity is Indigenous to the planet; all of humanity has the potential to open to greater spiritual connectedness within the Earth/cosmic community.

Section 6.4.3 indicated that a critical feature of fostering ecological cultural change was promoting dialogue. Ways commonly employed to discuss complex issues, particularly those concerning human-nature relations, included dualistic, politicised discussion which acts to polarise and freeze positive outcomes. A willingness to engage in real, open-hearted dialogue, bearing the interests of those opposed to one’s view in mind, was seen as critical for moving forward in promoting eco-centric change.

Dialogue differs from other common ways of talking, such as debate and discussion, in being an open communication process that encourages shared exploration of human experience (Brown & Harris 2014, p.105). Dialogue makes time for processes which break down stereotypes (such as those noted by participants, ‘Greenies’ versus ‘The Right’), and supports relationship-building by recognising the priorities and concerns of others including those with divergent views. Activism and change arise from relationship, and the priorities developed between people in relationship, rather than from pre-ordained agendas or top-down direction (Brown & Harris 2014).

For Brown and Harris, dialogue is essential to the collective thinking required at this time to find creative solutions to such ‘wicked problems’ as environmental
degradation and social injustice. This view is shared by others, such as cultural commentator Klein (2014). Klein echoes the understanding of participants and other commentators (Butler 2014; Plumwood 2002) in using the metaphor that ‘we are all on the one boat’ (Participant 1) in her view of an inescapably one-planet future. She argues for the importance of dialogue at this critical time to enable people from all walks of life and interests to find a way to share understanding towards the shared eco-centric future. Young et al. (2014) point to dialogue as an initiative beyond fact-giving processes ‘providing solutions’, a linear approach they see currently failing to bridge the creative potentials of conservation scientists in dialogue with policymakers to encompass the complex reality of biodiversity. Dietz, Ostrom and Stern (2007) assert that there is a need to learn what they call large-scale Commons governance - governance of all that the people share as planetary commons - and quickly. Dialogue is understood as an essential tool in this process. Brown and Harris (2014) go further to suggest that dialogue may also be foundational in harnessing the humanity-wide collective mind envisaged by Teilhard de Chardin.

The need for attentiveness to what the natural world itself may be communicating, a theme in this research, also finds support in the literature (Brown & Harris 2014; Plumwood 2002). (See below in this section 7.2.3 for further discussion of this idea).

Section 6.4.4 indicated optimism as an important feature for fostering ecological cultural change. For participants fronting what often seemed intractable socio-cultural forces committed to business-as-usual practices, optimism and hope were, perhaps counter-intuitively, seen as the rational way forward. The agency to effect change - which may, it was suggested, arise from anywhere, even from surprising quarters - is promoted by optimism. The optimism required, evident in participants, faces facts in a non-reductive way, leaning holistically, so to speak, into the desired future, actively living the desired change.

The literature seeking to challenge perceived socio-cultural complacency regarding environmental degradation ranges from Hamilton’s confronting motto, ‘Despair, Accept, Act’, in his significantly titled book, ‘Requiem for a Species’ (2010), to more
hope-oriented motivation, such as, Flannery’s ‘Here on Earth: An Argument for Hope’ (2010) and Brown’s ‘Optimism (2015.)’. All are unequivocal that a ‘dismal future’ (Flannery 2010) will be the common future unless current disconnected thinking is challenged and replaced with an understanding of humanity’s place within a biodiverse Earth community. However, Flannery sums up his challenge, ‘we must have hope, goodwill and understanding’ [author’s emphasis] (2010, p.xviii).

Cultural theorists observe hope in that humanity is being challenged to wake up, to change and embrace a creative future which is restorative of the natural world, itself essential to human ‘restoration’, well-being and health (Flannery 2010; Louv 2008; Roszak 2001). Whereas over the past century or two it has evidently been possible for humanity collectively to ignore the human relationship with and dependence on the natural world, a number of experts see signs of hope in the fact that the ecological crisis has brought recognition of human-nature inextricability once again to the forefront of collective consciousness (Lang & Rayner 2012, p.17). Other commentators express hope, as did several participants, in perceiving the current requirement for social change as on an historical continuum along with other great social movements (Boyden 2004; Armstrong 2016). Optimism also arises based on faith in how the global community has met other threats to health in the past (Hanlon et al. 2012; McMichael 2011). This understanding makes room for setbacks, for the reactionary responses of inertial cultural forces - ‘almost invariably, when you have a movement, what I call first order reformers…then you’ve got immediately a backlash from vested interests and anti-reformers…’ (Participant 2) – and for building the momentum for change. Hawken’s book Blessed Unrest (2007) demonstrates a widespread and growing movement motivating communities and non-government organisations to stand up against corporate interests for ecological and social justice. Alerting people to this powerful groundswell was intended to provide hope and inspiration.

The work of the Canadian Public Health Association, long involved at the forefront of socio-ecological change (Webb et al. 2010), is insightful as regards the need for hope. The reflection that hope can be seen as ‘the commitment to positivity in the face of
adversity’ (Hancock et al. 2015, p. 15) exactly sums up the attitude of intentional optimism of participants, a conscious choice to empower and support a sense of agency in facing ubiquitous and entrenched cultural forces (section 6.4.4). This optimism was also recognised as interwoven with understanding of the systemic nature of change, that is, that change may arise from anywhere within interconnected systems (section 7.2.3).

Opportunities for social and technological innovations are also seen as cause for optimism (Watts et al. 2015). Current innovations recognised as providing inspiration include: many urban municipal governments creating more connected and compact communities through better planning, building and more efficient transport systems; individuals, business leaders and local communities facilitating environmental awareness and low carbon transitioning; and information technologies supporting the sharing of local ideas more broadly (Watts et al. 2015).

Section 6.4.5 indicated the critical importance of taking a wide view of time in supporting an ecological paradigm. Participants perceived short-term thinking as favouring the status quo, whereas widening one’s perspective of view of time makes available other intelligence, such as the insights of previous generations, and other imperatives, such as the needs of future generations of life on Earth.

This finding resonates with the work of the international science community. For example, the IPCC reports (2013) challenge politically limited timescales to consider the impacts of current policy direction far into the future. Cultural theorists and researchers also emphasise the need for a wide view of time, encompassing humanity over future millennia, if humanity is to discern a positive evolutionary trajectory (Bateson 1987; Brown 2015; Flannery 2010; Meadows 2016). Public health experts express a similar imperative in highlighting urgency for taking account of rather than dismissing or ‘externalising’ the health and well-being impacts of anthropogenic influence on future generations – human and non-human (Hanlon et al. 2012; Tait, McMichael & Hanna 2014). Anthropogenic influence will extend beyond the present into the distant future, and will impact future generations...
(human and other species) and consolidate already growing inequities (Tait, McMichael & Hanna, 2014, p.105). The failure of governments in particular to factor in the time lags between action and effect was seen as a priority challenge if there is to be planetary health into the future (Whitmee et al. 2015). A wide view of time is required as it makes available intelligence and insight necessary for positive eco-centric and interrelated ethical outcomes.

Section 6.4.6 indicated the importance of openness to the worldviews of other cultures, particularly Indigenous cultures, in fostering an ecological paradigm. Participants expressed concern at the prevailing attitude of dismissal towards perspectives offered by other cultures, seen as forgoing opportunities for accessing new ways of thinking and time-proven insights. An openness to other cultural paradigms was seen as offering awareness into other ways of envisioning human-nature relations and other ways of thinking about the future.

Promoting eco-centric understanding through inclusion of Indigenous insight is echoed in the literature. According to Anderson (2013), there is much to be learned from traditional societies, including pre-Christian, Native Americans, medieval Irish, and East Asians, about the relational intersection of culture and nature, the wild and tame. The most significant learning is that caring for nature is part of caring for people (Anderson 2013).

Plumwood (2002) acknowledges Indigenous peoples as able to offer valuable insight from their more ecologically embedded perspective. She sees it as both ecologically rational and ethical to actively engage the insight and understanding of those ‘least

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32 ‘Other cultures’ are understood as not only Indigenous, however Indigenous cultural understanding was seen throughout this project, and in contextualising literature, of particular relevance in seeking reconnection with the natural world. However, as Teelucksingh et al. (2016) emphasise in their article on environmental justice, sustainability interventions will likely fail unless they are open to the other cultural perspectives of diverse urban communities.
remote from ecological harms’, which often includes Indigenous people closer to the land under continual scrutiny by those prospecting for various resources.

Indigenous land management is being recognised for impressive environmental outcomes of benefit to all. The vast and expanding Indigenous Protected Areas program in the Australian outback provides an example. Through voluntary agreement supported by a range of funding sources including government, Aboriginal land managers manage their lands for environmental and cultural objectives (Woinarski 2014). However, a recent review into human-nature theories emphasises that the diverse understandings and practices of Aboriginal people which sustained thousands of generations have generally received limited recognition in mainstream practice and policy (Kingsley, Townsend & Henderson-Wilson 2013). This has had detrimental impacts on both ecosystems and human health. The authors argue for the integration of Aboriginal perspectives based on intimate relations with land to help build much-needed insight into social and ecological interrelationships (Kingsley, Townsend & Henderson-Wilson 2013). Many cultural theorists support the call for recognition of Indigenous ecological knowledge to contribute to a re-situating of humanity within the natural world (Plumwood 2002; Rose 2005). Ethnographic data into the traditional ecological knowledge of Indigenous peoples suggest that key principles of sustainable management - i) humble pragmatism, ii) a fundamental commitment to social and ecological reciprocity, and iii) managerial leadership based on an ecological legitimacy gained through traditional ecological knowledge - could provide a powerful template for a sustainable future (Whiteman 1999, p.A1).

The power of opening to other cultural perspectives supports Hanlon et al.’s (2012) suggestion that future public health practitioners will need to embrace both reflexivity regarding their own mindsets, worldviews and values, whilst keeping an openness to learning from other perspectives, including those of other cultures. They must also be willing to change practice in response. Hanlon et al.’s ‘integrative framework’ for future public health provides an innovative example in relation to a small healthcare organisation in Alaska. This organisation developed a shared ‘customer-owner’ model in consultation with local Indigenous people incorporating
ongoing dialogue between organisation and patients, and enabled building-design and materials to reflect community values. The result was a radical improvement in health care outcomes as well as efficiency (2012). However, Indigenous worldviews and ideas are not only relevant to issues directly impacting on them. Their more holistic, ecologically-aware understanding is seen of wider benefit, as is suggested by the University of Technology Sydney’s ‘indigenising’ of curricula discussed above (Section 7.2.1).

**Section 6.4.7 indicated that fostering an openness to the agency of the natural world itself is significant in moving towards an ecological paradigm.** Many participants, particularly those with an Indigenous understanding, shared recognition of themselves as participatory in a more-than-human world of infinite subjectivities. Unlike the perceived prevailing understanding of the natural world and its elements as mere resources, objectified and reduced for human use (Chapter Five), an embodied attentiveness to the world around one was understood as potentially making available fresh information and insight. This idea emphasises the agency of the natural world to influence human affairs, and can be seen as extending common notions of the meaning of the ‘social’ world.

The notion of the agency of the natural world to impact human thinking and feeling, often imparting insight and wisdom, is found in much of the literature on human-nature relations. It is arguably implicit in the research suggesting ‘contact with nature’ has health and well-being benefits (Townsend 2015). It is explicit in the writings of the so-called 19th Century Romantic poets, such as Coleridge and Wordsworth, and of contemporary ‘nature poets’ such as Elizabeth Bishop and Mary Oliver. Oliver (2005, p.104), for example, writes of listening to a bird’s singing ‘in the wild branches’, and ‘being filled with gladness…and I began to understand/ what the bird was saying,/ and the sands in the glass/ stopped...’. It is explicit also in the literature of the new and growing field of ecospsychology. This literature is based on recognition that humans are most whole, most healthy, when awake to the presence of the vital more-than-human world (Burns 1998; Buzzell & Chalquist 2009).
Openness to the agency and contribution of nature is arguably supported by immersive, embodied engagement. Anthropologist/philosopher Abrams (2011) writes of immersive exploration with the natural world as allowing perception to open. He describes, for example, his experience of observing the slow work of a spider weaving its web, or the movement of his own shadow whilst standing in a single position throughout a day. Referring to the philosopher Merleau-Ponty, he reflects on how such engagement opens perception to the phenomenological world as essentially presence, alive, resonating with intelligence and potentials for engagement. Processes that encourage openness through participation of this kind may enhance creativity, as in the ‘barefoot networking’ example provided by Participant 3. These ideas align with Roszak’s (2001 p.42) observation that crucially needed human-nature reconnection will be supported by activating so-called ‘irrational’ forms of understanding through opening long-disregarded ‘doors of perception’ to the natural world.

