USING HUMAN-ENVIRONMENT THEORY TO INVESTIGATE HUMAN VALUING IN PROTECTED AREA MANAGEMENT

By

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This project was undertaken through joint scholarship funding by Victoria University and the Sustainable Tourism Cooperative Research Centre established by the Australian Commonwealth Government.

I, Judi Inglis, declare that the PhD thesis entitled Using Human-Environment Theory to Investigate Human valuing in Protected Area Management is no more than 100,000 words in length including quotes and exclusive of tables, figures, appendices, bibliography, references and footnotes. This thesis contains no material that has been submitted previously, in whole or in part, for the award of any other academic degree or diploma. Except where otherwise indicated, this thesis is my own work.

_____ Date _____

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LIST OF PUBLICATIONS

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Inglis, J. Deery, M. Whitelaw P. (2005). "Learning from the Past: Involving People in Conservation Solutions, paper presented at Parks and Protected Area Management Congress, Queanbeyan, Australia.

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ABSTRACT

Caring for the environment has become a global issue, and the role of national parks in preserving species and environments has taken on renewed importance. Many consider that national parks are places to learn and experience nature, and from this experience can come positive conservation behaviour.

A dilemma facing park agencies is their capacity to manage the park system with limited resources and funding. A park system that allows human access as well as preservation of biotic communities requires planning and resources. The view that the community may assist with conservation or management of discrete areas was cited in the literature, and assessing the possibility of community involvement is the focus for this study.

The research used a case study strategy to examine Human-Environment theory, which refers to the study of humans and their environment. The theory encompasses both the built and natural environment, and the concepts of place attachment and environmental ethics. Although the theory takes in both the built and the natural environment this study did not include the built environment. The study examined the Human Natural World Relationship and conservation behaviour and was placed within an ecosystem management framework. This framework allowed the human-environment interaction to be examined so that human values could be assessed alongside economic, environmental and other values. The study examined the Human Natural World Relationship and conservation activism to establish if the community could contribute to the conservation and management of the national park. The community's views, values and place attachments were gathered through focus groups, interviews, and the distribution of a self-administered survey to the whole community.

The location for the study was Croajingolong National Park and Biosphere Reserve in Gippsland, Victoria. The location was chosen because there was minimal research on the community from the towns of Mallacoota, Cann River and Bemm River, who are the main users of the park.

The study found that the identity of the community was deeply connected with the identity of the national park and that several aspects related to the town and the national park affected the community. This has implications for management to ensure that the status of the national park as well of the town of Mallacoota is protected so that the unique identity of the community and the bond they have to the park is preserved. A suggestion by one participant, who expressed the sentiment of many in the community, was that the town should be zoned as a park town has much merit. The study also found that the majority in the community held ecocentric views and were suited to involvement in conservation and management of the national park. Management can use the results of this study to inform strategies for policy and decisions making that take into account the views and values of the community in the validation of park classification, governance, funding, marketing, conflict resolution and communication with the community.

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TERMS

EE	Environmental Ethics
HNWR	Human Natural World Relationship
NV	Nature Value
PA	Place Attachment
PPA	Parks and Protected Areas
PI	Place Identity
PD	Place Dependence
NAVS	Natural Area Value Scale (nature values)
NEP	New Ecological Paradigm Scale (ecological orientation)

Environmental Ethics Orientation

Anthropocentric:	moral status afforded to humans
Biocentric:	moral status afforded to plants and animals
Ecocentric:	moral status afforded to ecosystems and its individual parts

Environmental Ethics Dimensions

Ecological Orientation:	pro ecological, anti ecological
Nature values:	intrinsic, instrumental, non-use

Place Attachment Dimensions

Place Identity:	emotional, symbolic attachment
Place Dependence:	goal directed, functional attachment

The terms anthropocentric and ecocentric are used interchangeably with the terms instrumental and intrinsic respectively in the literature to describe both environmental orientation and nature values. The terms used in this study to describe orientation are, pro ecological or anti ecological. Nature values are described as intrinsic, instrumental or non-use values, and the overall environment worldview is described as either anthropocentric or ecocentric. The study does not distinguish between biocentric and ecocentric views and refers to both as ecocentric.

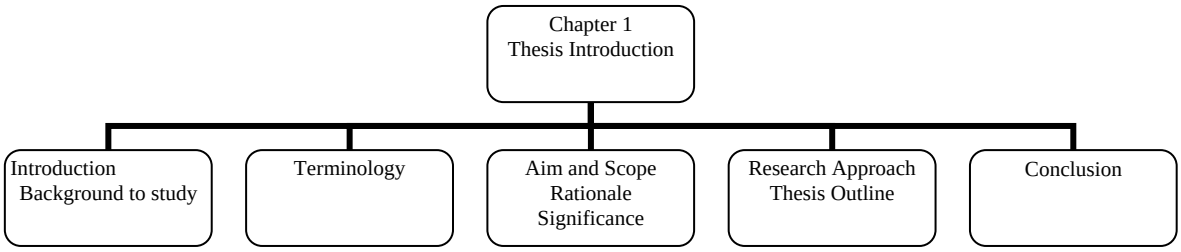
C h a p t e r 1

INTRODUCTION TO THE THESIS

The Research Question

"What is the extent of the Human Natural World Relationship within the community and how can this understanding enhance protected area conservation and management strategies."

Figure 1: Chapter 1



1.1 INTRODUCTION

The thesis explored community views and values within an ecosystem management framework, and the role of community in protected area conservation and management. This chapter will introduce the reader to the structure of the thesis, the terminology, the rationale and the significance of the research to both the social science and to park management. The topics included in the chapter are outlined in Figure 1.

Background

Protected area agencies worldwide have continued to face increased demand for their facilities and services in an environment under pressure from accelerated consumerism, global warming, and dwindling natural resources. Constrained by a decline in funds and limited human resources, managers are forced to explore innovative ways to address these problems. The dilemma of managing human use while protecting ecologically significant areas has continued to pose challenges for park agencies. One solution may lie in the

involvement of community in protected area conservation and management (Figgis, 1999). However, for this to be effective, park agencies require a clear understanding of community views and attitudes towards the environment and their participation in its stewardship to elicit appropriate and desired responses.

Park agencies have a pivotal role to play in conservation management by implementing strategies that foster sustainable resource use. A shift in thought from a short term industrialised economic focus to a long term environmental focus is needed to preserve natural areas that support all life and provide the potential for economic benefits into the future (Purser, Park & Montuori, 1995).

1.2 TERMINOLOGY

Specific terms are used in human-environment research and in this thesis such as the *Natural World*, *Human-Environment, Human Natural World Relationship*, *Place Attachment* and *Environmental Ethics*. These terms are integral to the thesis and while most are listed under terms in the preceding section, some will be explored in detail in the following chapters.

The Natural World

The terms, the *Natural World* or *Nature* have been in use since the 17th Century. The term 'nature' evolved from the 13th Century use of a Latin word natura, this means, 'to be born'. Humans hold a range of perceptions about nature. A summary by Park (2004, p. 31) explains that nature can mean a provider of valuable resources, a temple for spiritual enlightenment, a threat or source of uncertainty and risk, an inspiration and source of insight, or an organism as referred to in GAIA Theory. Disagreement on what nature really is, Park (2004) suggests, may have contributed to the environmental crisis. Discussion continues in public and private forums on what nature really is, how it works, what constitutes a threat to it, whether we are part of the threat or whether we are part of nature (Park 2004, p. 31). Schroeder (2007) examined views on whether humans are part of nature or apart from nature and concluded that people could adhere to both views.

Human-Environment

The term 'human-environment' is used to describe the historic and contemporary interaction humans have with their environment, which includes natural and built environments, as well as the body of human-environment literature that examines attachments to places, ecological orientation and nature values.

Human Natural World Relationship

The term 'Human Natural World Relationship' is a name used by the researcher to explain the integration of both environmental ethics and place attachment in the human interaction with nature. The Human Natural World Relationship is referred to in the study to embrace both place attachment and environment ethics. Few studies were found that examined both attachment and environmental ethics.

Environmental Ethics

Environmental ethics, according to Bright, Manfredo, Fishbein and Bath (1993) is determined through the examination of attitude, which is inclusive of concerns, beliefs and values towards the environment, behavioural intentions, and behaviours. Environmental ethics can be established through examining a person's nature values and ecological orientation, which in turn frames their environmental worldview.

Environmental Worldview

While environmental worldview encompasses ecological orientation and nature values, the terms used to explain environmental worldview vary in the literature. This research has adopted the terms 'pro ecological' and 'anti ecological', which were used by Dunlap & Van Liere (1978) in their research to explain ecological orientation. Additionally, the terms 'intrinsic', 'instrumental' and 'non-use' values used by Winter & Lockwood (2004) are adopted to explain nature values. When ecological orientation and nature values are combined in this research, the person is said to have either an 'anthropocentric' or an

'ecocentric' environmental ethic or worldview, which are terms used by Attfield (2003). The study has used ecocentric to refer to those who see intrinsic value in nature and have a focus towards ecological justice and the protection of nature. Alternatively, anthropocentric refers to those with a strong focus on human justice and human equity, which may include dominance or control of nature (Geno, 2000).

Place Attachment

The term 'place attachment' is used in environmental psychology, while 'sense of place' is used in human geography. According to Williams (1992), the terms are interchangeable. Within this research, place attachment refers to a functional, symbolic, or emotional link to a place. Williams Anderson, McDonald & Patterson (1995) identified two types of place attachment; a goal directed functional attachment and an emotional, symbolic attachment. The goal directed attachment is called 'place dependence' when a place is used for a functional activity. Alternatively, an emotional, symbolic attachment such as one fostered by a special childhood or adult memory or a symbol of heritage, is referred to as 'place identity' (Williams et al., 1995).

In summary, the Human Natural World Relationship refers to the connection that humans have with nature. Imbedded within this connection is *environmental ethics* and *place attachment*. The thesis uses these constructs to examine the bond that exists between humans and nature and to assess the strength of this bond to establish a community's ability to contribute to protected area management.

1.3 RESEARCH AIM AND SCOPE

The aim of the research was to provide park agencies with a management framework that provided an understanding of community values and evaluated community potential for support and involvement in protected area management. The research was driven by the research question.

"What is the extent of the Human Natural World Relationship in the community and how can this understanding enhance protected area conservation and management strategies?"

The research was set within an ecosystem framework that considered the contribution and needs of human communities, as well as the needs of the natural world. The community chosen for the study was located on the outskirts of Croajingolong National Park in Gippsland in southeast Victoria. The towns included Cann River, Mallacoota and Bemm River. The research examined place attachment and environmental views and values towards the national park.