Plumwood (2002), like Abrams, perceives intelligence, intention and ‘mindfulness’ within the greater diversity of life on Earth. She challenges the common ‘arrogant’ assumption that anyone who ‘talks to the birds’, or, worse, talks to plants, is mentally unwell. She notes the possibilities of interspecies communication reflected in a common language already available, the language of embodied beings - if only humanity would pay attention. Whilst cautioning against romanticising the possibility of interspecies communication, Plumwood sees it as holding significant promise in healing the crisis in human-nature relations through an opening up to other forms of intelligence and, in avoiding instrumentalism, new moral possibilities. The project of greater empathy and ethical engagement with the more than human world will be enhanced when humans learn to open to the many forms of expression ‘associated with the great diversity of mindfulness in the world’ (Plumwood 2002, p.192). An embodied communication founded on listening and attentiveness to the ‘other’, who or whatever that ‘other’ is, a receptiveness to presence, is seen as opening to modes of perception which are dialogic rather than self-centred, disconnected and monologic. Concepts of both nature and human identity shift in more inter-relational terms. These re-framings are essential to begin to address at the level of culture the
alienation at the heart of the environmental crisis (Plumwood 2002). The eco-centric future does not take humanity away from the Earth in the form of space travel, but into deeper relationship with it (Plumwood 2002).

Echoing this understanding, Griffiths’ (2006) time with Amazonian tribes made her aware of their engagement with animals as related, ‘familiar’; one can ‘talk’ with them, and one has respectful obligations towards them. She highlights in contrast dominant western cultural notions of animals as different in ‘kind’. This is seen as a misreading of reality, a failure to recognise the human as fellow animal and kin within the biosphere. This misreading is the basis not only of a ‘terrible un-kindness’ in the treatment of animals, but impoverishing in that it obscures powerful sources of knowledge and experience (2006, p.59) [author’s emphasis]. These ideas mirror the understanding of Plumwood and others who suggest that an openness to empathetic engagement supports ethical recognitions of interdependencies that may be fundamental to survival (Gruen 2009; Plumwood 2002).

From a wide-ranging synthesis of physics, anthropology, biology and psychology, Bateson (1988, p.5), in his theory of mind, transcends dualities, such as those which place the human outside of nature, to suggest a ‘wider knowing’ in which starfish and forests and humans all partake, mind being ‘a reflection of large parts and many parts of the natural world outside the thinker’. Bateson (1988) argues that sensory experience which recognises ‘difference’ in phenomena, and the mental systems behind senses, are characteristics shared at least by other creatures, and possibly by plants.

These ideas align with a growing scientific and popular literature focused on the exploration - seemingly endless - of intelligence within the natural world. The recent best-selling book by German forester Wohlleben (2016), ‘The Hidden Life of Trees’, is an example. Wohlleben describes a form of decentralised intelligence in plant life which is social, feeling and communicative. For example, trees can warn neighbouring trees of encroaching pests. This work is significant in blurring the line between plant and animal life - described dismissively by some as ‘anthropomorphic’ (Backhouse
Masterson (2016) noted the work of primatologists at Germany’s Max Planck Institute for Evolutionary Anthropology which assumes intelligence in primates, and, further holds that they have social and inner lives which are more complex and abstract than previously assumed. Primates exhibit cultural traits including the passing on of traditions such as the building of rock repositories similar to human cairns (Masterson 2016). Recent work, reported in the journal Plant Physiology, at Australia’s ARC centre of excellence in plant energy biology echoes aspects of Wohlleben’s thesis. This research explores the complex physiological responses of plants to various kinds of touch – human touch, water drops, wind – which, it is suggested, ‘prepares them for the future’ (Spinks 2016). The arguably increasing reportage of such findings is seen as significant in the context of this research, suggestive of a growing attentiveness to the complexity, intelligence and agency of the natural world.

Intelligence and agency are also perceived to be features of the Country itself. Brown and Harris (2014, p.105), for example, find inspiration for the more ‘collective mind’ in the listening attentiveness of Aboriginal people to the land itself. ‘The land itself is the speaker’, with particular people recognised as responsible for listening to the land and speaking in ways which enhance the dreaming story binding people and Country. This understanding aligns with the New Zealand’s Maori ‘guardians’ who uphold the values, and, in essence, the ‘personhood’ of, for example, rivers and mountains under the 2014 Te Urewera Act (Miller 2016). Greater collective understanding and response is enabled within what Winton (2015), attentive also to Indigenous cultural understanding, notes is the ‘familial’ relationship between people and Country. The Indigenous worldview embraces a ‘relational ontology’ (Martin 2013 p.86), an ‘ongoing ebb and flow of agency’ beyond Cartesian notions of subject/object, known/unknown. ‘In all Indigenous accounts Country is not passive’ (Martin 2013, pp.86-87). Such understanding is congruent with Australian Indigenous writings (Arabena 2010; Kingsley & Lawson 2015). It is perhaps most evocatively expressed by Aboriginal elder David Mowaljarlai, in Winton’s book ‘Island Home’ (2015, p.206), as ‘everything standing up alive’.
At an even more macro level, work on systems suggests that whilst the universe is non-linear, dynamic and chaotic, it is also self-organising and evolving (Meadows 2016). Lovelock’s (2007) Gaia principle, as noted by participants, emphasises the self-organising capacity of the Earth’s atmosphere as it seeks equilibrium. Such ways of comprehending and describing cosmological and planetary complexity inevitably subsume human importance within a greater self-organisation of which humans, and human will, are only a part.

However, humanity interwoven with natural and universal processes is seen by those who think in terms of systems as imbued with potential, as evident in this research. Meadows (2016) observes that the complexity, beauty and order in human creations – such as symphonies, Persian carpets and artificial intelligence – echo and are consonant with the complexity of the surrounding world. All is of a piece with, and responsive to, this larger ordering. Bateson’s (1987) cybernetics/systems theory emphasises this ‘wider perspective’ in notions of self and mind. What is currently thought of as a separate ‘self’ involved in processes of thinking, acting, deciding, is observed to be rather ‘a system whose boundaries do not at all coincide with the boundaries either of the body or of what is popularly called the ‘self’ or ‘consciousness’ (1987, p.319). Mind is itself immanent within the brain circuitry, within the brain plus body system, and ‘finally...mind is immanent in the larger system – man plus environment’ (1987, p.317). Further, human minds, being ‘fused with’ the universe (Arabena 2010), are responsive to its evolutionary and creative principles (Arabena 2010; Bateson 1988; Roszak 2001). Humanity is fused with an alive universe which is maintained through thought and action, with humanity ‘also manifest as a result of the thoughts and actions of the universe itself’ (Arabena 2010, p.262).

As noted in the methods chapter, Holton (2007, p.269) expresses caution at the idea of symbolic interactionism’s emphasis on the social as precluding other perspectives, suggesting that ‘classic grounded theory’ permits adoption of ‘any epistemological perspective appropriate to the data and the ontological status stance of the researcher’. In the context of the findings emergent from this study, the emphasis of the symbolic interactionism approach on social interaction (Hansen 2006, p.63) has
itself become a rich-point for reflection. Although the construction of reality as a social phenomenon is a key assumption of this study, researcher interrogation of the experiences and meaning-making of participants suggests that the reality of interaction may entail interaction with the natural world. For some participants, the sense of the agency of nature can be seen to blur its usual ‘object’ status, opening interactions or relationships within a ‘social’ realm inclusive of the more-than-human world.

I believe it can be argued that the holistic perspective evident throughout the interviews is a valuable indicator of the importance of participant understanding. Their perspectives embracing multiple sources of information and insight provide evidence of their capacity to engage with the complex ecological issues of these times in an inclusive way.

7.2.4 Proposition for change 4: Challenging those vested in the business-as-usual status quo

Section 6.5 indicated that a critical facet to fostering ecological cultural change was challenging the power of the status quo. Participants understood that central to any moves towards an ecological paradigm required a willingness to step up in multiple ways to challenge those vested in the cultural status quo with its disconnect from the natural world. Economic rationalism and associated norms of consumerism and individualism were understood as central to maintaining the current cultural dynamic, damaging to Earth and its people. Co-opted governments were seen as failing in their civil contract to protect the long-term interests of all the people.

As noted in the literature review, a wide range of research and commentary focuses on the negative impacts of consumerism, individually, socially and environmentally (Arabena 2010; Berry 1990; McMichael 2013). Evidence suggests that the current economic model of the developed world, increasingly pursued by the developing world, is producing diminishing returns for human well-being once basic needs are met, and is no longer sustainable. For example, 5.3 planets would be needed to
sustain a planetary standard of living at the United States’ current level of consumption (New Economics Foundation cited in Hanlon et al. 2012, p.68-69). The public health literature provides support for participants’ contention that the current Western lifestyle is not only unsustainable but the cause of much unhappiness and dysfunction, including widespread ‘new epidemics’ such as obesity, addictive behaviour, rising depression and anxiety, and loss of well-being (Hanlon et al. 2012, p.5). Although life is more convenient and we have more stuff, people are not happier (Pretty 2017). The recent Rockefeller Foundation – Lancet Commission on Planetary Health (Whitmee et al. 2015) states that maintenance and enhancement of health in a context of compounding planetary environmental destruction must challenge measures of human progress based on gross domestic product. (These ideas are discussed further in the second part of this chapter regarding the role for public health).

Participant concerns about the inaction of politicians in the face of destructive economic forces is also at the heart of a growing literature concerned with human-nature relations (Flannery 2010; Hamilton 2010; Klein 2104; Plumwood 2002). Aside from active denial from those entrenched in maintaining the dominant paradigm (de Blas 2010; Oreskes & Conway 2010; Metcalfe 2013), approaches to dealing with increasing environmental degradation are perceived as generally located within the model itself. For example, an incremental approach to restraint in extraction of resources (Brulle & Antonio 2015; Hamilton 2015) or substituting or ‘offsetting’ environmental damage (Plumwood 2002; Klein 2014). Such approaches generally receive full support of government. Echoing much participant commentary, this inability to act in what many commentators would term a rational way on behalf of the health and well-being of the people they represent is seen as evidence that political structures are currently poorly adapted to deal with ecological realities (Boyden 2004; Flannery 2010; Plumwood 2002).

The neo-liberal agenda which privileges the few is seen as profiting from and normalising ecologically irresponsible production and consumption systems, and at
the same time co-opting or eliminating critical voices (Plumwood 2002). Participant accounts calling for a renewal of democracy to support wider representation of the voice of the people, for example through online organisation, is taken up by other cultural commentators (Flannery & Wallace 2015).

These research findings suggesting particular concern with the value to capitalist interests of ecologically disconnected children supports the literature. Such children are likely to grow into ecologically disconnected adults who, in the current cultural vacuum of meaning, find meaning in consumerism (Hanlon et al. 2012). Orr (2002) affirms that ‘capitalist consumption…works best when children stay indoors in malls and in front of televisions or computer screens’. Aligning with Macfarlane’s concern about the widespread attrition of words embodying natural phenomena, Orr (2002) refers to research showing that, whilst children can recognise on average only a handful of plants and animals, they are able to recognise over 1,000 corporate logos. Research also provides evidence of clinical disorders associated with self-focused attention or having a ‘disconnected sense of self’ (Ingram 1990). This study points also to the pro-social attributes of those who care for the environment. Challenging cultural norms which entrench a disconnected sense of self, socially and environmentally, is likely to have social, health and well-being and ecological benefits (Lewis & Townsend 2015).

This research indicates three main ways a pro-ecological challenge to the status quo could be effected: through widespread promotion of more frugal eco-centric lifestyles – which is an implicit challenge to those with interests vested in the habits of consumerist populations; through leadership to confront powerful vested interests more directly; and, when other means have failed, engaging in civil disobedience. Discussion on these ideas follows.

**Section 6.5.1 indicated that a critical facet to fostering ecological cultural change was promoting eco-centric lifestyles.** Much participant critique focused on the unsustainability of consumerist, individualist culture. Participants emphasised instead the creative and human developmental potentials over further unlimited
resource development, particularly the potentials of eco-centric lifestyles or, more truly, modes of being.

These ideas find many echoes throughout the literature. As noted, there is an extensive and growing commentary on the damage inflicted by unfettered economic growth aligned with consumerist norms on the planet, as well on people individually and socially (Klein 2014; Korten 2015; Hamilton 2010). The seemingly intractable nature of the consumerist dynamic is also evident in the recognition that consumerist culture is frequently pursued as a form of meaning-making related to status, identify and a sense of self and purpose (Blühdorn 2013; Hanlon et al. 2012). Consumerism, it is suggested, is a response to the absence of a culture offering deeper forms of meaning and engagement such as occurred in more traditional cultures (Boyden 2004). And consumption practices being interwoven with social and personal identity further entrench cultural norms and their unsustainable effects (Giddens cited in Hanlon et al. 2012). The ‘consumer ethic’ is always framed as a positive, the consumption of ever more services and products as desirable, even if overconsumption kills people; ‘Frugality is a disease to be cured’ (Harari, 2011).

An indicative instance of vocal support of the current capitalist norms is provided by UK science journalist Leigh Phillips (2015). For Phillips, those seeking to radically question and find less consumerist and more eco-centric directions to meet the challenges of climate change are described as propagating ‘collapse porn’, demonstrating a ‘seething effervescent misanthropy’ in their lack of belief in the inevitably Promethean enterprise of human agency over the world. ‘Austerity ecology’ based on recognition of limits-to-growth is seen as ‘civilisation-hating’, an attempt to live in a more bucolic, utterly fanciful Eden of the past. For Phillips, the environmental changes required will come as a result of more energy, not less, a combination of high technology developing renewables and safer nuclear energy on the back of the right mix of government and enterprise.

In addition to generally accepted arguments put forward for human flourishing as predicated on limitless growth - which this study is among those questioning - other
concerns are raised about a crucial questioning of consumerist values. Lefroy (2015), echoing Phillips, claims, that those who advocate frugality in keeping with a world of limited resources are promoting a negative worldview based on denial. For others, (e.g. Blühdorn 2011, 2013), the likelihood of a resurgence of the kind of ecological thinking which galvanised the original environmental movements of the 1960s/70s is depressingly unlikely. The ‘democratised’ trajectory of hyper-consumption as a measure of the good life has become a juggernaut, fuelled by powerful interests, beyond the reach of rational argument or democratic process. This juggernaut is now in motion throughout the developing world as well; consumerism, aligned with unfettered development and technological progress, is seen as a ‘human right’ (Charlton 2011).

Much literature suggests that such thinking, broadly representative of the business-as-usual paradigm, denies the opportunity and optimism implicit in engagement with a natural biodiverse world. It also denies the cultural growth possible in a less materialistic and distracted mode of being which encourage creativity, satisfying sufficiency, and community (Alexander 2014; Brown 2015; Holmgren 2009). Plumwood, for example, questions the solution of simply changing the sources of energy to offset CO₂ in the atmosphere – the actual energy source will not in itself alter the trajectory of plundering the natural world, only make it more efficient (Plumwood 2002). Commentary emphasises the need to embrace less consumerist life-styles as foundational for planetary and human flourishing (Brown 2015; Hamilton 2010; Klein 2014).

For some, a re-evaluation of the good life itself lies at the heart of addressing this seemingly unstoppable force (Flannery 2010; Holmgren 2009). Public health researchers and theorists are among those at the forefront of this understanding. A strong case is made by Hanlon et al. for a re-evaluation – beginning with the field of public health – of the importance of the concept of ‘well-being’ for its impacts on health and also as a driver of practices which impact sustainability. Four dominant aspects of ‘Western-type culture’ which are also strongly critiqued by participants – economism, materialism and consumerism, and individualism – are seen as
implicated in both unsustainable practices and in much psychological/mental unhappiness. People are driven by social norms to consume in pursuit of what is often mooted as ‘the good life,’ goals not necessarily supportive of long-term well-being (Hanlon et al. 2012). Beyond a necessary level of material wealth, increases in wealth in affluent societies do not lead to greater happiness for that society (Hanlon et al. 2012, p.77). On the contrary, the culturally endemic inability to see alternatives to the ‘treadmill’ of pleasure and security seeking is resulting in ‘chronic choice anxiety, poor work-life balance, various forms of addictive behaviour [and] depression and anxiety’ (Hanlon et al. 2012, p.76). Western-type culture is observed to be ‘pathological’ for individual and social well-being (Hanlon et al. 2012), and disastrous for the planet.

Public health expert Hancock (1999) notes the health and well-being benefits of a focus on human development, as opposed to unfettered resource manipulation, which may also have society-wide co-benefits. For example, the opportunity to focus on the limitless potential of human development itself, as distinct from inevitably constrained economic development, with its benefits also unevenly distributed. McMichael and Lindgren (2011, p.411) give other examples of the co-benefits that arise with the application of low-tech options such as cycling and walking. These include increased physical activity, reduced obesity, and enhanced social contact, whilst also reducing CO₂ emissions. Pretty (2017) makes the case for immersive engagement in three particular ways - notably with nature, in social contexts, and in creative pursuits - through activation of a more deliberative ‘green mind’. Widespread engagement of this kind will not only greatly enhance collective wellbeing but the future of the planet is reliant on such non-consumerist substitution (Pretty 2017). These ideas echo the deep ecology notion that ecological shifts require appreciation of life quality, of dwelling as human beings in ‘situations of inherent value’ (Sessions 1995, p.68).

Moves away from economic growth and consumerism founded on a continually degrading natural world are seen as essential to a more equitable, healthful and sustainable society. More local initiatives support well-being whilst impacting less on
the environment. These include land-based enterprises such as agriculture and food production. Such eco-centric lifestyle changes are already afoot, with New Social Movements, such as the UK’s ‘downshifters’ (Hanlon et al. 2012, p.84). It is suggested that, although there may be less money around, the slower pace of life supports social connections and positive mental health (Alexander 2014; Holmgren 2009; Hanlon et al. 2012). These transitions have the potential to subvert the interests of the market by rejecting some of the more damaging cultural norms associated with neo-liberal economies (Hanlon et al. 2012, p.48).

These ideas align with the deep ecology platform (section 2.2.5) suggesting an eco-centric change will focus on life quality rather on an increasingly higher standard of living (Sessions 1995). They also support Townsend’s (1998, p.25) emphasis that an ecological paradigm will encompass less consumerism and more frugality - ’conspicuous frugality’ - suggesting further a ‘re-definition of ‘living standards’ needed to ‘counteract our obsession with productivity and economic growth’.

Section 6.5.2 indicated the critical need for leadership to support transitioning towards an ecological paradigm. Although much commentary and research is calling for community-wide awareness, engagement and responsiveness to the crisis in human-nature relations, the environmental situation can be seen as evidence of a leadership failure to date. This study’s findings point to a role for public health in filling this leadership vacuum at this critical time. Participants recognised the cultural change work undertaken by public health confronting the power of interests vested in maintaining the status quo, for example with regard to tobacco consumption, provided a powerful model for confronting interests in environmentally destructive industries, such as the fossil fuel industry.

Making parallels with other substances of concern to public health, the notion of oil as a population-wide ‘addiction’ arose in interviews, with consequent health outcomes of a world poisoned by CO₂. The book, ‘Merchants of Doubt’ (2010), by Oreskes and Conway links the methods of big tobacco and the world-wide fossil fuel industry in spreading doubt and confusion, ‘keeping controversy alive’ after scientific
consensus has actually been achieved. Similar strategies as were used in the anti-tobacco campaigns are required to confront and expose concocted doubt regarding human-caused climate change. And champions such as Professor Simon Chapman (1993) are needed to confront those vested in ecologically damaging industries and practices.

As noted in section 6.5.2 participants believed that change was most likely to arise from ‘the people’ as distinct from government. For Ritchie and Brown (2006), the effective unit of social change is the community, that is, the relational web of people and place comprising a human living system. Health promotion, with its history of supporting social change, is called on to provide guidance within communities for ecological change. For Chapman (2001), significant health promoting change with regard to tobacco use did not arise ‘spontaneously’ from within the community. He observes that the notable Australian anti-tobacco success was driven by professionals within NGOs and dedicated advocacy offices explicitly pursuing tobacco control. Community support rallied in response to the clear agenda originating within the health field and policy-oriented researchers (Chapman 2001). Public health’s model of change regarding tobacco was seen by participants as exemplary of the position the field could take in supporting an ecological transitioning. The second part of this chapter (7.3 below) considers in more detail the role for public health.

Section 6.5.3 indicated civil disobedience may be necessary to transition towards an ecological paradigm. The willingness of a surprising number of participants - highly intelligent, professionally successful and culturally influential people - to consider engagement in civil disobedience at this time is suggestive of a failure within the culture generally, and particularly of agents tasked with the well-being of the population in particular, to recognise and respond to the unfolding ecological crisis.

The observation is made in the literature that when the law is used to protect ‘unjust behaviour’, notably that destroying the habitability of the Earth, the obligation to uphold it is diminished (Brown 2015; Hamilton 2010). According to Hamilton (2010), the perception of a higher moral law rather demands obedience. He perceives those
who engage in civil disobedience for such reasons as the most law-abiding citizens, as they ‘have the most regard for the social interest, and the keenest understanding of the democratic process’ (2010, p.226). These ideas support Berry’s (1990) call for a radical confrontation with forces damaging the Earth.

That individuals engage in eco-centric action despite likely harms to themselves is supported by the literature (Lewis & Townsend 2015). It appears that the perceived ongoing failure of collective recognition of, and responsiveness to, human ecological embeddedness, particularly by those most responsible for decision-making at this time, was seen as the impetus for participants to this study to consider taking civil action. This can be seen, contrary to any narrow sense of self-interest, as acting in support of the already compromised potential of a flourishing world.

A number of recommendations signifying more specific directions for change derived from the four propositions for eco-centric transitioning and their sub-categories, as discussed in section 7.2 above, are provided at Appendix C.

7.3 Aim 2: Role for public health responsive to propositions for ecological transitioning

This study’s second aim was to consider the implications of findings, especially for the field of public health. The four interrelated propositions for eco-centric cultural change that emerged from analysis of participants’ accounts, discussed above (section 7.2) in detail in the context of the literature, lead to consideration of the role of public health in responding to and supporting eco-centric change. The propositions are related to the six core features of the eco-centric role for public health discussed in detail in Chapter Two. These features are: 1. concern for the health of people now and into the future (section 2.8.1); 2. A wide view of causation - a focus on the determinants of health, including, for the first time, the environment as a determinant of health (section 2.8.2); 3. a holistic perspective (section 2.8.3); 4. commitment to empowering the agency of individuals and communities to take control over things impacting their health (section 7.3.4); 5. commitment to advocacy on behalf of health for all (section 2.8.5); and 6., a vision for the future (section 2.8.6).
As noted in Chapter Two, these features are evident in the Ottawa Charter for Health Promotion (WHO 1986 [Appendix A]). It can be argued that the Ottawa Charter represents an emergent - or re-emergent - understanding of human-nature inextricability, one which public health has only partially recognised and responded to. Public health is perhaps the cultural domain most tasked by its own theoretical underpinnings and most capable of responding to such an understanding (Lang & Rayner 2012). The point of much current public health expert discussion is to arouse, engage and enlist the field to greater recognition of and responsiveness to human ecological realities, including as cultural leaders (Hancock 2015; Patrick et al. 2012; Tait, McMichael & Hanna 2014). An ecological public health is envisaged (Hancock 2015; Hanlon et al. 2012). Calls for new ecological frameworks further the emergent nature of this collective understanding. An incipient international Ecological Charter of the future is perhaps evident in this movement. Such a Charter is arguably necessary, one which makes even more central and explicit the inextricable links between people and their environment, the primacy of ecology to human health and flourishing, and the need for proportionate responses. As Hanlon et al. (2012, p.136) argue, public health may need a new and more appropriate paradigm with which to navigate the ‘turbulent present and unknown future’.

Professor Tony McMichael (2013, p.1338), arguably the Australian public health expert who has done most to raise widely the interconnected issues of environment and health, notes that mitigation of climate change, or ‘primary prevention at the source’, is both a first order priority for the world and a formidable challenge requiring ‘conceptual insights beyond the conventional understanding of causation and prevention, as well as political will, trust, and resources’ (McMichael 2013, p.1358). The challenge to public health in the context of anthropogenic environmental degradation is eloquently summed up, in the words of Lang and Rayner (2014, p.20), as follows:

Public Health success is as much about imagination as evidence: challenging what is accepted as the so-called normal, or business as usual. Public health
must regain the capacity and will to address complexity and dare to confront power...Public Health professionals today need to think and act ecologically if they are to help reshape the conditions that enable good health to flourish.

Although the health-impacting challenges confronting society are multiple, Hanlon et al. (2012, p.6) find cause for optimism in humanity having always found ways to respond to change: to ‘cope, our ancestors developed both new outer worlds (technologies, social systems and cultures) and inner world’s (beliefs, values and consciousness)’. And public health itself, a cultural phenomenon of recent centuries, has always found ways to evolve to meet the health challenges facing society (McMichael 2013). The inherently envisioning and culturally challenging role of public health is seen as requiring revival at this time; public health is needed to contribute leadership and insight at all levels of society, including the political, into the big picture and especially ecological issues fronting humanity, or risk irrelevance (Lang & Rayner 2012, p.20). Although the outcomes of deliberation, envisioning and action taken at this time are unknown - ‘There is no blueprint for the future’ (Hanlon et al. 2012) – the imperatives for change are clear.

The six features of public health which align with a significant role in eco-centric cultural transitioning (Chapter Two) are now considered in the light of the four propositions for change and the related discussion detailed in section 7.2 above.