1.4 RATIONALE

Humans and Environment

As pressure on protected areas continues to mount, it is important that managers have a clear understanding of community beliefs and attitudes towards, and place attachment to, natural areas (Hornback & Eagles, 1999; Roberts & Bacon, 1997). This is particularly important in order to engender and maintain support for conservation (Griffin, Wearing & Archer, 2004). Research has shown that "environmental attitudes and knowledge of one's own negative impact is also a critical factor in mitigating backlash" to policies concerning the environment (Hornback & Eagles 1999, p. 53). From an historic perspective, Mebratu (1998) explains that humans have always affected the environment as they rely on the earth's resources to sustain life. Likewise, humans are skilled at adapting to the depletion of resources and are innovative in developing new ways of surviving such crises. At the close of the 20th Century, evidence emerged that the earth was showing vital signs of disintegration (Brown, Lenssen & Kane, 1995). Experts believed that if this situation, driven by accelerated population growth, outdated technologies and social power, was not halted, the earth would be pushed towards destruction (Gottlieb, 1996).

In 1987, a report by the World Commission on Environment and Development titled, 'Our Common Future', defined a global view of environmental sustainability and prompted environmental initiatives across the globe. In the 1980s, the seed of contemporary environmentalism emerged to examine the Human Natural World Relationship and its role in conservation management (Mebratu, 1998).

Management of protected areas in the 21st Century is likely to involve a diverse range of participants (Esau, 1996; Figgis, 1999). However, Selman (2004) believes that it is unlikely that communities will formally manage extensive areas, but rather will attend to specific locations. The choice of participants would therefore have significant consequences for environmental management. Natural resource management agencies, environmental groups, local communities, businesses, visitors, and the tourism industry are all essential players in the conservation challenge. The local communities in this research were the main users of the park and encompassed individual tour operators, businesses, those involved in conservation and the general community whose lives are affected by the well-being of the park.

1.5 SIGNIFICANCE

Contribution to Research

This research combined place attachment theory with environmental ethics theory within a protected area setting, a largely untested area in the park management and tourism literature. Additionally, Gu and Ryan (2007) commented on the lack of debate on place attachment in tourism, while Holden (2003) called for a new environmental ethics in tourism away from an anthropocentric stance. Previous studies measured park users' perceptions, motivation and satisfaction levels and were largely undertaken to gain financial support, improve services and inform marketing and management strategies (Griffin, Wearing & Archer, 2004). However, this information did not provide depth or insight into the Human Natural World Relationship and conservation behaviour or explore a community's potential to contribute to protected area management.

The study may assist to bridge the gap between the natural and social sciences identified as important by Fennel and Butler (2003), through the examination of the community's place attachment, environmental ethics and conservation behaviour. A comprehensive review by Penn (2003) has put forward a compelling case to explain the importance of using theories from multidiscipline areas to understand the relationship between human behaviour and environmental problems. Supporting this view, Hargrove and Smith (2003, p. 15) state that over the last decade an important lesson can be learnt from natural science experts in "the significance of understanding industry values and ethics, which underlie assumptions about conservation".

Contribution to Protected Area Management

The research contributes to ecosystem management, through a framework that includes humans as part of the ecosystem. The framework provides a mechanism to understand human-environment interdependence, and when considered alongside environmental and economic values can assist to establish management priorities and strategies.

A greater understanding of the community's interaction with the national park may help to develop effective management, marketing and tourism models that account for both conservation needs and human use, and identify the level of support for the park from both the public and private sector. Manzo, Perkins and Douglas (2006), have called for the integration of place attachment and meaning into planning and management.

The results of this research will inform park management about community views and values towards Croajingolong National Park. This information will assist in:

- equipping protected area managers with the information needed to assess community support for policy decisions and participation in the environmental, operational, and economic management of the national park to achieve sustainable, long-term outcomes.

- providing a mechanism to understand community functional, emotional, and symbolic needs associated with the national park.
- informing and influencing strategies for policy and decision making to include community views and values and community capacity to contribute or support the national park.
- informing and validating initiatives in park classification, governance, funding, operational models, and marketing across park agencies.
- helping to minimise conflict and improve relationships between park management and the community.

1.6 RESEARCH APPROACH AND THESIS OUTLINE

Research Approach

The research approach recommended by Stern, Young & Druckman (1991) and used in this study suggests that research into humans and the environment demands a multidisciplinary approach to link an individual's values and attitudes to environmental concern. They propose that, by developing new ways of thinking about the relationship of humans to the planet, management will be equipped to implement conservation and management strategies with community support and assistance. Strategic management decisions should be formed from a clear understanding of the relationship people have with the natural environment, such as community beliefs and attitudes (Worboys, Lockwood & De Lacy, 2001). Considering the recommendations from these researchers, the literature and methodologies for this study were drawn from a number of discipline areas. The research fits within the definition of a case study. Yin (1994) explains that a case study is "an empirical enquiry that investigates a contemporary phenomenon within a real life context, especially when the boundaries between phenomenon and context are not clearly evident" (p. 13). In cases where multiple sources of evidence are used, this approach allows for the exploration of intercepting ideas that are essential to an understanding of the specific topic (Yin, 2004).

Thesis Outline

The first chapter introduces the key concepts that formed the basis for this thesis. Chapter Two presents a section of the human-environment literature that has helped to shape environmental consciousness, and current environmental research and practice. Chapter Three and Chapter Four presents the environment ethics and place attachment research. Chapter Five establishes the conceptual model for the study. The methodological approach and method is explained in Chapter Six, while Chapter Seven sets out the findings and recommendations of the research. Finally, Chapter Eight provides the summary and conclusions to the thesis.

Limitations

The survey contained statements about place attachment to the park, the community and various locations within the national park. Many of the participants did not complete the latter section as expected, which was a limitation to the research. There were also some comments from the community regarding some language and relevance of some statements in the research instruments; however, this did not affect the results of the study, which is discussed in the concluding chapter.

1.7 CONCLUSION

Some of the terms used in this study such as the Human Natural World Relationship, environmental ethics, and place attachment have been briefly explained and will be expanded upon in the literature chapters that follow. The reader is referred to 'Terms' on 'page x' for reference, while reading the thesis. The context of the research, the rationale, and the significance of the work has been stated and the Human Natural World Relationship research approach and the thesis structure have been outlined. Chapter Two will introduce the reader to the human-environment literature through the Human Natural World Relationship and the historical connection that humans have had with the natural world.

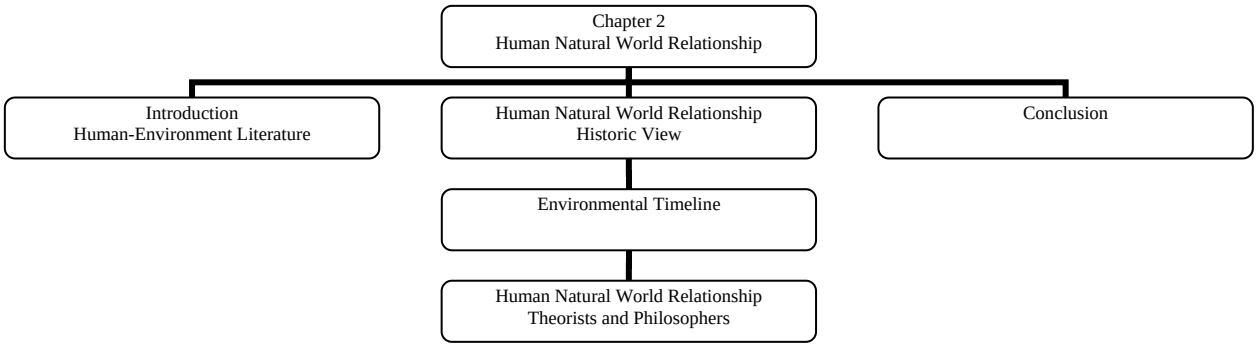
C h a p t e r 2

THE HUMAN NATURAL WORLD RELATIONSHIP

"We cannot win this battle to save species and environments without forging an emotional bond between ourselves and nature as well - for we will not fight to save what we do not love"

Stephen Jay Gould (Orr, 1994)

Figure 2: Chapter 2



2.1 INTRODUCTION

The Human Natural World Relationship is expressed through a person's views and behaviour towards the natural world, which can be either constructive or destructive. This interaction is evident through a person's environmental ethics and place attachment, which have been briefly described in the previous chapter, and will be discussed in more detail in Chapters Three and Four. Whilst the previous chapter outlined the structure and purpose of the thesis, this chapter will expand on the Human Natural World Relationship and the interaction of humans with the natural world. The topics covered in this chapter are shown in Figure 2.

Views on the Human Natural World Relationship, both historic and contemporary, are presented to provide a deeper understanding of perceptions towards nature. This chapter discusses the human-environment literature from a range of disciplines and briefly outlines the place attachment and environmental ethics literature found in tourism and management

research. At the conclusion of this chapter, the historic development of the Human Natural World Relationship, the human-environment theorists and philosophers and the diverse range of perceptions about human interaction with nature will be more evident. Numerous seminal publications and books have contributed to understanding the human-environment interaction, and an environmental timeline has been included in this chapter to capture these important works.

Introduction to the Literature

The literature was inspected from scholarly-refereed journals, conference proceedings, books, dissertations, government documents and policy reports across a number of discipline areas such as human geography, environmental psychology, tourism, leisure, forestry and environmental education. Approximately 600 articles were examined and the scope of the journals that were looked at is shown in Table 1.

Table 1: Journals used in the study

JOURNALS		
Environmental Psychology & *Human/Environment*	Environmental Psychology Society and Natural Resources Human Ecology Review	Nature Human Nature
Human Geography	Landscape and Urban Planning Progress in Human Geography Annals of the Association of American Geographers Int. Research in Geographical and Environmental Education	Landscape Research
Environment	Environmental Education Research Environmental Planning and Mg Ethics and the Environment Aust. Journal of Environmental Mg.	Ecological Economics Environment and Behaviour Environmental Education Environmental Ethics
Leisure	Leisure Sciences Parks and Recreation Australian Association of Natural Resource Mg. Park and Recreation Administration	Forestry Leisure Research
Tourism	Annals of Tourism Research Asia Pacific Journal of Tourism Research Hospitality and Tourism Research Int. Journal of Tourism Research Sustainable Tourism Tourism and Cultural Change	Tourism Geographies Tourism Management Tourism Research Travel Research World Leisure
Other	Academy of Management Journal Social Philosophy Social Science Journal	Social Issues Science

The management and tourism literature was reviewed to establish the extent of research in place attachment and environmental ethics in these disciplines. There was no evidence in the management literature of studies that incorporated both environmental ethics and place attachment in the same study. However, environmental ethics studies were apparent although they were not in a protected area setting. Multidisciplinary in approach, they drew on work from psychology and environmental science.

Studies in place attachment in the management literature were few with the exception of work undertaken in landscape and urban planning. For instance, a study by Norwegian researchers, Kaltenborn and Bjerke (2002b) examined landscape preferences and place attachment, and revealed responsiveness to ecocentric views amongst stakeholders. This was encouraging for managers, who present development and conservation plans to stakeholders.

Studies into the Human Natural World Relationship within a protected area setting were not evident in the tourism literature, although a few separate studies in environmental ethics and in place attachment were apparent. The tourism literature contained multidisciplinary studies. The studies have made a significant contribution to tourism research, which will be discussed further in Chapter Three.

The review was expanded to include multidiscipline areas. The leisure journals uncovered a wealth of place attachment studies, while environmental ethics studies were found mostly in environmental psychology, environmental education and human geography journals. An overview of the findings in the management and tourism literature relating to the thesis is discussed in Chapters Three and Four; however, it has been mentioned in this chapter so that the human-environment literature can be placed in context with this work.