7.3.1 Concern for health now and in future – an evolving mandate

The ‘ever evolving’ (Lin, Smith & Fawkes 2007) role of public health, responsive to always emergent health and well-being needs of populations was discussed in section 2.8.1 Also considered was the appropriateness of the field to take a significant role in the ‘deliberative’ cultural evolution, such as these findings indicate is necessary. The proposed radically different models (Hanlon et al. 2012) of public health align with the calls of participants - in the context of the literature - for radical eco-centric cultural change.
The ‘mutually reinforcing’, interwoven nature of cultural phenomena relating to the environment and, in the case of this study, the four propositions for cultural change, was discussed above (section 7.2). A role is indicated for public health to engage with such propositions holistically, as also iterated in public health literature (section 2.8.1).

7.3.2 Wide view of causation - a focus on the determinants of health

Public health’s mandate to be responsive to an expansive and ultimately rational understanding of causation with regard to the determinants of health/ill-health was discussed in section 2.8.2. A preventative focus will take into account likely anthropogenic causation of environmental destruction and climate change in particular. A focus on worldview as an upstream determinant of human behaviour including that impacting the environment is also indicated. The challenge evident from experts within the public health field is to engage more comprehensively with the cultural factors determining worldviews. These worldviews are seen as impacting the environment and hence long-term planetary and human flourishing. As noted in throughout the discussion above, this understanding finds much support in the literature (e.g. Boyden & Dovers 1997; Merchant 2005; Plumwood 2002).

This study’s findings suggest that transitioning towards an ecological paradigm will be supported by a change in worldview through re-awakening the sense of the inextricable links between people and the natural world (proposition for change 1). The findings, in the context of the literature, suggest that fostering a sense of connection with nature within children, especially through immersive engagement and free play, is associated with an eco-centric cultural worldview, and responsiveness and active environmental concern into the future.

There are a number of key features to fostering the possibility for immersive experience with nature in childhood. These were seen as largely focused on issues of access and permission. What is needed are nearby natural environments accessible in everyday lives which encourage free play, as well, especially for older children and
adults, the possibility of wider exploration in ‘wilder’ natural areas such as National Parks and wilderness areas. In addition, the issue of current hyper-concern for the safety of children impeding free play outdoors requires consideration of a more balanced and permissive view (section 6.2.1; section 7.2.1). The role of educators was recognised as central to provide a ‘mentoring’ of young people into eco-centric understanding (section 6.2.2; section 7.2.1). The place of information technologies in the lives of children and young people was seen as requiring a rebalancing towards the real world, including the natural world (section 6.2.3; section 7.2.1).

Awakening an arguably latent sense of connection in today’s adults is also critical to re-awakening the sense of connection with the natural world. Today’s adults are the current decision-makers responsible for actions to slow the damage to the Earth and its beings (Macy 1998), and they are also responsible for the cultural induction of children (section 6.2.4; section 7.2.1).

‘Promoting an eco-centric discourse’ (proposition for change 2) is also an important contribution towards transitioning towards an eco-centric worldview. An ecologically disconnected discourse impacts on underlying worldviews. That is, if worldview impacts environment, as Hanlon et al. argue, then discourse is a ‘cause of the cause’, impacting worldview and consequent behaviour (Foucault, in Allen 2003, p.18). What the research in the context of the literature indicated here is the need for a renewed envisioning of positive cultural stories and myths to support eco-centric values and understanding (section 6.3.1; section 7.2.2); a deep renewal of the discourse itself to more truly reflect human ecological realities (section 6.3.2; section 7.2.2); and, the promotion of collective eco-literacy, such as through widespread public health/education campaigns (section 6.3.3; section 7.2.2).

Public health’s wide view of causation indicates a role to consider and respond to these features impacting worldviews.
7.3.3 Holistic perspective

Section 2.8.3 highlighted the holistic understanding public health experts perceive as critical for tackling the complex problems currently facing humanity, especially ecological problems impacting health and well-being. As discussed in section 7.2 above, this understanding aligns with much other literature. The findings from this study suggest a number of interwoven cultural attitudes or attributes will be supportive of eco-centric cultural transitioning. These mutually reinforcing attributes emphasise open-mindedness and inclusiveness for greater understanding and resilience in meeting complex challenges.

These findings suggest that transitioning towards an ecological paradigm will be supported by ‘promoting holistic approaches which impact human-nature relations’ (proposition for change 3). This understanding aligns significantly with that of eco-centric public health experts (section 2.8.3). Specifically, findings in the context of the literature indicate that openness to a number of interwoven holistic features will support an eco-centric understanding, namely: ethical inclusiveness based on social-justice principles and reciprocity towards the natural world (section 6.4.1; section 7.2.3); systems-thinking (section 6.4.2; section 7.2.3); enhanced use of dialogue in processes considering complex environmental issues (section 6.4.3; section 7.2.3); community optimism based on the true state of human-nature relations and eco-centric possibilities for the future (section 6.4.4; section 7.2.3); taking a wide view of time to support the development of eco-centric policy (section 6.4.15; section 7.2.3); and enhanced respectful engagement with Indigenous culture and people, such as elders, in pursuit of eco-centric (and culturally sensitive) policy development (section 6.4.6; section 7.2.3). It is further suggested that opening to the presence and agency of natural environments is supportive of cultivating more holistic processes and decision-making, especially in relation to the environment itself (section 6.4.7; section 7.2.3).
Public health’s holistic perspective indicates a role to consider and respond to these features supportive of a more holistic collective understanding impacting the environment.

7.3.4 Empowering the agency of individuals and communities to take control over things impacting their health

The role of public health embraces the empowerment of a sense of agency enabling people to take greater control over the things impacting negatively on the environment and hence health and well-being, as discussed in section 2.8.4. The findings from this study, in line with much literature including from the public health field, suggest that cultural attitudes and values are determinants of behaviour towards the environment. The literature also strongly suggests that recognition of inextricable human-nature relations and the associated ecological identity provides impetus for action to protect the environment. This research suggests that greater collective understanding of human-nature interconnectedness will empower a sense of agency in individuals and communities to take control over damaging practices impacting the environment and hence human health.

All four propositions for change are relevant to promoting a sense of agency. Proposition 1: re-awakening a sense of connection with the natural world, and proposition 2: developing eco-centric discourse, will support foundational eco-centric understanding and identity. Proposition 3: fostering holistic approaches (reasoning/behaviour) to complex issues impacting the environment, will enhance collective ability and resilience to act on behalf of the eco-centric future. Effecting these changes (propositions for change 1 – 3) will support the needed groundswell of committed eco-centric individuals willing to confront the inertial force of cultural norms and challenge those vested in the business-as-usual status quo (proposition for change 4).

In particular, the literature, including the public health literature, suggests that promoting more widely a realistic sense of hope and optimism may be critical to
imagining a flourishing planetary future and to a sense of agency in pursuing it (section 6.4.4; section 7.2.3).

Public health’s commitment to empowering the agency of individuals and communities to take control over things impacting their health indicates a role to consider and respond to these features supportive of eco-centric change.

7.3.5 Commitment to advocacy for healthful cultural change

Section 2.8.5 brought to the forefront the public health mandate to challenge political and cultural forces which impact negatively on health and well-being. That is, positively, to ‘advocate for health’ (WHO 1986). Recognition of the need to challenge vested business-as-usual interests is a strong and growing feature of much contemporary scientific/cultural reporting and commentary, as noted in the literature review. This study’s findings, supportive of this commentary, suggest that indirect and direct challenges to the status quo are a feature of advocacy. Indirect challenges may include promotion and modelling of alternative lifestyles. Direct challenges include ‘stepping up’ to powerful interests to articulate the facts of human ecological reality. The necessity for significant challenges to political, industrial, business interests on behalf of health and well-being, as the Ottawa Charter indicates may be necessary, points to a public health leadership role in supporting a healthful cultural transitioning. The findings also caution that a failure of leadership at this time may lead to civil unrest (section 6.5.3). In the long-term, this study’s findings in the context of the literature, indicate that such a failure is likely to be both ecologically and socially disastrous.

These findings suggest that transitioning towards an ecological paradigm will be supported by promoting commitment to advocacy for healthful eco-centric cultural change. Specifically, public health’s advocacy perspective aligns with the proposition that an eco-centric transitioning will be supported by ‘challenging those vested in the business-as-usual status quo’ (proposition 4). The findings detail three main features
of this proposition: promoting eco-centric lifestyles (implicitly challenging of ecological destructive consumerism) (section 6.5.1; section 7.2.4); leadership (section 6.5.2; section 7.2.4); and, in the absence of significant change at all levels of society, willingness to engage in civil disobedience (section 6.5.3; section 7.2.4).

The ideas discussed here highlight once again the need for an adequate discourse clearly articulating human ecological realities (proposition for change 2: promoting an eco-centric discourse). This includes the articulation of the authentic feeling connection many people hold in relation to the natural world but currently struggle, as did participants to this study, to articulate (section 6.3.2; section 7.2.2).

Public health’s commitment to advocacy for healthful cultural change indicates a role to consider and respond to these features supportive of eco-centric advocacy. As these findings indicate, a failure of leadership and direction in the near future would have not only potentially disastrous ecological and health effects, but open up the real possibility for significant ruptures in social cohesiveness (section 6.5.3; section 7.2.4).

7.3.6 Vision for the future

A significant role for public health in envisioning, and empowering people more widely to envision, an eco-centric planetary future was highlighted in section 2.8.6. The research aim for this study of exploring the facilitators of and barriers to greater socio-cultural transitioning towards an ecological paradigm was pursued within a public health context. This study is intended as a contribution to the field’s consideration of the collective envisioning which public health experts and cultural commentators more generally indicate is a cultural priority at this time.

The four mutually reinforcing theoretical propositions are arguably all relevant to the field in the context of developing a vision of eco-centric transitioning. In particular, proposition (2) that transitioning towards an ecological paradigm will be supported by promoting an eco-centric discourse may be critical here. As discussed (7.2.2),
discourses are central to collective thinking processes, and hence to imagination, values and ultimately decision-making. Renewed eco-centric language (section 6.3.2; section 7.2.2) and associated inspired imaginings of a positive eco-centric future (section 6.3.1; section 7.2.2) are needed. Also critical will be the active exploration, promotion and modelling of positive eco-centric lifestyles (section 6.5.1; section 7.2.4) as a way of ‘being the change’ (Hanlon et al. 2012) leading to the desired future.

Public health’s commitment to envision a desired healthful future for all indicates a role to consider and respond to these propositions for change emergent from this research articulating the necessity for, and possibilities of, envisioning a healthful eco-centric future.

As participant accounts emphasised again and again, the fostering of a healthful vision of the future is dependent on committed action taken today to challenge and change the current ecologically-ruinous cultural trajectory. Recognition by the field of public health that accepting significant responsibility as eco-centric cultural change agents will have positive effects on social cohesiveness as well as on human-nature relations into the future.

7.4 Chapter summary
This chapter discusses the findings in relation to the two aims of the study. The first aim of the study was to explore the facilitators of and barriers to transitioning towards an ecological paradigm. A substantive theory for change emerged in Chapter Six in response to this aim, formalised in the four theoretical propositions for ecological cultural transitioning. The propositions emergent from the data were discussed in the context of relevant literature in section 7.2. Transitioning towards an ecological paradigm will be supported by: 1. re-awakening a sense of connection with the natural world such as through supporting contact with nature; 2. developing eco-centric discourse, such as through a renewal of meta-stories and language to discuss human-nature relations; 3. fostering holistic approaches (reasoning/behaviour) to complex issues impacting the environment, such as through encouragement of dialogue and a more systems-thinking approach to complexity; and, 4. challenging
those vested in the business-as-usual status quo, indirectly through modelling creative eco-centric lifestyles and through more direct challenges to ecologically destructive practices which may include participating in civil disobedience.

The chapter then looked at the study’s second aim to consider the implications of findings, especially for the field of public health. The six features providing the rationale for a role for public health in supporting an ecological transitioning, as discussed in Chapter Two, were discussed in relation to the four propositions for eco-centric cultural change. The analysis, grounded in the context of literature, indicates a clear role for a strong public health response to the propositions for eco-centric transitioning emergent from this study. As international public health experts have observed, the field has not yet activated the inherently holistic potential within its theoretical frameworks in support of an ecological paradigm. Experts have called for a re-alignment towards the eco-centric big picture understanding of the Ottawa Charter (WHO 1986 [Appendix A]). However, experts are not just calling for a re-invigorated recognition of the thinking behind the Ottawa Charter, but for new ecological frameworks founded on ecological awareness and integrative, holistic thinking (Hancock 1985; Hanlon et al. 2012).

The following chapter will summarise this study and reflect on the implications of the research.
8 Chapter eight – Conclusion

8.1 Introduction
The final chapter of this thesis, ‘Transitioning towards an ecological paradigm – a role for public health’, provides an overview of the research and its implications, particularly for the public health field. It includes reflections on methodological features, including rigour, reflexivity and the study’s limitations, and examines the implications of the study for future research. The thesis concludes with a final word in the ‘overall conclusion’.

8.2 Summary of the research
This thesis affirms that a flourishing environment is fundamental for human health and well-being (WHO 1986, 2005). It is evident however that the effects of human-wrought changes on the natural world, particularly the biosphere’s changing climate, have been and will, in the absence of a profound changes in human behaviour, continue to be destructive for all life on earth (IPCC 2013; 2017). The scientific community is calling for urgent mitigation interventions, particularly of climate change. Cultural theorists and public health experts recognise that the causes of both environmental destruction and the poor collective response stem from an underlying cultural worldview comprising attitudes and values associated with a sense of disconnection with the natural world.

Whilst there are many calls from cultural theorists for an urgent transitioning towards an ecological paradigm, including from the field of public health (e.g. Hanlon et al. 20120; Plumwood 2002; Pretty 2011; Roszak 2001), and a plethora of research into human-nature relations examining characteristics and variables associated with pro-ecological values and behaviours (e.g. Buzzell & Chalquist 2009; Dunlap 2008; Whitmarsh 2011), there has been little research to date providing insight into the nature of the cultural transitioning required.

The first aim of this study was to explore the facilitators of and barriers to greater socio-cultural transitioning towards an ecological paradigm. The literature indicated
that a sense of being a part of nature is associated with pro-ecological attitudes and behaviours (Mayer & Frantz 2004; Nisbet, Zelenski, & Murphy 2009; Schultz et al. 2004) and committed eco-centric action (Lewis & Townsend 2015). This study used a grounded theory methodology to explore the phenomenon of recognition of inextricability with the natural world as a basis for exploring transitioning towards an ecological paradigm. Eighteen eminent people of socio-cultural influence who understood their interconnectedness with nature were recruited for this study.

Recognition of being a part of the natural world was found to encompass a range of understandings, from the scientific and pragmatic to the emotional/feeling, embodied and participatory (Chapter Four). Recognition of being a part of nature was associated with a holistic worldview more generally. This worldview comprised an inclusive ethics, openness to other cultural perspectives, a wide view of the meaning of time and a far-sighted optimism. Participants also held an expansive metaphysical or transpersonal awareness aligned with systems-thinking.

Participants perceived a dangerous disconnect in human-nature relations, the operative norm seen as the notion that humans are not part of the natural world (Chapter Five). This perspective aligns with much cultural commentary (Crompton & Kasser 2009; Flannery 2010; Hamilton 2010) and research (Mayer & Frantz 2004). This disconnect, with a historical basis in increasing urbanisation, was seen as further entrenching notions of human supremacy over the natural world and a discourse of separation (Plumwood 2002; Roszak 2001). Participant accounts suggest the perceived human-nature disconnect was associated also with reductive and ultimately irrational ways of thinking more generally which fail to account for complexity, such as the inextricability of humanity with their environment (Bateson 1988).

A substantive theory for change emerged (Chapter Six). As discussed in the methods chapter, an overall aim of a grounded theory approach is to generate a substantive theory for the phenomenon under study. Creswell (2007) suggests that a reason for seeking to generate a theory is because no existing theoretical perspective fits a
specific issue. Although there is much theorising on human-nature relations and evidence for a needed ecological transitioning, there appears to be little research into the factors contributing to such a transitioning. The philosophical assumption underpinning this research is recognition of the socially constructed nature of reality (Merriam & Tisdell, 2016), which is ever-open therefore to change. Human relations with the natural world from the Western cultural perspective have been subject to significant change over time (Boyden & Dovers 1997), and with further knowledge and insight can change again (Hanlon et al. 2012), and with them human institutional practices (Giddens 1984).

A plausible (Strauss & Corbin 2008) means of transitioning towards an ecological paradigm emergent from these findings takes the form of the four theoretical propositions, which were discussed in the context of the literature in Chapter Seven. These are: 1. re-awakening a sense of connection with the natural world; 2. developing eco-centric discourse; 3. fostering holistic approaches (reasoning/behaviour) to complex issues impacting the environment; and, 4. challenging those vested in the business-as-usual status quo.

With regard to the methodological robustness of this study (discussed further below at section 8.4), the research was grounded in a systematic and reflexive analysis of the perspectives of individuals highly informed about, and committed to, eco-centric outcomes. The findings provide therefore valuable information and insight from this unique perspective regarding the possibilities, complexities and imperatives for an ecological cultural shift.

8.3 Implications of this study, especially for the public health field

The second aim of this study was to consider the implications of findings, especially for the field of public health. This study into an eco-centric cultural transitioning clearly has wide parameters, and the role for public health has been conceptualised as responsive to change at this cultural level. The findings, notably the propositions

33 Human-nature relations have also existed in significantly different forms in other cultures, for example Indigenous (Arabena 2010; Rigby 2009a).
for change, provide insight and direction at this level. Detailed mechanisms and prescriptions for implementation of the policy directions indicated were not a primary focus of this study.

The interwoven ‘chicken and egg’ complexity, as Macy and Brown (1998) imply, inherent in these ideas points to the question from whence the impetus for change (to influence worldviews which influence the structures of society which influence worldviews, etc.) arises at this time. In essence, it may be argued that those whose worldview coincides with or is sympathetic to the eco-centric understanding evident in these findings and in much literature, may feel, as Naess and Sessions (Sessions 1995) propose in the deep ecology platform (section 2.2.5), the imperative to take action at this time.

Related to these ideas concerning the impetus for cultural change is the notion of individual agency. According to Giddens (1984), there is a duality to the structures of society: human beings operate within the rules of social structures, thereby reinforcing them, yet may also, as reflexive beings capable of action, contribute to changing or modification such ‘structures’ by acting outside them. The exercise of this agency by those informed by an eco-centric perspective/worldview may influence eco-centric change. Findings from this study in the context of the literature suggest the potential for eco-centric change to arise from any quarter (section 7.2.3). It appears evident throughout the literature (Chapter Two) that change is arising from all socio-cultural directions suggestive of Macy’s three dimensions of change (section 7.2). However, this thesis argues there is a particular role for public health.

A number of features in the Ottawa Charter for Health Promotion (WHO 1986 [Appendix A]) were examined in the context of the public health literature and provided evidence of a strong basis for greater commitment from the field in supporting an ecological paradigm transitioning (section 2.8). Public health experts and practitioners have been calling for some time for the development of more comprehensive theoretical frameworks which link human health, well-being and
social justice issues with the natural environment (Hancock 1985, 2015; Hanlon et al. 2012; Patrick 2012).

The Ottawa Charter may represent an emergent - historically possibly a re-emergent - understanding of human-nature inextricability, one which public health itself has only partially recognised and responded to. Public health is recognised as perhaps the cultural domain most tasked by its own theoretical underpinnings and most capable of responding to such an understanding (Lang & Rayner 2012). The point of much current public health expert discussion is to arouse, engage and enlist the field to greater recognition of and responsiveness to human ecological realities, including as cultural leaders (Hancock 2015; Patrick et al. 2012; Tait, McMichael & Hanna 2014). An ecological public health is envisaged (Hancock 2015; Hanlon et al. 2012). Calls for new ecological frameworks further the emergent nature of this collective understanding. An incipient international Ecological Charter of the future is perhaps evident in this movement. Such a charter is arguably necessary, one which makes even more central and explicit the inextricable links between people and their environment (WHO 1986), the primacy of ecology to human health and flourishing (Hancock 1999), and the need for proportionate responses at all levels of human organisation. Such a charter may emerge from the arguably growing cultural recognition of human-nature relations (section 2.5.1); it would then support a more widespread re-orientation of cultural worldview and associated structural change (Giddens 1984).

A new feature of this research is the correlation of findings with the emerging ecological public health mandate. The public health ecological mandate, arguably, or at least potentially, was examined in relation to findings (emergent over Chapters Four, Five and Six) in the discussion chapter (section 7.3). The four propositions were shown to align significantly with the ecological features of the Ottawa Charter which this study, in the context of much commentary, suggests is the basis for forthcoming ecological models of health. This study’s substantive findings in support of an ecological paradigm shift point directly to public health’s capacity, in theory, to respond. This culturally-grounded study provides an adjunct argument in support of
the many calls for the collaborative development of a theoretical ecological public health framework. The propositions for change support the direction of ecological public health initiatives, and strengthen the calls to action, including the recent clarion call of the Rockefeller Foundation – Lancet Commission on Planetary Health (Whitmee et al. 2015) for commitment and action at all levels of government, professional and civil society, towards achieving ‘planetary health’.

The UN (2010) has underlined the urgency for implicitly policy-driven ‘decisive responses’ to climate change in particular. As Naess (1995a) observed, ecological wisdom is not just data or scientific description but is ‘policy wisdom’ seeking to change foundational beliefs and attitudes impacting collective priorities and behavioural norms. The propositions for change therefore have clear implications for policy at the meta-cultural - ‘upstream’ - level in providing support for the development of ecological public health frameworks. In addition to adding substantive cultural support for the creation of ecological public health frameworks, the findings point towards much potential for eco-centric policy development and a role for those involved in public health in supporting such policy.

This research furthers the case made in the literature, including public health commentary, for significantly enhanced emphasis on reflexivity and deliberation at this time. It also provides deeper understanding of the culturally significant domains (propositions) likely to prove fruitful for conscious engagement by the public health field. If the environmental crisis enveloping the planet indicates anything, it is that ‘unless we change we’ll get where we’re going’ (Anon, cited in Townsend 1998, p.2). This study, situated within a large and growing scientific, theoretical, public health and popular commentary, suggests that, if a thriving planetary/human future is the goal, we humans must collectively change; as participant accounts strongly affirm, this means profound changes in thinking, in the values, attitudes and beliefs which make up the cultural worldview. Therefore, a main direction for those concerned with public health policy into an ecological future will be to enhance the conscious engagement of practitioners in the imperatives and possibilities of an ecological cultural shift, such as explored in this study. This must necessitate, as argued in this
thesis, a greater recognition of, and responsiveness to, the fact of human-nature inextricability.

This study also contributes greater understanding of this central concept of the interconnectedness of humans and the natural world. Whilst the Ottawa Charter articulates recognition of the ‘inextricable links between people and their environment’ within an emergent recognition of the environment as ‘fundamental’ to health, and whilst this understanding arguably underlies the rising socio-ecological and EcoHealth movements, there appears, however, not to have been much focus on understanding this concept in depth. This research offers a grounded explanation of what human inextricability within the natural world may mean. Significant here is a range of emphases encompassed by the notion of being ‘a part of nature’ (Chapter Four). These emphases spanned the scientific, for example an emphasis on human evolution, and pragmatic survival needs, to a more emotional/feeling recognition, such as awe, towards an embodied and finally participatory emphasis. The Indigenous perspective was seen to lie at the participatory end of the range, a consciousness of embodiment within a vital world of multiple subjectivities, an intrinsically valuable world of agency and presence. Each of these aspects of human-nature inextricability is supported by the literature (section 2.2).

This research suggests that activating the fullest recognition of being a part of the natural world across such a range may be supportive of the ecological worldview the literature indicates is likely to prove most rational, prudential and resilient into the future. The potential arises from a fuller understanding of the multiple meanings of inextricable human-nature relations for public health policy to promote greater understanding and uptake across this range, positive for both health/well-being and ecological outcomes (Hanlon et al. 2012). Of particular importance may be policy attuning to the participatory perspective, which arguably embraces all aspects of the range, through respectful engagement with Indigenous peoples and their still coherent Indigenous knowledge systems.34

34 This research on human-nature was undertaken within an Australian context. Further research would be required to understand in depth human-nature relations in other countries. However, I argue in this thesis for
This thesis has highlighted throughout the interwoven nature of ecological outcomes and ethical/justice outcomes, including socially and in relation to the natural world. Issues concerning the interwoven nature of justice and ecology have been considered at the cultural level, that is, in the consideration of attitudes, norms and values. Some argue, for example, that issues of disadvantage, poverty and development can only be adequately addressed through greater capitalist investment based on greater exploitation of ‘natural resources’ (Charlton 2011). A key element of this thesis is that, whilst issues of disadvantage are critical, this type of thinking (based on attitudes and values) is not only self-serving to those vested in current norms, but ‘self’-defeating in the long term, (even if the self here is only the self-interest of vested groups), as resources deplete and competition for them erodes social values intrinsic to any version of ‘the good life’.

As findings in the context of the literature indicate, there can be no lasting positive ecological outcomes without addressing social justice/ecological ethical issues. These include, for example, the issue of equitable access to natural environments, critical for both multiple positive health outcomes and, as has been argued throughout this thesis, for fostering that relationship with nature associated attitudes and values which lead to its protection (and positive future health outcomes). This research adds emphasis to eco-social endeavours to develop practical implementation strategies for tackling the environmental and social disadvantage of particular groups. Further research, especially policy research, is needed to ground ideas for an ecological transitioning of culture at the level of community.

Although detailed mechanisms and prescriptions for implementation of the policy directions indicated in this study were not a primary focus of this study, the potential

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35 As discussed in relation to findings (section 7.2.3), there is evidence in this study for expanding notions of ‘social interaction’ to include the natural world.
for such future exploration and research into implementation strategies can be briefly indicated. There are three main implementation foci: 1. transmitting the theory for transitioning towards an ecological paradigm; 2. engaging and educating public health professionals and organisations regarding a significant role in an eco-centric transitioning; and, 3. empowering public health professionals to more widely engage the community. These ideas are now considered.