Human-Environment Research

Studies in either place attachment or environmental ethics were found mostly in the social and natural sciences, in human geography, environmental psychology, leisure, forestry and environmental education. The human-environment literature was systematically divided into three main topics, the Human Natural World Relationship literature, environmental ethics and place attachment. The Human Natural World Relationship literature is discussed in this chapter. The literature consists of examples of the historic and contemporary human-environment interaction. Environmental ethics included ecological orientation and nature values, and place attachment; that is, the emotional, symbolic, historic, and functional attachments people have to places. These later topics will be discussed in Chapter Three and Chapter Four.

2.2 THE HUMAN NATURAL WORLD RELATIONSHIP

Historic View

Human interaction with nature, through a dependence on nature, has seen periods of environmental degradation and the depletion of natural resources throughout human existence. This degradation has been responsible for the extinction of many ancient societies such as Ancient Rome and the Babylonian Empire (Mebratu, 1998; Niragu, 1994). Human history has also shown that man can overcome these setbacks through an unyielding will for survival through continued efforts to adopt new ways (Niragu, 1994). According to Wall (1994), the study of human relationships with nature is important for those who seek solutions to current environmental problems. Lessons can be learnt by examining whether our ancestors were aware of, and responded to, issues such as soil erosion, air pollution and heavy metal contamination, such as lead, which is believed to have contributed to the fall of Rome (Niragu, 1994).

The mobility of plants and animals has played an important role in the self-regulating regeneration of the earth. Man, as part of this system, has also moved and adapted in order to

survive. Throughout human history, man's relationship with nature has been one of reliance. Adaptation of lifestyle has been a necessity and has driven innovation to develop new systems to overcome the threat of extinction. Evolutionary experts believe that degradation of plants and animals and population growth have driven the need for change throughout time (Meadows, Meadows & Randers, 1992). An example of human adaptation prompted by challenging events in history is illustrated in Table 2 and discussed in the following section.

Human Adaptation and Innovation

The history of human habitation shows a pattern of destruction of natural assets attributed in most part to population growth (Curran & De Sherbinin, 2004; Meadows, Meadows & Randers, 1992). As natural resources became scarce, humans found innovative ways to survive which led to transformations in social structures. This began in two million BC with the hunter-gatherers who adapted their lifestyle to include hunting large mammals. When wild resources, both crops and animals became scarce, people were forced to move further away from their traditional hunting areas. Some of these early humans increased their nomadic wanderings and migrated to other continents (Mebratu 1998). Others adapted to the depletion of resources by farming, which allowed them to stay in one location.

The decision to plant crops and domesticate animals precipitated a huge change in societies, which became known as the domestication revolution of 7500BC (Meadows, Meadows & Randers, 1992). This change produced a dependable food supply and led to land ownership and the concepts of wealth, trade, money, status and power (Brent & Thompson, 1995; Meadows, Meadows & Randers, 1992). Hunter-gatherers and the domestication revolution serve as examples of the ability of early humans to address the problem of a dwindling resource base. Similarly, human innovation is evident in their ability to adopt new ways of survival, which parallels the struggle facing contemporary humans.

Table 2: Human Adaptation & Innovation

	HUNTER-GATHERERS Basis for spiritual connection with nature (Scull 1999b)	**DOMESTICATION REVOLUTION** Cause of separation from nature (Shepard 1982)	**AGRICULTURAL COMMUNITIES**	**AGRICULTURAL REVOLUTION (ENGLAND)**	**INDUSTRIAL REVOLUTION**	**INFORMATION REVOLUTION**	**SUSTAINABLE DEVELOPMENT** recognised as a management tool
Timeline	2 Million BC	7500 BC	5500 BC	1500's	1750's	1950's	1970's
Approximate Population	100 Thousand	4 Million	4 Million	425 Million	625 Million	2,555 Million	4,086 Million
Crisis Stimulus	Population growth and degradation of plants and animals is a theme throughout history that has lead to scarcity of natural resources, and forced humans to explore innovative ways to survive which in turn has transformed human society structures (Curran & De Sherbinin 2004; Meadows, Meadows & Randers 1992).						
	Scarce wild resources in traditional hunting grounds	Population increase led to scarcity of food supplies in settlements	Agriculture led to increase in population in communities	Advanced agriculture, land ownership and concepts of wealth led to scarcity of land, energy & trees	Increased reliance on machines for production of food and energy sources	Computers led to the development of a global economy hastening natural resource use and strain on the earths systems	Population increase & accelerated resource use resulted in food & water shortages, global warming and damage to the earth systems
Response To Crisis	Migration (nomads moved further) and some began farming, planting crops and domesticating animals	Agriculture discovered	Advanced agricultural techniques developed	Coal and steam replaced trees as an energy source	Computer technology developed	Sustainability adopted as a management tool	Sustainable and renewable green energies. Limits to growth. Restore and protect the earths natural systems by re-establishing the value of nature in the consciousness of societies

Adapted from US Census Bureau (2005) and Frazier (2005)

The next challenge to face humanity came through the increase in population in settlements. Referred to as the agricultural revolution, this began in 5500BC, and progressed to the development of advanced agriculture in England in the 1500s (Gottlieb, 1996). With the progression of agriculture came disrespect for nature (Quinn, 1992; Wall, 1994). This period saw the depletion of forests, an increase in population and a scarcity of land, energy, and biological resources of value for human well being.

This crisis was resolved through the discovery of coal, which replaced trees as an energy source and heralded in the industrial revolution in the 1750s. Industries developed from mining and steam, which required a shift in production methods from hand methods to machinery (Mebratu, 1998). New industries followed the discovery of the steam engine. A shift away from a human-nature interaction to a reliance on machines for production was common and science and technology were elevated in society. Innovation once again overcame problems threatening human existence and the relationship with the natural world changed dramatically. The domination of nature, wealth, individual status and power drove progress with little consideration for the impact on the natural world (Mebratu, 1998).

The information revolution in the 1950s saw the development of the computer age and the emergence of a global economy (Brent & Thompson, 1995). This brought with it greater disparity between the rich and the poor, and hastened both industrial, manufacturing and economic growth and consumerism in industrialised countries. People were elevated to positions of affluence, encouraging their desire for commodities. Science, technology, and globalisation hastened a depletion of the earth's resources and the impact of global warming was felt, which accelerated environmental degradation across the planet. The disconnection of humans from the natural world was near complete, as nature became more distant and inaccessible to most people who were now surrounded by the concrete structures of modern cities (Scull 1999b). Nature was considered a commodity and humans were consuming the planet's resources at a faster rate than could be replaced.

With humanity facing one of its most serious challenges, the concept of sustainable development was conceived in the 1970s from this crisis, when the importance of sustainability was recognised as a management tool at the 1972 United Nations Conference. The following decade, in 1987, The World Commission on Environment and Development (WCED), released a report titled 'Our Common Future', which defined a global view of environmental sustainability that was adopted throughout the developed world (Mebratu, 1998). Before sustainable development was recognised as a management tool, sustainability formed part of discussions in the 1960s on relevant technology to help underdeveloped countries (DuBose, Frost, Chamaeau & Vanegas, 1995).

Modern societies, like our ancestors, are reliant on nature for survival. The early 21st century will be recorded in history as a time when the contemporary world faced its most important struggle. This is due to excessive consumption (Waggoner & Ausubel, 2002) and population growth (Burnley, 2003), which has put pressure on the earth's ability to sustain this level of resource use (Cohen, 1995). While the 20th century recognised the need for a mandate for governments to address human social failings, the 21st century has called for governments and agencies to learn from the past and "to enact [without delay] government for the environment" (Gleeson & Low, 2000, p. 25). Strong leadership in addressing environment issues is needed from world governments and government institutions alike (Gleeson & Low, 2000). The opportunity to develop new sustainable technologies as well as the restoration and protection of natural resources may go some way to address this latest threat.

2.3 ENVIRONMENTAL TIMELINE

An understanding of the past is essential in planning for conservation management to ensure that destructive patterns evident in an earlier age are not repeated. To enhance this understanding the reader is directed to the Environmental Timeline in Appendix A, which documents significant environmental events in history from 1713 to 2007. The timeline does not represent the beginning of environmental thought, because understanding of ecological principles and concern for the environment have been raised throughout human history. For

example in the fourth century BC, Plato referred to damage from soil erosion from grazing, as "bones of a skeleton in a wasted body" (Wall, 1994, p. 3) and dismayed at rain falling on the bare earth being *wasted* in run off to the sea. First century BC, naturalist, Roman poet and author, Titus Lucretius Carus, referred to an "exhausted earth" brought about through soil erosion from cultivation (Wall, 1994, p. 3).

The decision to commence the timeline from 1713 took into consideration the date when the concept of sustainability first appeared in the scientific literature. Hans Carl von Carlowitz introduced the expression in reference to sustainable forestry (Romeijn, 1996). The timeline highlights significant events, such as the world wars, establishment of national parks, environment theorists, and publications and political and social events that have shaped conservation both in Australia and overseas. The reader is directed to the timeline for these events. Not withstanding the importance of these events, the timeline shows two important aspects relevant to this study, the first is evidence of the Human Natural World Relationship, and the second is the diversity of views held by theorists and philosophers concerning human-environment interactions. A review of these two topics is now presented in this chapter.

2.3.1 Timeline: Human Natural World Relationship

The timeline represents a glimpse of the Human Natural World Relationship, which has found expression through painting, art, literature, religion and activism. For instance, the human-environment interaction was evident in early societies through their "religious attitude of oneness with nature" (Wall 1994, p. 35), "where people lived in balance with their environment, and economies were based on sharing instead of competitive exchange" (p. 20). During the eighteenth and nineteenth century, the value of nature was evident in literature and art (Sutton, Cazalet & Grey, 2001), while during the mid to late twentieth century it was evident through active community groups and the human-environment theorists, which are discussed later in this chapter under the heading 'Timeline-Theorists and Philosophers'.

The timeline showed concern for and appreciation of nature, as well as disconnection from nature during certain periods in history. For instance, the agricultural revolution of the sixteenth century brought with it the concept of wealth and accelerated the consumption of resources, which Wall (1994) and Quinn (1992) consider led to the devaluing of nature and a separation of man from nature. However, Shepard (1982) understood the separation to begin earlier as a result of the domestication revolution. Others held different views as to when this disconnection occurred, while some believed it to be with the establishment of the first cities (Scull, 1999b). Human interaction with nature has been supportive and at other times destructive. A brief description of some of the key influences documented in the timeline are listed below, however the reader is directed to the timeline in Appendix A for further detail.