1. **Transmitting the theory of transitioning towards an ecological paradigm**

The main focus of this project has been on multi-faceted eco-centric cultural transitioning. The ‘story’ or theory emergent from the research in the form of the four interrelated propositions for change can be seen as a resource in itself requiring transmission into culture. Such transmission may include academic journals, popular journals and websites or perhaps a book format.

2. **Engaging and educating public health professionals and organisations in an eco-centric transitioning**

This thesis has proposed a significant role for public health in supporting eco-centric cultural transitioning. This role has six key features: 1. concern for health of people now and into the future - an evolving mandate; 2. a wide view of causation – a focus on the determinants of health; 3. a holistic perspective; 4. commitment to empowering the agency of individuals and communities to take control over things impacting their health; 5. commitment to advocacy for healthful cultural change; and, 6. a vision for the future.

Strategies to support greater engagement by the field include:

- increased promulgation of this role in relation to the four propositions for change in the context of the literature (as explored in Chapter Seven) through academic journals/professional organisations;
- developing processes, such as professional focus groups, to explore in depth the potential for public health engagement in eco-centric change. Focus groups could focus on each of the four propositions for change and consider in detail proposals, policies and processes for change;
• eco-centric health promotion education to build on its already strong base (Patrick et al. 2012) fitting it for a key role in eco-centric change; and
• such education to focus on expert public health commentary, as explored in this thesis (e.g. Hanlon et al. 2012; Hancock 1985; 1999; 2015), providing clarification of issues, the necessity for eco-centric change and the implications for public health.

3. **Empowering public health professionals to more widely engage the community**

The literature supportive of a significant role for public health in eco-centric transitioning explored in this thesis (section 2.8) affirms the cultural-change origins and ongoing mandate of the field. This may translate to a willingness to initiate cultural change, or to engage with, support and learn from other groups or organisations already actively involved in eco-centric change. Strategies may include:

- public health initiating Community Conversations/public dialogue to explore key issues, challenges and ideas/visions related to the need to transform society eco-centrically. A good model for these conversations is the ‘One Planet’ Community Conversations model initiated by Canadian public health professionals and academics (University of Victoria [British Columbia] 2017) to consider how to live within the constraints of one planet. The focus could include consideration of all four propositions for change and potentials for implementing them. As noted by the Canadian Public Health Association (2015), public participation is required to create new social norms and values, such as this research indicates are fundamental to wider socio-cultural change.

- public health engaging with others already working towards an alternative, more positive eco-centric future, listening to, learning from, supporting and furthering such alliances. The formation of such alliances is congruent with the Ottawa Charter’s emphasis on public health’s commitment to engage in ‘cross-sectoral’ health promoting reform. Alliances may be between public health professionals, organisations and
associations, and government bodies, community organisations such as environmental groups, ecologically minded business groups, youth campaigners, indeed any group that shares the vision for ‘a more just, sustainable and healthy society’ (CPHA 2015, p. 28). As this research suggests, eco-centric cultural change, being systemic, may originate from any socio-cultural direction.

As has been stated, the focus of this research was on broad eco-centric cultural change, and making the case for a role for public health in such change. However, a number of recommendations have been developed in relation to the propositions for change (Appendix C) as starting points for consideration by policy makers and practitioners. Following are examples of four of these recommendations, each responsive to one of the four propositions for change emergent from this research (section 7.2). They are provided to illustrate the type of cross-sectoral engagement or alliance formation which public health may initiate or support, as indicated above.

Example 1 (Recommendation 2): Protect urban natural areas from further encroachment by development, and reclaim remnant urban land for parks and nature reserves.

This recommendation relates to theoretical proposition for change 1, namely that an eco-centric paradigm will be supported by re-awakening a sense of connection with the natural world (section 7.2.1). As discussed in section 7.2.1, developing a sense of connection with nature, especially for children, requires access to nearby natural environments.

Action is required:

- for policymakers to develop planning laws prohibiting further encroachment by development on urban natural areas, particularly on public land.
- for local government to work with local communities to facilitate reclamation and ongoing stewardship of degraded remnant urban areas for
parks and nature reserves. State government community funding grants may be available to support this work.

Example 2 (Recommendation 15): Creative renewal of language to connect people to nature.

This recommendation relates to theoretical proposition for change 2, namely that an eco-centric paradigm will be supported by promoting an eco-centric discourse (section 7.2.2). As discussed in section 7.2.2, the language/discourse available for communication about the natural world impacts collective understanding and decision-making.

Action is required:
- for academics, including public health academics, linguists, Earth jurisprudence lawyers and cultural theorists, in consultation with eco-centric community groups and in particular interested and representative Indigenous people and groups, to explore eco-centric concepts and neologisms making explicit human interconnectedness with their environment for consideration by policymakers.
- for policy-making affecting public perceptions of the environment and, implicitly, human-nature relations, to draw on appropriate eco-centric sources of renewal of the discourse.

Example 3 (Recommendation 26): Encourage contact with natural environments as supportive of cultivating more holistic processes, dialogue and decision-making, especially in relation to the natural world itself.

This recommendation relates to theoretical proposition for change 3, namely that transitioning towards an ecological paradigm will be supported by promoting holistic approaches which impact human-nature relations (section 7.2.3). As discussed in section 7.2.3, openness to the agency and presence of the natural world itself is supportive of holistic thinking, enabling fresh ideas and insights. This
was seen as especially, but not only, relevant to decision-making affecting the environment.

Action is required:
- for policy makers to engage in eco-centric discussion and decision-making which incorporates – or rather, enables incorporation by – the natural world as a key component and contribution to (holistic) processes.

**Example 4 (Recommendation 27): Endorse the health and well-being benefits and opportunities of eco-centric lifestyles, including their potential for creativity and human development.**

This recommendation relates to theoretical proposition 4, namely that transitioning towards an ecological paradigm will be supported by challenging those vested in the business-as-usual status quo (section 7.2.4). As discussed in section 7.2.4, eco-centric lifestyles challenge consumerist, individualist norms current in today’s society, and offer multiple possibilities for human development and ‘alternative hedonisms’ (Soper 2008).

Action is required:
- for public campaigns, such as the Life Be In It public health campaign, to promote the health and well-being benefits of eco-centric lifestyles. Public champions and role-models may be enlisted.
- for policy development furthering State Health Acts incorporation of regulation of environmental impacts in Health Impact Assessments. For example, the impacts not only of exposure to toxic environments, but the health impacts of poor access to green spaces.

Action is also required:
- for significant public health advocacy at all levels to confront environmentally destructive business-as-usual interests through advocating for a healthy future, such as is currently demonstrated by the Victorian Climate and Health Alliance.
8.4 Reflections on rigour

As indicated in the Methods chapter (Chapter Three, section 3.5), this section will consider the rigour of this project as the basis for confidence in the outcomes detailed above. Lincoln and Guba’s four extensively-used (Morse 2015) criteria for evaluating qualitative research provide the basis for this discussion. These criteria are: credibility, dependability, confirmability and transferability (Lincoln & Guba 1985).

Morse (2015, p.1213) notes Creswell’s observation that a qualitative project needs to engage in strategies to meet at least two of the criteria for rigour outlined by Lincoln and Guba. Strauss and Corbin suggest, however, that quality is not simply a matter of ticking boxes. Quality qualitative research is something recognisable if difficult to describe (2008, p.297). It resonates with readers, is interesting and logical and offers fresh perspectives to stimulate discussion and further research on the topic. They affirm the dual nature of qualitative research as both a ‘creative’ and a ‘scientific’ endeavour; qualitative findings will reflect both aspects, with elegant and innovative thinking balanced by reasonable claims. These claims need to be backed by the presentation of evidence enabling data to ‘speak for itself’ (2008, p.311), and a critical and transparent application of methods to enable the reader to reach their own conclusions. This study provides much data from participant interviews in support of analytical claims made, and the methods chapter (Chapter Three) provides a transparent discussion of methods used.

Eisenhardt, Graebner and Sonenshein (2016, pp.1120 – 1121) echo much of Strauss and Corbin’s understanding of the grounds for recognising quality research. For them, the quality of inductive research rests on three criteria, namely: 1) that the emergent theory is internally coherent and as simple as possible; 2) that themes are convincingly grounded in compelling data; and 3) that the research provides rich and unexpected insights.
The ‘whole-picture’ approach of qualitative research is seen as supportive of rigour, with all aspects of the research process appropriate to the research questions guiding the research, including data collection, analysis, interpretation and ethics (Hansen 2006, p.50). Strauss and Corbin (2008) further suggest that rigour is built into the actual processes of grounded theory research, a position Morse (2015, p.19) confirms in observing that the concurrent processes of data collection, data analysis and continuous checking of categories against data ensure that ‘credibility...is built into the grounded theory method’. The ‘whole-picture’ qualitative approach was integral to this project, with all aspects of the research process interrelated to enhance research strength and internal consistency. For this study, the original effort in the recruitment of highly informed participants in relation to the aims of the project, and careful research and preparation for each interview, supported the high quality of data obtained. The concurrent ongoing analysis and data collection reinforced a flow of interrelated ideas ever-responsive to the research aims. Thorough immersion in the accumulating data, aided by extensive and varied memo-writing, supported a grounded and coherent analysis.

In qualitative research an assumption of multiple realities undercuts the notion of an ultimate objectivity or benchmark to provide justification for the research (Lincoln & Guba 1985). For Lincoln and Guba, the ‘operational word’ for demonstrating the truth of research is credibility; are the interpretations (a reconstruction in themselves) ‘credible to the constructions of the original multiple realities’ of the participants (1985, p, 296). That is, as Creswell puts it, do the findings represent ‘some type of ‘truth’? Creswell (2007) confirms that the ‘plausibility’ of emergent theory is a key feature of good grounded theory research, a view aligning with Strauss and Corbin’s (2008) understanding that research findings should be believable or plausible, and need to show strong links between analysis and the gathered data. For Morse (2015, p.1212), credibility – or ‘validity’ – is understood as how accurately the research represents the essence of the phenomenon under scrutiny. Any notion of validity as truth is, however, rejected, the truthfulness in qualitative research being understood in a more pluralistic sense (Corbin and Strauss 2008, p.298).
To attain a ‘plausible’ (Creswell 2007; Lincoln & Guba 1985; Strauss & Corbin 2008) representation of the essence of the phenomenon under scrutiny for this project exploring the cultural enablers/barriers to transitioning towards an ecological paradigm, the interpretive and analytic processes stayed close to the data (Lincoln & Guba 1985). The emerging interpretation which culminated in the four theoretical propositions of Chapter Six was supported throughout the findings chapters by relevant participant data. The analytic process was assisted by ongoing interrogation of the data from numerous angles to strengthen immersion in the ideas and sensitivity in obtaining the theoretical propositions. This included constant immersion in the transcripts and the iterative comparison of concepts looking for similarities and differences across the data set in search of higher level themes (Strauss & Corbin 2008). This process was supported by constant memo-taking and diagram drawing.

As the credibility of a project arises from how accurately the research represents the phenomenon under scrutiny, credibility is therefore related to its dependability, namely the suitability of the research methods in relation to its research aims (Lincoln & Guba 1985). It also rests on its methodological transparency. A full discussion of sampling decisions, research design, data collection and analysis were provided in the methods chapter. Researcher reflexivity on the research process aligns with the need for transparency in qualitative analysis. (Discussion on reflexivity is provided in the section following).

With regard to Lincoln and Guba’s (1985) third criterion on for assessing the rigour of qualitative study, its confirmability, I have endeavoured to maintain the required ‘adequate distance’ or neutrality from the phenomenon under observation in order to find and present as clearly as possible plausible theoretical propositions. The rigour of this project’s confirmability is also supported by transparency regarding methods, especially with regard to the analytic process and research reflexivity. The feedback of supervisors has also helped to provide an ongoing critical view of the emerging analysis.
Lincoln and Guba’s fourth criterion, transferability, does not apply in the narrow sense of being applicable to ‘sites’ of contextual similarity (Lincoln & Guba 1985). However transparency in the use of methods, and the findings provided being understandable (Lincoln & Guba 1985), are intended to support the reader in deciding if the results are relevant to the research questions. Strauss and Corbin (2008, p.300-301) suggest that findings need to be applicable in the sense of useful, able to provide insight and understanding which can be used in diverse situations and with diverse populations to bring about change. Theory needs to ‘fit’ the area from which it was derived, which, in the present case, is a cultural context influenced by the agency of self-reflective beings.

The eighteen people of social and cultural influence selected for interview for this project provided a range of well-informed and deeply considered views on human ecological reality and on the need for greater cultural congruence with this reality. That their views already have currency in the socio-cultural context was an inclusion criterion for the project. My argument is that greater understanding of the phenomenon of eco-centric cultural meaning-making, as generated through analysis of the views of these information-rich participants, has many applications. The theoretical propositions distilled from this study through a rigorous analytic process are relevant to the culture at large and are, arguably, therefore relevant for consideration by many cultural agents. Public health’s position sitting at the intersection of multiple areas of practice suggests its particular appropriateness as a cultural agent with an evident leadership role responsive to the outcomes from the project. The argument is also made in this study that public health bears a particular responsibility and mandate for thinking ecologically for future planetary/human flourishing.

8.5 A comment on reflexivity
As noted in the Methods (section 3.6), reflexivity is a strong feature of qualitative research. The process of continuous self-reflection supports self-awareness in the process of interpretation, entailing a constant questioning of assumptions and
perceptions in the co-creation of meaning as shared with participants. Reflexivity supports transparency, an important feature of rigour.

The particular epistemological and theoretical perspectives I brought to this research emphasise the socially-constructed nature of reality (the constructivist/interpretivist approach) and the significance of processes of continual meaning-making and interpretation (symbolic interactionism). These assumptions provided both the wider context for this work and a rationale for hope and perseverance for engagement with dynamics of cultural change – as ‘reality’ is socially constructed, it is always open to change. Further, Holton’s (2007, p.269) notion that classic grounded theory is informed but not limited by symbolic interactionism’s essentially social focus, enabling the ‘adoption of any epistemological perspective which fits the data’, was important in the analysis. This idea supported a widening of my epistemological perspective to respond inclusively to the challenging (in terms of the dominant western paradigm in which I also was raised) participant understanding of the natural world as subjective agent and as essentially also ‘co-contributor’ to their meaning-making and understanding of reality, a widening of the concept of ‘social’ well-articulated by Indigenous peoples.

The interwoven nature of grounded theory’s constant comparison, continual interrogation, and circling iterative processes – throughout interviews, analysis, and interpretation – kept me ever-alert to the co-constructed nature of the research. I attempted to tenaciously pursue my research questions throughout the actual interviews, to remain faithful to the meaning emergent from their cross-currents, whilst simultaneously accepting responsibility for the final interpretation. The ‘science and art’ of grounded theory was very evident to me in this process.

A reflexive questioning of assumptions and the limits of the research possibilities supported recognition of a number of features in the research which were surprising. For example, the awareness that a sense of inextricable links with the natural world was associated with an inclusive holistic understanding more generally. Although this may have been more obvious to another researcher looking at the data (Strauss &
Corbin 2008), I had to continually make room for the complexity of this recognition as a valid, evidence-based response to my core question.

Another instance which arose from the interviews which made me question my assumptions was a statement made by one participant who, as I understood from his writings and public statements, had a profound sense of personal connection with the natural world, a connection I interpreted as significantly associated with his extensive eco-centric behaviour. Whilst responsible environmental behaviour was seen as important, he explicitly questioned the necessity for a sense of connection with the natural world as important at this time, clearly an ‘assumption’ behind this project. Strauss and Corbin’s advice to keep striving for analytic distance enabled this jarring, at least to me, assertion to resonate in the findings as an indication of the current urgency for pro-ecological action at this time. Abductive reasoning, a feature of the grounded theory approach, was also employed. Abductive reasoning points to the need for reflection on all the possible explanations for a ‘surprising finding’ including reference to the empirical world in order to find ‘the most plausible explanation to account for [the] findings’ (Charmaz 2011, p.167). This form of reasoning supported the conclusion that, from this participant’s perspective, eco-centric action, particularly mitigation of climate change, is simply the most urgent requirement of all.

Undertaking grounded theory research is a process that may lead to change, both outward and inward. Reflexivity also applies to reflecting on how the research, particularly doing analysis, has shaped the researcher: ‘Inevitably we are shaped by, as well as shapers of, our research’ (Strauss & Corbin 2008, p.85). With regard to inward change, the process of undertaking this research has been both demanding and exhilarating. Analysing participant commentaries - again and again in constant comparison – was challenging, but provided valuable understanding into processes for gaining insight into cultural phenomena. The ideas emerging from this study have also been important to my personal development. The process of exploration into

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36 This thesis does not disagree with this proposition, but seeks to examine the means supportive of such action.
this subject has altered the way I think about my own relations with the natural world, and enhanced my sense of possibility and hopefulness. The question of how we collectively move towards a more eco-centric collective understanding has long been a question of great significance to me, and I believe I have also gained insight for my own life. For example, choosing optimism as a basis for eco-centric action, as did participants, despite daily evidence of increasing environmental degradation, each year hotter than the last for example. The potential for more holistic thinking, a strong theme, also provides an exciting lens for looking towards the future, including the possibility that eco-centric change may originate from anywhere in interrelated reality. I especially value and seek further respectful understanding of the participatory viewpoint most evident in the Indigenous perspective.

8.6 Limitations

A limitation, at least in terms of the grounded theory research literature, related to the nature of the research. Given the complexity of a topic focused on culture and cultural change, a comprehensive ‘thickening’ of concepts and themes as suggested by Strauss and Corbin (2008) through the use of theoretical sampling was unachievable within time limits.

Green et al. (2007) suggest that it is important to avoid using enumerating terms in grounded theory development such as ‘some’, ‘most’ or ‘all’. This argument can be seen as useful with regard to research topics where the scope, terms or conceptual framing of the research are commonly recognised, and the research may, arguably, be understood as ‘bounded’. For example, in such topics as veterans’ Vietnam war experience (Strauss & Corbin 2008) or living with motor neurone disease (King 2005). However, such terms were used in the findings for this research to provide some relative emphasis to various concepts, at least in the context of the interviews. I believed this could provide some added information on a research topic which lacks extensive cultural currency. It is important to keep in mind, however, that although few participants may have noted the importance of a particular concept during the interview process, this does not necessarily indicate a lack of interest or concern. Further research would be required to flesh out the relative importance of concepts.
It is possible to imagine a wider range of data collection techniques being applied to the questions and aims of this research project. A collective participant workshop would have, in theory, been valuable in facilitating interaction of participants with data in support of validation of the emerging themes. However, the particular interview cohort (expert, time-constrained, and non-localised) meant that this would have been difficult to achieve, especially within the limits of the project. Focus groups meeting on several occasions could also have been engaged to respond collectively to the research questions. Whilst there is significant value in this idea, the intention of this research, limiting its scope, was to probe at some depth a number of individuals’ understandings within a cohort arguably representative of an emerging phenomenon (of recognition of human-nature inextricability). There may be significant value in future focus groups engaged in interaction with the aims and questions of this research, deepening understanding of the propositions from this original research and of the potentials for implementation (see, for example, section 8.3 above).

A limitation may be that there were no very young people in this research, despite a number of (respectfully) persistent approaches. This was partly a consequence of the inclusion criteria – there were fewer young people who have had the opportunity to become ‘people of socio-cultural influence’ to approach. The indications were that the several young people (under thirty) sought for interview may have been too busy to be involved, as stated by a young city councillor approached.

8.7 Implications for further research

The complex, holistic nature of both human-nature relations and of cultural change suggest the need for multiple studies in this field. The current poor status of human-nature relations provides urgent impetus for such studies. Much research and commentary, including that undertaken for this project, confirms the potential for deliberative eco-centric change to occur, supportive of further research of this nature. However, the significance of and urgency for an eco-centric transitioning, as indicated by this study in the context of the literature, is clear. This study strongly
suggests the required ecological paradigm shift will be supported through deliberative attention to such orientations as provided by the four theoretical propositions for change.

Future research will ideally focus on the socio-cultural mechanisms appropriate to respond to the specific directions for change such as indicated within this research. A core understanding emergent from this research is of the holistic, multi-faceted nature of the ecological paradigm shift required. This suggests the need for a comprehensive research agenda within a holistic framework which emphasises the mutually-reinforcing nature of needed change. Such an agenda would ideally be in response to the development of an overarching ecological public health framework.

The emergent range of recognition of human-nature inextricability, from the scientific to the participatory, may also be a focus for future research. It appears, for instance, that an embodied, participatory sense of belonging within a natural world of inherent value and meaning is particularly supportive of an eco-centric identity aligned with eco-centric action. Future research could consider this participatory perspective in more detail, especially from the standpoint of how to enhance this understanding in urban communities.

A compelling question arising from this study, and with potentially wide implications for public health practice, is whether the opportunity for connection with the natural world, especially immersive connection in childhood, is supportive of the holistic thinking evidenced in participants to this study and seen as increasingly important to enhance collective resilience at this time. A study incorporating qualitative and quantitative methodologies could test this as a hypothesis. Findings supportive of this hypothesis could provide data to justify initiation by public health of eco-centric strategies to build resilience and adaptability into child development and education policies.

This thesis, however, affirms the growing literature indicating that a connection with the natural world is the basis for both individual health and for caring for the
environment, that is, for ecosystem/planetary flourishing. I believe the immediate focus for extensive applied research should be on multiple mechanisms for creating opportunities for connection with the natural world, especially immersive connection in childhood. This would, in Berry’s (1990, p.92) words, enable the fullest ‘activation of the possibilities of the planet’.

Research should also focus on the means by which arguably latent capacities within the public health field in Australia could be further activated to engage as a priority in supporting cultural transitioning towards an ecological paradigm. The public health literature is clear that such understanding may be critical to a wider uptake of eco-centric understanding (Hanlon et al. 2012). The next exciting stage for this research is how to translate the evidence of this thesis into public health policies and programs that connect evolving societies with an ecological paradigm for sustainable, flourishing human life on a flourishing planet.

8.8 Overall conclusion

This thesis accepts the imperative for urgent deliberation about the interlinked human and planetary future evident throughout the literature. Unlike some commentators, the findings of this study emphasise a collective reflective capacity to reclaim a sense of the inextricable links between people and their environment. Is the human future to be one predominantly man-made (‘it’s all nature’ [Participant 9]) or one wherein organic processes of life hold sway, ecological contexts similar to the ones in which humanity evolved and in which, if given the opportunity, humans feel at home? A central question for all concerned about the ‘environmental crisis’, or, more accurately, the crisis in human-nature relations, is: what sort of relationship with the natural world and ultimately with ourselves do we want? As Diamond noted in his 2006 book, ‘Collapse: how societies choose to fail or succeed’, the choice is ours.
Seeking to understand inextricable human-nature relations in a context of rapid anthropogenic environmental deterioration is critical. It is hoped this research may prove a useful contribution to the growing imperative for eco-centric cultural change.
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APPENDIX A - The Ottawa Charter for Health Promotion.

Ottawa Charter for Health Promotion
First International Conference on Health Promotion
Ottawa, 21 November 1986 - WHO/HPR/HEP/96.1

The first International Conference on Health Promotion, meeting in Ottawa this 21st day of November 1986, hereby presents this CHARTER for action to achieve Health for All by the year 2000 and beyond.

This conference was primarily a response to growing expectations for a new public health movement around the world. Discussions focused on the needs in industrialized countries, but took into account similar concerns in all other regions. It built on the progress made through the Declaration on Primary Health Care at Alma-Ata, the World Health Organization's Targets for Health for All document, and the recent debate at the World Health Assembly on intersectoral action for health.

Health Promotion

Health promotion is the process of enabling people to increase control over, and to improve, their health. To reach a state of complete physical, mental and social well-being, an individual or group must be able to identify and to realize aspirations, to satisfy needs, and to change or cope with the environment. Health is, therefore, seen as a resource for everyday life, not the objective of living. Health is a positive concept emphasizing social and personal resources, as well as physical capacities. Therefore, health promotion is not just the responsibility of the health sector, but goes beyond healthy life-styles to well-being.

Prerequisites for Health

The fundamental conditions and resources for health are:

- peace,
- shelter,
- education,
- food,
- income,
- a stable eco-system,
- sustainable resources,
- social justice, and equity.

Improvement in health requires a secure foundation in these basic prerequisites.

Advocate

Good health is a major resource for social, economic and personal development and an important dimension of quality of life. Political, economic, social, cultural, environmental, behavioural and biological factors can all favour health or be harmful to it. Health promotion action aims at making these conditions favourable through advocacy for health.

Enable

Health promotion focuses on achieving equity in health. Health promotion action aims at reducing differences in current health status and ensuring equal opportunities and resources to
enable all people to achieve their fullest health potential. This includes a secure foundation in a supportive environment, access to information, life skills and opportunities for making healthy choices. People cannot achieve their fullest health potential unless they are able to take control of those things which determine their health. This must apply equally to women and men.

Mediate

The prerequisites and prospects for health cannot be ensured by the health sector alone. More importantly, health promotion demands coordinated action by all concerned: by governments, by health and other social and economic sectors, by nongovernmental and voluntary organization, by local authorities, by industry and by the media. People in all walks of life are involved as individuals, families and communities. Professional and social groups and health personnel have a major responsibility to mediate between differing interests in society for the pursuit of health.

Health promotion strategies and programmes should be adapted to the local needs and possibilities of individual countries and regions to take into account differing social, cultural and economic systems.