18th Century

The Industrial Revolution expanded rapidly in the latter part of the 18th Century, and saw the re-emergence of the Human Natural World Relationship through the appearance of the nature writers and artists in Europe and America (Sutton, Cazalet & Grey, 2001). Romanticists such as William Blake and Johann Wolfgang von Goethe (Wall, 1994) gave nature a voice in a time of rapid expansion and changing economies. The first of the human-environment theorists considered in this work is Jean-Jacques Rousseau (1755), who contended that man was good by nature, and referred to man as a Noble Savage when in his natural state, but could be corrupted by civilisation and society. Rousseau's work was translated by Cranston in 1984. Scottish moral philosopher and political economist, Adam Smith published his book, 'The Theory of Moral Sentiments', in 1759, which saw man as self interested and self reliant. Smith also wrote 'An Inquiry into the Nature and Causes of the Wealth of Nations' in 1776, which provided the rationale for free trade and capitalism and paved the way for the study of economics (Adam Smith Institute, 2007).

19th Century

During the 1800s, an awareness of the Human Natural World Relationship was evident through publications by two German geographers. Carl Ritter wrote about the mutual

relationship of humans to the earth in 'The Science of the Earth in Relation to Nature and the History of Mankind', while Alexander Von Humboldt described the interdependence of humans and nature in his work 'Kosmos' (Kilpinen, 2005). In 1854, Henry Thoreau in his work 'Walden' (Library of Congress, 2005), articulated the idea that humans are part of nature and that we function better when we are aware of this.

Evolutionary theorists Charles Darwin and Alfred Wallace presented their ideas on the Theory of Natural Selection in 1858. The theory exposed a fresh view of the human-environment interaction, which has had a considerable impact on religious thought. In 1863, Thomas Huxley applied Darwin's theory to man in his book 'Evidence to Man's Place in Nature' (Museum of Paleontology, 2005).

The following year George Perkins Marsh expressed concern for the human impact on the environment in 'Man and Nature', which was the first major intellectual work on conservation (Library of Congress, 2005). Through nature's ability to enhance human wellbeing, Fredrick Olmsted established in 1865, that there was a psychological need for conservation (Library of Congress, 2005). The century closed with the founding of the Sierra Club in the United States of America in 1892 by John Muir and colleagues. The club was set up to protect wilderness, but accomplished far more, as it raised the environmental consciousness and inspired conservation programs (Library of Congress, 2005).

20th Century

1940s-1960s

Concern for nature and human impact on the environment continued throughout this period. Aldo Leopold's 'A Sand Country Almanac' interpreted a living land that needed to be respected (Wise, 2003), and expressed the interrelationship of man with the land. The book was published in 1949, a year after his death. Leopold argued strongly for a Land Ethic, which would protect the environment and minimise impact. GAIA Theory was proposed by James Lovelock in the 1960s, which interpreted the planet as a self-evolving and self-

regulating living system. Humans, as part of this system, and not separate from it, added another dimension to the Human Natural World Relationship.

The view that the environment had an unlimited capacity to absorb pollutants was dispelled in the release of 'Silent Spring' in 1962. The book by biologist, ecologist, and feminist, Rachael Carson prompted a new era in environment activism. The same year 'Our Synthetic Environment' by Murray Bookchin showed that the man-made environment led to disease and ill health, through increased exposure to pollutants and chemicals in foods. While the book exposed a shift in society from the domination of humans to the domination of nature (Biehl, 1998), it also confirmed a change in the Human Natural World Relationship. The following year a program was started called 'The International Biological Program'. The purpose of the program was to assess global environmental damage. The information gathered from this study formed the foundations for science-based environmentalism (International Institute for Sustainable Development, 1999). Bookchin was also the founder of *Social Ecology*, which supported the involvement of people in environmental solutions.

In 1968, Gareth Hardin published his thesis titled Tragedy of the Commons, where he proposed that human self-interest would lead to the collapse of the natural resource base that supports life (Hardin, 1968). The same year Paul Ehrlich published the 'Population Bomb', which explored the connection between population, resource exploitation and their impact on the environment (International Institute for Sustainable Development, 1999). The decade concluded with the forming of Friends of the Earth, which gave people a voice in conservation, and the first Human-Environment Conference was planned for 1972 by the United Nations General Assembly (International Institute for Sustainable Development, 1999). The events of this period reflected the comprehension of a human-environment crisis in the consciousness of both governments and society.

1970s

An awareness of the environmental crisis found expression through the Human Natural World Relationship in the rapid expansion of environmental theorists during the 1970s. Peter

Singers book 'Animal Rights' legitimised rights given to non humans and drove a wedge in anthropocentrism (Atkisson, 1989). Deep Ecology founded by Arne Naess, involved seeing ourselves as part of the earth (Johnstone, 2002). Ecofeminism emerged to advocate a reconnection with nature and the dismantling of hierarchical –patriarchal structures, which its proponents believed contributed to the abuse of nature (Atkisson, 1989). The concept of Sustainability and Sustainable Development was endorsed by scientists as an alternative to expansionism during this period (Sutton, Cazalet & Grey, 2001), and Bioregionalism, founded by Peter Borg, sought to promote ecological orientated values through counter cultural movements (Alexander, 1996).

Disquiet over environmental abuse led to the formation of the environment group Greenpeace, which began in Canada in 1971. A report about population growth prepared for the Club of Rome (1972) titled 'Limits of Growth', and a publication by Barbara Ward and Rene Dubos (1972) titled 'Only One Earth' exposed the extent of human impact on the earth (Club of Rome & Meadows et al., 1972). Additionally, the view that a common concern for the earth would allow man to create a common future was also expressed (International Institute for Sustainable Development, 1999). This period concluded with a publication by J Croomer called 'Quest for a Sustainable Society', which described a social order of people that lived within the limits of its environment as a sustainable society (Sutton, Cazalet & Grey, 2001).

1980s

Governments around the world could no longer ignore community concern and major environment reports were released during this period. The first World Conservation Strategy was released by the International Union for the Conservation of Nature and Natural Resources (IUCN) in 1980 and defined sustainable development as maintaining essential ecological processes and life support systems. Within two years, the United Nations had published its 'Charter for Nature', which expressed the view that all forms of life are unique and should be respected (International Institute for Sustainable Development, 1999).

Edward O Wilson one of the originators of Socio-biology, proposed the *Biophilia Hypothesis* in 1984, which stated that humans have an affinity with nature ingrained in our gene pool (Wilderdom, 2001). In 1987, Edward Abbey's book 'Monkey Wrench Gang' inspired a new generation of environmental activists, which included Earth First. The book contained a serious message about protecting the American wilderness from industrial and commercial forces (Nash, 1990). The Thatcher Government in the United Kingdom was one of the first governments to respond to environmental issues with the release of a report in 1989 called 'Blueprint for a Green Economy'. The report introduced the concept of *Natural Capital* (Sutton, Cazalet & Grey, 2001), which will be discussed in more detail under the heading 'Timeline: Theorists and Philosophers'.

1990s

During this period, pressure on governments to address the environmental crisis increased, and the Human Natural World Relationship was evident in the concern of societies globally. The voice for nature was most clear through environment and conservation groups. The Fourth Congress on National Parks and Protected Areas "Parks for Life" was held in 1992 and raised the concern that the relationship between people and protected areas is often ignored (IUCN, 2008). The congress recognised that people are dependent on areas for survival and their lives are interwined with the natural world (McNeely & Millar, 1984; McNeely, 1993). The submission of a major document in 1990 to the Federal Government of Australia on Ecological Sustainable Development, helped to establish the terms of reference for sustainability in Australia. The document was created by the Australian Conservation Foundation, World Wide Fund for Nature, The Wilderness Society and Greenpeace (Sutton, Cazalet & Grey, 2001). The following year the International Union for Conservation of Nature now known as the World Conservation Union, together with the United Nations Environmental Program (UNEP) and the World Wide Fund for Nature (WWF) published the second World Conservation Strategy titled 'Caring for the Earth'. The strategy built on the first strategy released in 1980, which set out a plan for a sustainable society. Greenpeace released a report called 'The Climate Timebomb' in 1994, which drew

attention to severe, widespread climate change, and environmental disasters caused by global warming.

The founding of the United Nations Commission on Sustainable Development (UNCSD), and the Earth Summit + 5 influenced future United Nations conferences, and established the need for sustainable development (Vanclay, 2005). In 1992, the Kyoto Protocol to the United Nations Framework Convention on Climate Change was held in Japan to stabilise and reduce greenhouse gases (International Institute for Sustainable Development, 1999). When the nations convened, again in 1997 to set targets to reduce greenhouse gas emissions, the Australian government, in contrast to other nations, argued for an arrangement that would allow them to increase their emission limits instead of decreasing them.

Environmental theorists and philosophers were active and vocal during this period. Theodore Roszak defined Ecopsychology in his book 'Voice of the Earth', and suggested that there existed a relationship between personal and planetary wellbeing (International Community of Ecopsychology, 2004). Another important contemporary philosopher in Ecotheology and the study of the bond that humans have with the natural world is Thomas Berry. Berry wrote 'The Great Work' which explored the Human Natural World Relationship and its implications for the survival of the earth's systems as well as the impact on religious thought (Berry, 1999). The decade closed with a publication by Paul Hawkins and Amory and Hunter Lovins called 'Natural Capitalism'. The publication showed that a change in world economies is just as important as the change that took place during the industrial revolution. This change is necessary and has already begun (Sutton, Cazalet & Grey, 2001).

21st Century

2001-2007

The beginning of the 21st century saw a focus on environment, business and politics. While many countries have signed up to reduce greenhouse emissions, Australia's reluctance to sign the Kyoto Protocol, as well as environmental concern has brought community pressure to

bear on the Australian Government. Legislation was introduced by the Australian Government for two percent renewable energy production by 2010. Accountability was called for by business as globalisation protests were held around the world. Legislation was passed in the Financial Services Reform Bill in Australia for full disclosure by fund managers of social and environmental issues when investing client funds. A focus on strengthening sustainability through education was suggested by the United Nations General Assembly to be enacted between 2005 and 2014.

By 2006, the focus on the environment and climate change was firmly in the public arena. One of the first government officials to address climate change was the Governor of California, Mr. Arnold Schwarzenegger, with sweeping controls to stem carbon emissions. The documentary featuring Al Gore called "An Inconvenient Truth" explained the disastrous consequences of government and business inaction on the environment (Guggenheim 2006). At the same time, the Stern Report was released, which set out a comprehensive report on the economic ramifications of climate change (Stern, 2006). The effects on Australia were explained in a consultancy report for the Australian Business Roundtable on Climate Change (CSIRO, Preston & Jones, 2006). It was at this time that the sudden death of well-known Australian activist and conservationist, Steve Irwin was mourned around the world.

Unseasonable and extreme weather conditions that brought floods, droughts and other natural disasters had the effect of mobilising communities. Political inaction was documented in two Australian publications "High and Dry" (Pearce, 2007) and "Scorcher" (Hamilton, 2007). Consequently, in 2007 walks against global warming were held around the world. These walks called for immediate government action to address climate change and were influential in the change of government in Australia in 2007. The incumbent government declared that they would address climate change and ratify the Kyoto agreement to reduce carbon emissions.

Human Natural World Relationship Summary

The environmental timeline assists in demonstrating that the Human Natural World Relationship has existed in many forms throughout history. It also has shown that government action to address environmental issues is unlikely until there is a groundswell of public pressure for change. The timeline has also confirmed that community involvement in addressing conservation issues is not a new concept. The concern for nature was expressed in all sectors of society, from academics, artists, writers, philosophers, clergy and men and women in the community.

2.3.2 Timeline: Theorists and Philosophers

How humans perceive the natural environment is diverse and varied and a range of theories and philosophies have been included to demonstrate this. Perceptions about nature include scientific, theoretical and philosophical approaches adopted by individuals and groups concerned about the environment and about addressing environmental problems.

Park (2004) believed that views concerning the environment are due in part to individual human experiences that shape fundamental human values, and that the different views and perspectives about the essence and purpose of nature have contributed in part to the environmental crisis. While some view nature as an object, others consider nature to be an intrinsic part of self. Park (2004) summarised views about nature as; a provider of valuable resources; a temple for spiritual enlightenment, a source of uncertainty and risk; an inspiration and source of insight; and an organism. Views about nature consisted primarily of presumptions that encompass environmental, evolutionary, or creational thought or a combination of these. Although views about nature differ, it was evident in the literature that all the groups cited in this section are allied in their concern for the environment, and most agree that a multidiscipline approach to conservation was necessary to address current conservation issues.

The Scientific Community

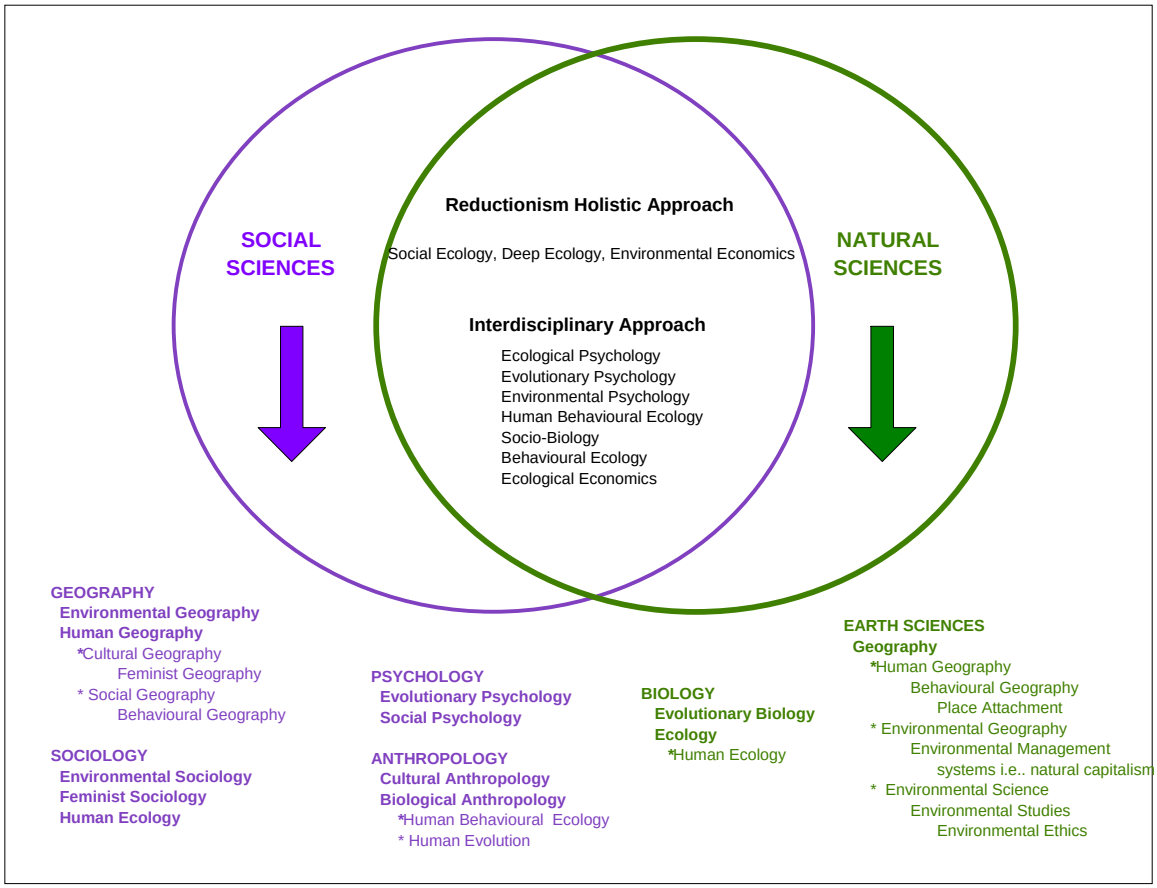
A summary by Mebratu (1998) proposes that scientists such as economists, ecologists and sociologists working to solve the environmental dilemma, recognise the benefits of a combined reductionism and holistic approach to address environmental problems. Disciplines that embrace this approach include social ecology which has a holistic focus; deep ecology, an ecological focus; and environmental economics, an economic focus (Mebratu, 1998). An interdisciplinary approach between the social and natural sciences recognise that humans are dependant on the natural world, and that the neglect of nature, or humans or their economic or social needs may have contributed to environmental crises. Additionally, a change in attitude and behaviour towards the environment will be ineffective unless the institutional, intellectual and physical structures within societies allow human and environmental needs to be recognised (Mebratu 1998; Redclift & Benton, 1994). This statement called for governments and decision makers to show responsible leadership in research and development and to incorporate strategies within policies that support sustainable practices and encourage changes in societal attitudes and behaviour towards the environment.

Environmental and Evolutionary Theorists

While there was cooperation between the social and natural sciences, environmental and evolutionary theorists and philosophers in the natural sciences traditionally hold opposite views (Penn, 2003). Environmental theorists and philosophers in general do not accept evolutionary origins, and are more likely to support a creationalist view. Penn explained that environmentalists "oppose the materialism of science and reductionism, and frequently embrace a mystical or religious view" (Penn, 2003, p. 5). Wilson (1998) believed that understanding the evolution of human behaviour was necessary in order to address environmental problems, which can only be achieved through the integration of these two areas of science.

The assimilation of evolutionary theory into the social sciences has already demonstrated its value in addressing conservation problems through the emergence of disciplines such as socio-biology, behavioural ecology and evolutionary psychology (Barrett, Dunbar & Lycett 2002; Betzig, 1997; Smith & Winterhalder, 1992). In addition, there is, ecological economics (Constanza, 1991), ecological psychology (Keepin, 1991; Pilisuk, 2001; Sundstrom et al., 1996; Winter 1996; Yunt, 2001) and environmental psychology (Fridgen, 1984; Gardner & Stern, 1996; Gruenewald, 2004; Korpela & Hartig, 1996; Kuhn, 2001; Kyle et al., 2004b; Pilisuk, 2001; Roszak, Gomes & Kanner, 1995; Stringer, 1984; Vlek, 2000; Zelezny & Schultz, 2000). Other areas such as ethology, which is the study of animal behaviour, and sociology and their offspring disciplines of human behavioural ecology and evolutionary psychology are recognised for their contribution to understanding human behaviour and bringing the areas of social and biological sciences closer together (Alcock, 2001; Penn, 2003, p. 272). For the purpose of this thesis, these disciplines illustrated the advantages and scope of multidiscipline research in understanding the human-environment interaction, as summarised in Figure 3.

Figure 3: Natural and social sciences with regard to humans and the environment



Within the natural sciences, the integration of evolutionary perspectives into environment sciences can assist in understanding humans and their ability to address environmental concerns. To address ecological problems, Penn (2003) and Alvard (2003) believe that evolutionary insight about human behaviour has much to offer the environment debate, as it may help to explain ecologically destructive behaviour. This understanding can assist in developing both environment policy and education initiatives, to address anti environmental behaviour. To illustrate this, Penn (2003, p. 255) considers that "man's capacity for environmental destruction is not confined to Western Culture", or to modern societies (Smith & Wishnie, 2000), although this concept was central to environmental philosophies such as deep ecology (Sessions, 1995) and Ecofeminism (Merchant, 1980). This view is supported

through evidence that the low environmental impact of indigenous cultures is unrelated to the belief in the sacredness of nature (Low, 1996; Penn, 2003) or to good conservation practices (Lyman, 2004; Vickers, 1994). Minimal environmental impact is more likely due to the lack of sophisticated technologies and the low population density that is present in indigenous communities (Alvard, 1993; Stearman, 1994).

In contrast, Nesse and Berridge (in Coon, 2001) deem that evolving modern environments, have contributed to the disconnection of people to the natural world. This disconnection has resulted in not only behavioural and medical conditions, but also in a disregard for the environment where future environmental impacts are ignored, to take advantage of short-term interests. Penn (2003, p. 284) refers to this situation as "discounting the future". Wilson (1998) believes that rectifying the situation requires an understanding of the evolutionary process in order to comprehend why people behave in this manner.

Other theories and philosophies that revolve around the Human Natural World Relationship concept are listed in chronological order and are shown in Table 3. They are the Noble Savage Concept, Theory of Natural Selection, Social Ecology, Tragedy of the Commons, GAIA Hypothesis, Deep Ecology, Sustainability, Ecofeminism, Animal Rights, Bioregionalism, Eco-Socialism, Biophilia Hypothesis, Ecopsychology, Ecotheology and Natural Capitalism. Protected area managers and communities will most likely subscribe to one or more of these views, and therefore it is useful to have an understanding of concepts,

Table 3: Views, Concepts and Theories concerning the Human-Environment Interaction

Human-environment Theories/Philosophers		Relationship to Nature Place Attachment Environmental Ethic		Environmental Crisis Cause	Solution
1755	**Noble Savage Concept** (Rousseau, 1755)	Humans in their natural state see value in nature (place dependence & place identity)	Ecocentric	Humans corrupted by civilisation	Reconnect to nature to value & respect resource
1858	**Theory of Natural Selection** (Darwin, 1858)	Nature as part of human self (place identity) & Nature as object (place dependence)	Ecocentric Anthropocentric	Nature as object	Reconnect to nature to value & respect resource
1962	**Social Ecology** (Bookchin, 1962)	Humans as part of nature but possessing a second nature, a human nature and free will (place dependence)	Ecocentric Anthropocentric	Domination and exploitation of nature	Involve people in environment solutions
1968	**Tragedy of the Commons** (Hardin, 1968)	Humans reliant on nature (place dependence)	Anthropocentric	Population increase and accelerated consumption	Recognition of human impact, to develop sustainable systems
1969	**GAIA Hypothesis** (in Lovelock, 1979)	Humans as part of a self regulating organism place dependence)	Ecocentric	Viewing the earth as an infinite resource	Reconnect to nature & human intelligence as earth physician
1972	**Deep Ecology** (Naess, 1972)	Interconnectedness of humans and non-humans. Human spiritual & physical wellbeing linked to wellbeing of planet (place identity)	Ecocentric	Domination and exploitation of nature	Address human relationship with nature; reconnect to nature to respect resource
1972	**Sustainability** (Strong, 1972)	Humans reliant on nature (place dependence)	Anthropocentric	Expansionism	Political leadership
1974	**Ecofeminism** (D'Eaubonne, 1974)	Interconnectedness of humans and non humans (place dependence) Advocate a reconnection with nature (place identity)	Biocentric	Androcentrism & authoritarian social and environmental practices	Reconnect to nature & restructure social hierarchy
1975	**Animal Rights** (Singer, 1975)	Animals have absolute rights. Respect for humans and non humans (place identity)	Sentient	Linked to the oppression of rights of humans and non human	Reconnect to nature & respect humans & non humans
1977	**Bioregionalism** (Berg & Dasmann, 1977)	Recognises humans as part of nature. Must reconnect with their place in nature, for human wellbeing (place identity)	Biocentric Anthropocentric	Domination and exploitation of nature	Discover sense of place in nature to value resource
1979	**Eco-Socialism** (Morris, 1979b)	Humans reliant on nature (place dependence)	Anthropocentric	Capitalism	Control to live within the natural limits of nature
1984	**Biophilia Hypothesis** (Wilson, 1984)	Humans evolved deeply interconnected with nature. Aversion to nature (Biophobia) due to modern societies (place identity).	Biocentric	Separation from nature	Reconnect to nature to value resource
1992	**Ecopsychology** (in Roszak, 1979)	Nature is part of self. Sense of place is beneficial to human wellbeing. Separation can lead to suffering for both the environment and humans (place identity)	Ecocentric	Separation from nature	Reconnect to nature through psycho-emotional bonding in order to value resource
1996	**Ecotheology** (Berry, 1996; 1999)	Humans and non-humans as a single integrated community. Mutual benefits coming from reverence for nature (place dependence and place identity)	Ecocentric Anthropocentric	Separation from nature through industrialisation & religious teachings	Reverence for non-humans and to live within natural limits
1999	**Natural Capitalism** (Hawkins, Lovins & Lovins, 1999)	Humans reliant on nature (place dependence)	Anthropocentric	Politics has precedent over implementing sustainable systems	Develop green systems & political leadership