Health Promotion Action Means:

*Build Healthy Public Policy*

Health promotion goes beyond health care. It puts health on the agenda of policy makers in all sectors and at all levels, directing them to be aware of the health consequences of their decisions and to accept their responsibilities for health.

Health promotion policy combines diverse but complementary approaches including legislation, fiscal measures, taxation and organizational change. It is coordinated action that leads to health, income and social policies that foster greater equity. Joint action contributes to ensuring safer and healthier goods and services, healthier public services, and cleaner, more enjoyable environments.

Health promotion policy requires the identification of obstacles to the adoption of healthy public policies in non-health sectors, and ways of removing them. The aim must be to make the healthier choice the easier choice for policy makers as well.

*Create Supportive Environments*

Our societies are complex and interrelated. Health cannot be separated from other goals. The inextricable links between people and their environment constitutes the basis for a socio-ecological approach to health. The overall guiding principle for the world, nations, regions and communities alike, is the need to encourage reciprocal maintenance - to take care of each other, our communities and our natural environment. The conservation of natural resources throughout the world should be emphasized as a global responsibility.

Changing patterns of life, work and leisure have a significant impact on health. Work and leisure should be a source of health for people. The way society organizes work should help create a healthy society. Health promotion generates living and working conditions that are safe, stimulating, satisfying and enjoyable.
Systematic assessment of the health impact of a rapidly changing environment - particularly in areas of technology, work, energy production and urbanization - is essential and must be followed by action to ensure positive benefit to the health of the public. The protection of the natural and built environments and the conservation of natural resources must be addressed in any health promotion strategy.

**Strengthen Community Actions**
Health promotion works through concrete and effective community action in setting priorities, making decisions, planning strategies and implementing them to achieve better health. At the heart of this process is the empowerment of communities - their ownership and control of their own endeavours and destinies.

Community development draws on existing human and material resources in the community to enhance self-help and social support, and to develop flexible systems for strengthening public participation in and direction of health matters. This requires full and continuous access to information, learning opportunities for health, as well as funding support.

**Develop Personal Skills**
Health promotion supports personal and social development through providing information, education for health, and enhancing life skills. By so doing, it increases the options available to people to exercise more control over their own health and over their environments, and to make choices conducive to health.

Enabling people to learn, throughout life, to prepare themselves for all of its stages and to cope with chronic illness and injuries is essential. This has to be facilitated in school, home, work and community settings. Action is required through educational, professional, commercial and voluntary bodies, and within the institutions themselves.

**Reorient Health Services**
The responsibility for health promotion in health services is shared among individuals, community groups, health professionals, health service institutions and governments. They must work together towards a health care system which contributes to the pursuit of health.

The role of the health sector must move increasingly in a health promotion direction, beyond its responsibility for providing clinical and curative services. Health services need to embrace an expanded mandate which is sensitive and respects cultural needs. This mandate should support the needs of individuals and communities for a healthier life, and open channels between the health sector and broader social, political, economic and physical environmental components.

Reorienting health services also requires stronger attention to health research as well as changes in professional education and training. This must lead to a change of attitude and organization of health services which refocuses on the total needs of the individual as a whole person.

**Moving into the Future**
Health is created and lived by people within the settings of their everyday life, where they learn, work, play and love. Health is created by caring for oneself and others, by being able to take decisions and have control over one’s life circumstances, and by ensuring that the society one lives in creates conditions that allow the attainment of health by all its members.
Caring, holism and ecology are essential issues in developing strategies for health promotion. Therefore, those involved should take as a guiding principle that, in each phase of planning, implementation and evaluation of health promotion activities, women and men should become equal partners.

Commitment to Health Promotion

The participants in this Conference pledge:

- to move into the areas of healthy public policy, and to advocate a clear political commitment to health and equity in all sectors;
- to construct the pressures towards harmful products, resource depletion, unhealthy living conditions and environments, and of starvation; and to focus attention on public health issues such as pollution, occupational hazards, housing and settlement;
- to respond to the health gap within and between societies, and to tackle the inequalities in health produced by the rules and practices of these societies;
- to acknowledge people as the main health resource; to support and enable them to keep themselves, their families and friends healthy through financial and other means, and to accept the community as the essential voice in matters of health, living conditions and well-being;
- to resist health services and their resources towards the promotion of health, and to share power with other sectors, other disciplines and, most importantly, with people themselves;
- to recognize health and its maintenance as a major social investment and challenge, and to address the overall ecological issue of our ways of living.

The Conference urges all concerned to join them in their commitment to a strong public health alliance.

Call for International Action

The Conference calls on the World Health Organization and other international organizations to advocate the promotion of health in all appropriate forums and to support countries in setting up strategies and programmes for health promotion.

The Conference is firmly convinced that if people in all walks of life, nongovernmental and voluntary organizations, governments, the World Health Organization and all other bodies concerned join forces in introducing strategies for health promotion, in line with the moral and social values that form the basis of this CHARTER, Health For All by the year 2000 will become a reality.

CHARTER ADOPTED AT AN INTERNATIONAL CONFERENCE ON HEALTH PROMOTION*

The move towards a new public health, November 17-21, 1986 Ottawa, Ontario, Canada

* Co-sponsored by the Canadian Public Health Association, Health and Welfare Canada, and the World Health Organization
APPENDIX B - Topic guide for semi-structured interviews (1)

The following questions are a guide only, and exact questions and their order will be responsive to emergent participants’ narratives.

1. How would you describe the human-nature relationship?

2. What do you think motivates you to hold attitudes/undertake behaviours [in the public realm indicative of recognition of “inextricable links between humans and their environment” (WHO 1986) and/or efforts to raise awareness and responsiveness]?

3. What are you wanting to achieve?

4. How successful do you consider you have been? Why?


7. What policy initiatives do you believe should be taken by government/s to promote recognition of human-nature interconnectedness?

8. What conditions outside the direct control of government/s do you believe are needed to foster such recognition?

9. What supports you in your efforts? [both a more general and more personal question than above]
10. What hinders you in your efforts? [both a more general and more personal question than above]

11. Who or what influenced you to make statements, undertake action... [information in the public realm indicative of recognition of “inextricable links between humans and their environment” (WHO 1986) and/or efforts to raise awareness and responsiveness]?

**Topic guide for semi-structured interviews (6)**

**The following questions are a guide only, and exact questions and their order will be responsive to emergent participants’ narratives.**

1. Could you please say something about your understanding of the human-nature relationship?/your own relationship with the natural world?

2. Can you say something about who – or what – may have influenced you to make statements, undertake action, suggesting recognition of interconnectedness between people and environment?

3. What motivates you in your work? What are you wanting to achieve?

4. (It seems if people feel some connection to the environment they care more for it, as in your case). In your opinion, what might help people connect more to the environment/the natural world so they care more?
   - what hinder a sense of connection which may lead to caring and action?

5. (related question, more general) OR what factors do you think might assist in raising awareness of human-environment interconnectedness?
   - what factors may be hindering such recognition?
6. Do you sense there may be policy initiative/s which could, in theory, be undertaken by government/s to promote recognition of human-nature interconnectedness?

7. What conditions outside the direct control of government/s do you believe may be needed to foster such recognition?

8. Can you see any role for the public health at this time in promoting recognition of/responsiveness to human-nature interconnectedness?

9. What supports/hinders you in your efforts to raise awareness? [Possibly both a more general and a more personal question than above].

10. Could you say something about what helps you connect/your connection with the natural world if not already mentioned?
    - hinders? If not already mentioned.

11. Ask about spirituality/transpersonal understanding related to nature or any role for civil disobedience if not already mentioned.
APPENDIX C – Recommendations for eco-centric cultural change

The following recommendations are responsive to the four theoretical propositions for transitioning towards an ecological paradigm emergent from the findings chapters: 1. re-awakening a sense of connection with the natural world; 2. developing eco-centric discourse; 3. fostering holistic approaches (reasoning/behaviour) to complex issues impacting the environment; and, 4. challenging those vested in the business-as-usual status quo.

The recommendations indicate broad policy direction for eco-centric cultural change. These recommendations are not exclusive; they are intended to provide a starting point for considering implementation strategies, particularly by the public health field. Detailed work on recommendations, and mechanisms and strategies for their implementation, will require further research and engagement with stakeholders.

The following recommendations are particularly, but not exclusively, relevant to the proposition for change 1, namely that eco-centric transitioning will be supported by re-awakening a sense of connection with the natural world (see section 7.2.1).

Recommendation 1: Endorse the health, well-being and developmental benefits of access to natural areas including parks/National Parks.

Recommendation 2: Protect urban natural areas from further encroachment by development, and reclaim remnant urban land for parks and nature reserves.

Recommendation 3: Protect National Parks from further encroachment by development which erodes their natural and cultural values.
Recommendation 4: Incorporate natural areas, such as nature strips/avenues and parks, into all new planning developments, and provision of adequate access, including via cycle and foot paths.

Recommendation 5: Support food gardens in urban and suburban areas, including in or near schools.

Recommendation 6: Empower children to connect with nature through balanced assessment of the benefits and risks of child contact with nature, including the value of independent free play.

Recommendation 7: Endorse educational, health and sustainability benefits of ‘green schools’ incorporating produce gardens and opportunities for play in natural settings.

Recommendation 8: Endorse eco-centric education/cultural induction from primary to tertiary levels which provides opportunity for:
- experiences, especially immersive experiences, within the natural world
- learning about nature and human inextricable relations (e.g. human ecology, science, natural history, eco-centric literature)
- respectful engagement with Indigenous culture.

Recommendation 9: Support adult education/cultural induction promoting the health and well-being benefits of contact with nature, for adults and for children in their care.

Recommendation 10: Encourage connection with the natural world as a priority over screen-time for children and adolescents.
Recommendation 11: Support the development and propagation of information technology applications which encourage actual engagement with the natural world.

Recommendation 12: Encourage public health campaigns promoting the health, well-being and developmental benefits of contact with, including activity within, natural environments (similar to the Life Be In It and Healthy Parks Healthy People promotions), with an emphasis on inter-generational engagement.

Recommendation 13: Develop and transmit processes for renewing recognition of human-nature inextricability amongst professionals, including public health professionals.

The following recommendations are particularly, but not exclusively, relevant to the proposition for change 2, namely that eco-centric transitioning will be supported by developing eco-centric discourse (see section 7.2.2).

Recommendation 14: Encourage engagement with the facts and possibilities of human ecological embeddedness to stimulate widespread eco-centric understanding and expression, especially in the envisioning of renewed eco-centric meta-stories.

Recommendation 15: Creative renewal of language to connect people to nature.

Recommendation 16: Encourage cultural leaders to speak publicly about their understanding of human-nature inextricability.
Recommendation 17: Support public campaigns (e.g. public health, education) encouraging eco-literacy based on explicit valuing of the natural world and the human place within it.

The following recommendations are particularly, but not exclusively, relevant to the proposition for change 3, namely that eco-centric transitioning will be supported by fostering holistic approaches (reasoning/behaviour) to complex issues impacting the environment (see section 7.2.3).

Recommendation 18: Develop and transmit holistic approaches such as those emergent from this study.

Recommendation 19: Encourage ethical inclusiveness based on social-justice principles and reciprocity towards the natural world.

Recommendation 20: Promote increased understanding of systems-thinking widely in society.

Recommendation 21: Encourage the use of dialogue in processes considering complex environmental issues.

Recommendation 22: Encourage community optimism based on the true state of human-nature relations and eco-centric possibilities for the future.

Recommendation 23: Propose and support a wide view of time to enhance the development of eco-centric policy.

Recommendation 24: Promote enhanced respectful engagement with Indigenous culture and people, such as elders, in pursuit of eco-centric (and culturally sensitive) policy development.
Recommendation 25: Promote the health, well-being, social and spiritual benefits of contact with the natural world throughout the population.

Recommendation 26: Encourage contact with natural environments as supportive of cultivating more holistic processes, dialogue and decision-making, especially in relation to the natural world itself.

The following recommendations are particularly, but not exclusively, relevant to the proposition for change 4, namely that eco-centric transitioning will be supported by challenging those vested in the business-as-usual status quo (see section 7.2.4).

Recommendation 27: Endorse the health and well-being benefits and opportunities of eco-centric lifestyles, including their potential for creativity and human development.

Recommendation 28: Greater recognition by the field of public health of the inextricable links between people and their environment as encoded in the Ottawa Charter for Health Promotion (WHO 1986), and of the urgent necessity for population-wide eco-centric transitioning as a core public health responsibility.

Recommendation 29: Willingness by those involved in public health to engage in dialogue with, and if necessary confront, environmentally destructive business-as-usual interests in advocating for a healthy future for all.

Recommendation 30: Empower public health practitioners to actively model and promote eco-centric cultural change.

Recommendation 31: Recognition by the field of public health that accepting significant responsibility as eco-centric cultural change agents will have
positive effects on social cohesiveness as well as on human-nature relations into the future.