which may influence these views. The theories and philosophies listed in Table 3 may provide insight into place attachment and environmental ethics, which are subtle but evident and have been included in this chapter to reflect the relationship between people and their environment. However, place attachment and environmental ethics are discussed in detail in Chapters Three and Four.

The reader is reminded that the Human Natural World Relationship refers to the combined concepts of place attachment and environmental ethics. Place attachment refers to the functional or emotional attachment to places. Environmental ethics refers to a pro ecological or anti ecological orientation and to intrinsic, instrumental and non-use nature values. In this research the combination of ecological orientation and nature values result in either an anthropocentric, or ecocentric view of the natural world.

Noble Savage Concept (1755)

In 1755, during the time of the romantic writers in France, an essay by Jean-Jacques Rousseau first called for an 'Anthropological Science of Man' (Cranston, 1993, p. 1). Rousseau contended that man was good by nature, a noble savage when in the state of nature, but can be corrupted by civilisation and society (Redford, 1991). The noble savage concept perceives the Human Natural World Relationship as humans being part of nature. According to Low (1996), Dryden used the term Noble Savage in 1672 in his work 'The Conquest of Granada', although Rousseau is credited with authorship of the concept (Ellingson, 2001). Opponents of the Noble Savage concept such as Fairchild (1961) continued to argue about Rousseau's involvement, suggesting that the concept is a myth. Conservationists and anthropologists in advancement of Rousseau's work have redefined the term Noble Savage into the Ecological Noble Savage (Alvard, 1993)

Theory of Natural Selection (1858)

In 1858, evolutionists Charles Darwin and Alfred Wallace first presented their ideas on natural selection at the Linnaean Society in London (Darwin, 1858). The following year

Darwin published his work titled 'Origin of the Species'. The Theory of Natural Selection explains the human-environment interaction as humans and animals evolving from natural selection (Darwin, 2001). The theory had an immense impact on perceptions of the Human Natural World Relationship and consequently on religious creational thought as it implied that humans were part of nature. This view was evident in early letters sent to Charles Kingsley (Huxley, 1863). The Darwinian view refers to nature both as an object and as part of self. When nature is referred to as an object, it represented human domination of the natural world, which is aligned with an anthropocentric view. When nature was portrayed as part of the self, it was perceived as possessing human qualities to be cherished and preserved at any cost, a perspective that is more aligned with an ecocentric view (Purser, Park & Montuori, 1995).

Social Ecology (1962)

The ideals of Social Ecology were present in the writings of Murray Bookchin in 1962. Bookchin, an anarchist and naturalist, maintained that the essence of social ecology involved people in environmental solutions (Bookchin, 1990). Metzner (1999) describes social ecology as one of four radical and revolutionary movements that challenged the industrialised worldview, habits and value systems. It shifted the focus from legislation to the domination and exploitation of nature, as did the other three movements, Deep Ecology, Ecofeminism and Bioregionalism (Metzner, 1999).

The Human Natural World Relationship aspect of Social Ecology perceives humanity as part of Nature (referred to as first nature), but in possession of a second nature (human nature) which brings free will into evolutionary behaviour (Humphrey, 2000), allowing the creative, thinking aspect of humanity to be realised. The recognition of the impact of man's human nature on the environment must be understood if ecological problems are to be addressed (Biehl 1998; Bookchin, 1990). Bookchin's concerns about changes in the environment and the subsequent implications for human health were highlighted in 'Our Synthetic Environment' (Bookchin, 1962). The publication, which preceded Rachael Carson's 'Silent Spring', had a substantial influence upon the green movement (Vanek, 2000).

Another aspect of social ecology is the recognition that domination of other humans has shifted to human domination of nature (Biehl & Bookchin, 1995). Bookchin believes that the ecological crisis must be addressed through "a humanistic ethical framework between humans and the rest of nature, as only an ethical responsibility can yield the sense of concern for other species that is necessary for humans to engage in ecological enlightened ways" (Humphrey, 2000, p. 249). Bookchin does not support an ecocentric or anthropocentric worldview (Humphrey, 2000), and is a critic of Deep Ecology, which he proclaims does not recognise human interests in discussions about the environment (Biehl & Bookchin, 1995). Debate continued between the proponents of social ecology and deep ecology and that according to Bookchin, has the ability to destroy some groups through their differences of conscience and direction (Bookchin, 2004). Although deep ecology is discussed later in this chapter, there are fundamental differences between social ecology and deep ecology. Both groups have similar value systems, concerning the natural world, and although they agree that humans are part of the natural world; views about place attachment, environmental ethics and how to solve environmental problems vary as shown in Table 4.

Table 4: A Summary of Social Ecology and Deep Ecology Views

<table>
<tr><th></th><th>SOCIAL ECOLOGY</th><th>DEEP ECOLOGY</th></tr>
<tr><td rowspan="2">Value Systems</td><td colspan="2">Shift world focus from legislating the environment
to focus on world recognition of the domination and exploitation of nature</td></tr>
<tr><td colspan="2">Wellbeing of humanity inexplicitly linked to the wellbeing of the natural world</td></tr>
<tr><td rowspan="2">Place Attachment</td><td colspan="2">Humans as part of nature (place identity)</td></tr>
<tr><td>Humans as part of nature but possessing a second nature, a human nature and free will
(place dependence)</td><td>Humans identifies with natural world through spiritual, religious connection; humans as part of nature
(place identity)</td></tr>
<tr><td>Environmental Ethics</td><td>Humanistic ethical view</td><td>Ecocentric view</td></tr>
<tr><td>Environment Discussion</td><td>Recognise human interests in discussions; understand impact of mans second nature (human nature) on environment</td><td>Human self-realisation, interconnectiveness of all things. Does not recognise human interests in discussions; does not recognise mans second nature</td></tr>
<tr><td>Environment Solution</td><td>Involve people in environment solutions</td><td>Address human relationship with nature through reconnecting people with nature</td></tr>
</table>

Tragedy of the Commons (1968)

Garrett Hardin's Tragedy of the Commons thesis portrays man as dominating the natural world, which represents an anthropocentric worldview. His work outlines the concept that the earth has finite resources, yet human nature in its endless pursuit of wealth and consumerism eventually will lead to the collapse of the natural resource base that sustains life. The ultimate pursuit of wealth and consumerism will result in the ultimate tragedy for societies that depend on these precious resources (Elliott, 1997; Hardin, 1968). In addition, Hardin (1968) explains that each individual's behaviour may appear to have an insignificant impact on resources, however when this behaviour is multiplied, this collective behaviour will affect the environment in either a positive or a negative way. Population increase and accelerated consumption lie at the base of the problem (Hardin, 1968). Common resources are referred to as "commons" and Hardin draws attention to the fact that humans have developed systems that in time will destroy the ecosystems of the earth (Burke, 2001). Low (2004) believes that self-interest and short-term gain is inherent in our evolutionary past, and inhibits our capacity for successful conservation outcomes.

With globalisation being a force behind economic development, advances through technology, industrialisation and urbanisation have hastened the damage to ecosystems. Ecological destruction from greenhouse gases, radioactive waste, chlorofluorocarbons (CFCs) and human made toxins cannot always be easily observed because they are outside human sensory perceptions (Burke, 2001). Furthermore, despite technological advances, humanity still has limited scientific ability to fully understand the complex biophysical and social causes of environmental damage (Dunlap & Catton, 1994).

GAIA Hypothesis (1969)

GAIA, an ancient Greek name for Mother Earth, is referred to as an animistic concept (Dunbar, 2000), while the term Earth Mother is used by indigenous communities around the globe (Spowers 2000). British scientists, James Lovelock and Lynn Margulis proposed the GAIA Hypothesis in the 1960s (Wall, 1994) and subsequently Lovelock published their

ideas, which proposed that the planet and biosphere is one integrated self-regulating organism (Lovelock, 1979). Although indigenous communities already held this view, it was the first time that the hypothesis was put forward as a western scientific model (Spowers, 2000).

Debate continues among scientists of the relevance of GAIA. Those working in the area of physics and biology and familiar with Einstein's Theory of Relativity, Newton and Descartes' Reductionism, Mechanistic Paradigm, and Darwin's Theory of Natural Selection are challenged by the hypothesis (Spowers, 2000). The hypothesis regards the earth as a self-regulating organism (Dunbar, 2000; Lovelock, 1979); nevertheless, GAIA aims to be consistent with the evolutionary view of organisms and environments as closely linked to the same process (Lenton, 1998). GAIA as a collective organism is difficult to accept by many scientists, "however in its modest form the suggestion that we share the planet as our home with all creatures and have the capacity by our intelligence to act as physician is worth pursuing" (Tudge, 1998, p. 37).

The important contribution of the GAIA Hypothesis to the environment lies in the shift from viewing the planet as an infinite resource to seeing it as a living organism, a whole system in interaction and affected by other organisms, and in turn, changing its environment (Lovelock, 1979). An analysis by Tudge (1998) refers to homeostasis, which is the ability for self-correction. This is an attribute of GAIA, and, like all organisms, if stresses are too great, the homeostasis will fail and the organism will become sick. The human-environment interaction, within the GAIA concept, accommodates humans, as part of this living organism. This opens up the prospect of reconnecting with the earth through the body, mind and spirit, as reflected in indigenous cultures through their songs, chants and prayers (Dunbar, 2000).

Deep Ecology (1972)

During the 1970s, Norwegian philosopher and founder of Deep Ecology, Arne Naess, called for a complete revision of the way that people interacted with the planet (Naess, 1972). However many deep ecologists believe that "Aldo Leopold expressed the ecological worldview succinctly in his famous Land Ethic published in the Sand Country Almanac in

1948" (Taylor & Zimmerman, 2005, p. 1). Leopold's worldview exposed a world, which afforded intrinsic value to each creature operating within a complex natural system. The topic of worldview and nature values will be addressed in detail in Chapter Three. According to Zimmerman (in Atkisson, 1989), deep ecology seeks to address human relationships with the natural world, by questioning humans' place in nature. This is examined through both scientific insight into the interconnectedness of all things and through human self-realisation, which is identifying with the natural world, its trees and animals (Zimmerman, 1998).

Most deep ecologists have a view of nature that is "ecocentric which means that they have ecosystem centered values" (Taylor & Zimmerman, 2005, p. 2) while others believe in a spiritual or religious connection to the earth (Penn, 2003), an aspect aligned with Ecotheology (Taylor & Zimmerman, 2005). The ecocentric view held by deep ecologists has caused criticism from social ecologists such as Bookchin, who believes that the view does not consider human nature (Biehl & Bookchin, 1995). However, both deep ecologists and social ecologists agree that the wellbeing of humanity is inexplicitly linked to the wellbeing of the natural world (Ungar, 2002).

Sustainability (1972)

Sustainable development was put forward in the mid sixties in proposals to assist less developed countries (DuBose, Frost, Chamaeau & Vanegas, 1995). An article was published in the Ecologist in 1972, titled 'The Blueprint for Survival', which proposed the concepts of Sustainability and Sustainable Development as an alternative to expansionism (Sutton, Cazalet & Grey, 2001). The concept was further defined in a report released in 1987 by the World Commission on Environment and Development (WCED) titled 'Our Common Future', which marked a political turning point in policies and environmental discourse (Mebratu, 1998). The definition of sustainability and sustainable development stated "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (Bruntland 1987, p. 43). The term has been used excessively and together with various definitions of sustainability and sustainable

development has lead to sanitation of its true meaning resulting in a cheapening of the term (Mebratu, 1998). The concept of sustainability in connection to the Human Natural World Relationship infers an anthropocentric worldview, with the realisation that humans are reliant on nature for their wellbeing.

Ecofeminism (1974)

Francoise d'Eaubonne, a French feminist, was 94 years old when she introduced the term *Ecofeminism* to explain a movement with distinct cultural and social concerns (Twine, 2001). Ecofeminism related the domination of women to the domination of nature, sexism, racism and other injustices (Manion, 2001). The ecofeminist view is one of interconnectedness between humans and the natural world and is aligned with the concept of GAIA. Ecofeminists discard the concept of a human-nature dualism, which is regarded as a masculine term (Benson 2000, p. 128). Ecofeminists equate the term "humanity with masculine and nature as inferior, and therefore they reject the term as it represents the oppression of women and the degradation of nature" (p. 128). Another commonality amongst feminists is not just anthropocentrism but also rather androcentrism, that is man centeredness, which they believe has contributed to environmental consequences through authoritarian practices both socially and environmentally (Atkisson, 1989).

Ecofeminism argues that "ecological survival is intrinsically linked with the liberation of women" (Nash 1990, p. 178). Ecofeminist believe that patriarchy and the development of hierarchical structures is the cause of a disconnection with nature, which has lead to the environmental crisis (Atkisson, 1989). Zimmerman warns that getting rid of patriarchy may not cure the problem as egalitarian social relationships will not guarantee that nature is preserved (Atkisson, 1989).

Animal Rights (1975)

Peter Singer's book "Animal Rights" legitimised the rights given to non-humans and in turn disrupted the discussion about anthropocentrism (Atkisson, 1989). According to Wall

(1994), Deep Ecology and Animal Rights agree that animals have absolute rights. Support for animal liberation is embedded in history from hunter-gatherers, who adored nature spirits, to vegans and those who pursue ancient philosophies and eastern religions (Wall, 1994). Some religions such as Buddhism have complete compassion for animals illustrated through an ancient Buddhist legend, which determines that human selfless sacrifice to feed animals will result in enlightenment (Conze, 1973). The Human Natural World Relationship is evident through the interaction that some humans have with animals such as an interest in wildlife tourism (Simmonds, 2005), zoos, wildlife sanctuaries, bird life and pets. The calming effect of animals in relaxation therapies, relieving stress (Natt, 2003) and through work with the ill and disabled (Bonifazi 1997; Intermountain Therapy Animals, 1992; Older, 1988) is well documented in the health sciences. These interactions with animals can be anthropocentric, but display a compassionate approach.

Historically, Berry (2004) explains that the oppression of animals, both human and non-human has occurred throughout societies and the link between human rights and environmental protection and non-human (animal) rights are inexplicitly linked. Oppression of non-humans is usually linked to capitalist outcomes, "such as the pharmaceutical industry, meat industry, hunting, fur industry, entertainment such as zoos, circuses, dog and horse racing"(p. 61). Human oppression of minority groups for exploitation and profit through manufacturing, the sex trade and science experiments are also documented (Berry, 2004). Leahy (1994) contributes the 'early direction of animal rights to the works of Andrey Linzey, Stephen Clark, Bernard Rollin, Mary Midgley, Tom Regan and Peter Singer" (p. 3). However, Leahy and others do not agree with the direction the author's work has taken, as they believe that the work instills guilt in people who eat meat, go fishing or visit zoos (Leahy, 1994).

Bioregionalism (1977)

The Ecologist published a work by Peter Berg and Raymond Dasmann called "Reinhabiting California" (Berg & Dasmann, 1977). The work explained a new philosophy called

Bioregionalism, a term used to describe an area defined by natural systems instead of by governments (Alexander, 1996). The Bioregional Movement is described by Robert Thayer (Thayer 2003, p. 4) as those that have discovered their "life-place, their bioregion", a sense of place in nature. While Jerry Mander expresses this discovery as "relocalisation", Gary Snyder used the term "reinhabitation" (Thayer 2003, p. xiv). Metzner (1999) explains the bioregional philosophy as decisions and control of an area left with a community charged with preserving the region, while being economically self-sufficient.

The Human Natural World Relationship within Bioregionalism recognises humans as part of nature that must reconnect with their sense of place in nature, for human wellbeing (Thayer, 2003). According to Ralph Metzner, Bioregionalism and Ecopsychology hold similar views. Both are concerned with altering the human view of nature and ecosystems and to reconsider our place in nature. Both believe that traditional communities had a closer relationship with nature and that humans must learn to understand themselves in relation to natural places (Metzner, 1999).

Eco-socialism (1979)

Contemporary scholars consider William Morris to be one of the earliest eco-socialist thinkers (McDonald, 2004). He promoted ecological regeneration and sustainability (Morris, 1979a; 1979b; 1979c; 1979d) and from 1883 combined socialism with the concept of 'limits to growth' to explain how socialism could create a practice of ecological sustainability (McDonald, 2004). With a new wave of environmentalism emerging in the 1970s, the continuing debate between socialists and environmentalists lead to the emergence of eco-socialism. The Human Natural World Relationship of those that follow an eco-socialism approach is anthropocentric in nature with a belief that capitalism is the cause of environmental degradation (Pepper, 1993). Although the connection with nature as part of the self is recognised in eco-socialism, collective control within the natural limits of nature is also advocated (Mebratu, 1998).

Biophilia Hypothesis (1984)

Harvard Biologist, Edward Wilson, used the term Biophilia to explain the human need to relate to other life forms (Wilson, 1984). Wilson explained that humans evolved deeply interconnected with nature, and that we still have this affinity with nature ingrained within us (Johnson, 1994; Wilderdom, 2001). To understand this concept it is useful to consider both Biophilia and its opposite Biophobia.

Biophobia is a complete aversion to nature, which is common in urban environments where "whole societies are capable of losing the capacity to relate to nature, because as civilisations advance the sense of wonder declines" (Orr, 1994, p. 39). This draws a parallel with the loss of place attachment. The Biophobia view of the Human Natural World Relationship is both fearful and a cause of discomfort. Alternatively, those with "a passionate love of life and all living things" seen as a sign of mental and physical health are termed as Biophilia (Orr, 1994, p. 38). The Biophilia view of the Human Natural World Relationship is explained through participation in nature such as nature writers, artists, musicians, myths and religions and in the lifestyle of humans before modernisation. Wilson's question to modern societies, "Is it possible that humanity will love life enough to save it?" reinforces Stephen Gould's view of forging a necessary bond with nature "for we will not fight to save what we do not love" (Orr, 1994, p. 39).

Wilson is also known for coining the term "Sociobiology". His book "Sociobiology: The New Synthesis" explained the evolutionary roots to social behaviour of humans and non-humans (Wilson, 1975). Sociobiology, a branch of sociology and biology, brings together elements of psychology, ethnology, evolution, sociology and genetics into the study of human behaviour. Sociology, a precursor to evolutionary psychology and based on evolutionary theory, had its critics such as Stephen Jay Gould and Richard Lewontin (Penn, 2003). The debate centered on the use of biological factors, as determinants to how a system behaves, with disregard to social or environmental influences, and on whether the findings of Wilson and his supporters could be proven scientifically (Johnson, 1994).

Ecopsychology (1992)

The name Psycho ecology was originally used by Robert Greenway in 1963 and later revised to Ecopsychology (Davis, 2004; Greenway, 1999). The term Ecopsychology first appeared in Theodore Roszak's "Voice of the Earth", although some of these ideas were present in his earlier work "Person/Planet" (Roszak, 1979) and in Paul Shepard's "Nature and Madness" in 1982 (Scull, 1999a). According to Roszak, the essence of Ecopsychology is to bridge the gap between psychology and ecology with a focus on seeing the planet and the person as a continuum (Metzner, 2001).

In Ecopsychology, Devereaux (1996) considers that a sense of place in nature is most beneficial to human wellbeing and that there is a reciprocal bond between planetary and human wellbeing. In Ecopsychology, nature is considered part of self and when humans are separated it can lead to suffering for both the environment and humans. Suffering manifests as ecological devastation in nature and as grief, despair and alienation in humans and when this suffering is recognised the connection between humans and nature is healing for both (Davis, 2004). According to John Seed (1994), Ecopsychology also has the following traits, which help to explain the Human Natural World Relationship. The earth provides healing potential for humans through contact with nature, and when humans experience the psycho-emotional bonding with the world this will form the basis for environmental action (Seed, 1994).

Ecotheology (1996)

Ecotheology emerged in response to criticism from environmental groups, which was directed at Judeo-Christian religions. These critics believed that traditional religions taught domination of nature which lead to environmental damage and disrespect of nature. Ecotheology, a form of religious deep ecology sought to reinterpret the view to include human and non human nature (Mebratu, 1998).

A leading figure in Ecotheology is Thomas Berry a cultural historian and catholic monk who progressed from a theologian to referring to himself as a geologian, an earth scholar (Tucker 2005). His interest in earth history has been integrated into his studies of cultures in "The Great Work" (Berry, 1999), to produce profound insights and directions about the Human Natural World Relationship. His directive to world leaders, economists and communities to preserve the earth at this critical point in the world's history has propelled him to world status at a time when the world is looking for answers to the ecological crisis (Spirit in the Smokies, 1999). According to Berry, a change of worldview is necessary to propel a reverence for life and an understanding of our role in guiding the evolutionary process (Tucker, 1996).

Western religions traditionally hold a view of "power and importance and the capacity to dominate and control nature" (Weiskel, 1997, p. 1) and Berry (1999, p. 2) concludes "unity in nature has not been considered seriously due to the anthropocentricism of both biblical and humanistic traditions". Szenberg (1997, p. 630) supports this view as he explains the "hierarchical structure of the biblical ecological system as humans at the top of nature with animals and vegetation to serve them". Weiskel believes that "contemporary theology must restate that we did not create the world and we cannot control it, but must live like other creatures within its limits" which he terms "a theology for a small planet" (Weiskel, 1997, p. 5).

Thomas Berry echoed the concern of scientists such as E.O. Wilson, Norman Myers, Peter Raven, Paul Ehrlich and others that "humans and the natural world are on a collision course" and we are "killing the earth" (Berry, 1999, p. 1). He believes that in geological evolutionary terms the world is living in the "Terminal Cenozoic" due to an industrialised economy, which is supported by scientific evidence. He believes that humans must now choose between a "Technozoic" or an "Ecozoic" planet (Weiskel, 1997). Berry (1999, p. 5) defines the Ecozoic period as a time when "human presence on the earth is mutually enhanced, and displays a continuity between humans and non humans as a single integrated community".

Natural Capitalism (1999)

Natural Capitalism is a business model that suggests a way that companies can gain from the opportunities that sustainable natural resource management can offer. The principles developed by Amory and Hunter Lovins and Paul Hawkins in 1999, sets out to turn sustainability into "a management goal" and "business opportunity" (Hargroves, 2003, p. 116). The model supports a dwindling natural resource base by developing new green technologies and creating competitive advantage and opportunities for business (Hawkins, Lovins & Lovins, 1999).

In implementing the model, humans must look to historical events, which have shown that preserving political power has taken precedent over implementing sustainable systems, and since the first Industrial Revolution, there has been no natural mechanism for human societies to halt environmental degradation until it has been too late (Gowdy, 1994, p. 43). If humans are to have a sustainable relationship with the natural world, Gowdy believes that they must take a long-term view and consider solutions in a period of hundreds of years. However, concern is still raised as to "how much of the natural world will exist by the time a sustainable relationship is reached" (Gowdy, 1994, p. 53).

Theorists and Philosophers Summary

How humans relate to the natural environment, include scientific, theoretical and philosophical approaches. These views consist primarily of presumptions that encompass environmental, evolutionary, or creational thought or a combination of these. In summary The Noble Savage concept perceived the Human Natural World Relationship as humans being part of nature. The Theory of Natural Selection explains the Human Natural World Relationship as humans and animals evolving from natural selection. The Human Natural World Relationship aspect of Social Ecology perceives man as part of nature, but in possession of a free will. Garrett Hardin's Tragedy of the Commons thesis portrays the Human Natural World Relationship as human domination of the natural world. The Human Natural World Relationship, within the GAIA concept, accommodates humans, as part of this

living organism. Deep Ecology questions humans' place in nature through scientific insight into the interconnectedness of all things. However, Deep Ecology and Animal Rights agree that animals have absolute rights. The concept of Sustainability in connection to the Human Natural World Relationship infers an anthropocentric focus, with the realisation that humans are reliant on nature for their wellbeing. The Ecofeminist view of the Human Natural World Relationship is interconnectedness between humans and the non-human world. The Human Natural World Relationship within Bioregionalism acknowledges humans as part of nature, while the connection with nature as part of the self is recognised in Eco-socialism. Wilson's Biophilia Hypothesis explains that humans evolved deeply interconnected with nature. In Ecopsychology, nature is considered part of self and when humans are separated it can lead to suffering for both the environment and humans. Ecotheology explains the Human Natural World Relationship as a continuum between humans and non-humans, and a single integrated community. Finally, Natural Capitalism is a business model, which supports developing new green technologies to support a dwindling natural resource base. Subsequently in implementing the model, humans must look to historical events, which have shown that preserving political power has taken precedent over implementing sustainable systems (Gowdy, 1994, p. 53), an invaluable lesson for contemporary society.

2.4 CONCLUSION

This chapter has shown that a relationship between humans and the natural world has existed throughout human history. This historic view has demonstrated that attention has focused on environmental issues at times when human existence is threatened, and the voice of concern for the environment through different conservation groups and theorists is heard strongly. At other times, humans consistently ignore warning signals in their pursuit of power and progress. Innovation, technology and population growth have accelerated the use of natural resources and propelled humans on a path that threatens their very existence. Yet, history has shown that man also has the ability to overcome such crises. Just as there is diversity amongst humans, there are diverse views towards the environment and addressing environmental problems. Views towards nature consider it as sacred, a valuable resource,

part of human nature, separate from human nature, an organism, a provider or something to be feared. Yet, the majority of human-environment views have either an anthropocentric or an ecocentric stance in varying degrees. However, many agree that a crisis is facing the natural world through the breaking down of the earth's systems and the depletion of resources and if this is not addressed in our time, the earth will not exist for future generations to inhabit.

Charged with managing natural resources, governments, policy makers and protected area managers are beginning to realise the importance of community support, participation and involvement in issues that will affect the collective future of life on earth. Environmental scientist and geographer William Meyer (2002) has stated that the planet's struggle to address human induced environmental impact has put the human-environment interaction on the research agenda. Human causes of environmental problems such as human consumption (Foran & Poldi, 2001; Imhoff et al., 2004) tourism growth (Buckley & Pannell, 1990; Tubb, 2003), nature based tourism (Higginbottom, 2003), climate change (Nicholls, 2004) and the threat to biodiversity and dwindling natural resources are widely documented (Wearing & Neil, 1999; Worboys & De Lacy, 2003; Weaver, 2000). Hardin's (1968) view on collective resource management shows the dominance of self-interest as the driving force. Preserving the earth and its resources is man's most important challenge today, and protected area management has an important role in this process. By understanding the Human Natural World Relationship, managers will be informed in decisions concerning community involvement in the management of protected areas.

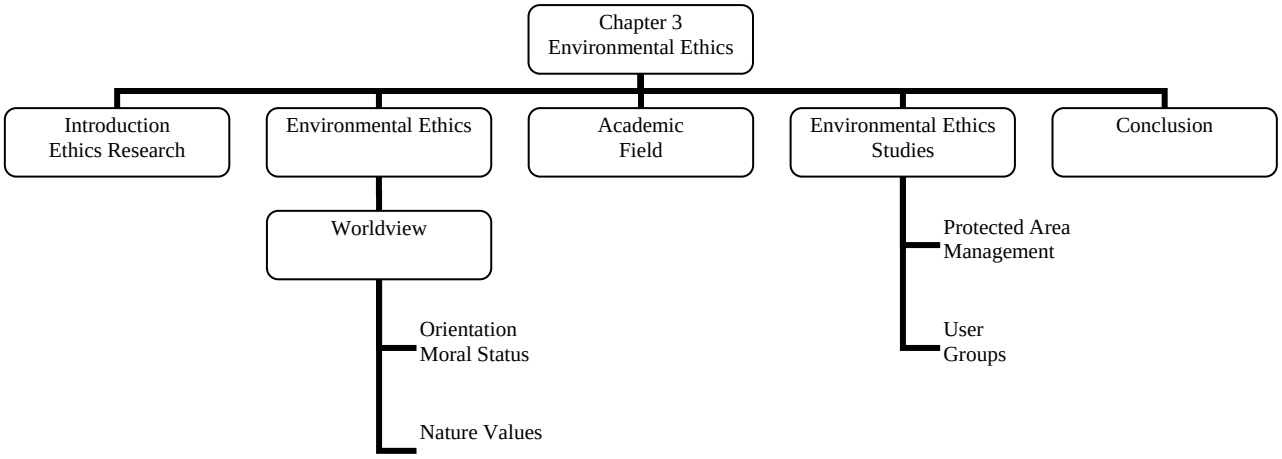
While this chapter has discussed the scope of the Human Natural World Relationship, the following two chapters will review the environmental ethics and place attachment literature, which is integral to the relationship. Place attachment, can establish the type of attachment the community has to the national park, as well as their commitment to the region. Environmental ethics can uncover a community's anthropocentric or ecocentric worldview established through their ecological orientation and nature values, which are discussed in the following chapter.

C h a p t e r 3

ENVIRONMENTAL ETHICS

"How narrow we selfish, conceited creatures are in our sympathies! How blind to the rights of all the rest of creation" *John Muir, 1867 (in Nash, 1990, p. 3)*

Figure 4: Chapter 3



3.1 INTRODUCTION

The previous chapter discussed the Human Natural World Relationship, which included environmental ethics and place attachment in its interpretation. Aspects of environmental ethics have been discussed previously through a brief look at human history and the Human Natural World Relationship; the development of environmental thought illustrated through the timeline, and the views of environmental theorists and philosophers. This chapter will expand on the human-environment interaction through the concept of environmental ethics and central themes as shown in Figure 4.

The chapter will explore moral status and nature values, which contribute to an environmental worldview, believed to be a predictor of environmental behaviour (Stern,

2000; Blamey & Braithwaite, 1997). Additionally, selections of studies that explore environmental ethics relevant to park management are included in this chapter.

Environmental Ethics and Human-Environment Research

The discourse on environmental ethics was established in the 1970s (Centre for Environmental Philosophy, 2006). Influences that have attributed to the extension of ethics from humans to non-humans, reach back in history, and are evident in the writers and theorists discussed in the timeline in the previous chapter. The independent moral status and intrinsic value attributed to non-humans underpin discussions on environmental ethics (Benson, 2000), which are anchored in social, historic and cultural beliefs (Michel-Guillou and Baggio, 2004). Many of the theories and concepts discussed previously have been influential in advancing a respect for nature and extending the moral view, such as the work of Charles Darwin, Aldo Leopold, Rachael Carson and others. Nash (1990) also recognises the contribution of "Henry David Thoreau and John Muir who developed systems that reached past human duties to other humans, and Edward Evans and J. Howard Moore, who were the first philosophers in the United States to look beyond a human centered moral view" (p. 122).

Many theorists were also active environmentalists (Nash, 1990), who contributed by extending a respect for nature through their life's work This is evident in the life vocation of Thomas Berry, who instilled a respect for nature in the area of theology. Prior to Thomas Berry and others, Christianity was recognised to be at the root of preaching human centered moral views, where the natural world was seen to have been created by God to serve humans (Nash, 1990). Animal rights expanded the moral boundaries to include animals (Singer, 1975), while other concepts such as GAIA (Lovelock, 1979), Biophilia (Wilson, 1984), Bioregionalism (Berg & Dasmann, 1977), Ecopsychology (Roszak, 1979, 1992), and Deep Ecology (Naess, 1972), highlighted concern for the natural world. These activities gave way to discussions on the independent moral status attributed to the natural world, and an active debate has continued amongst those with opposing views.

3.2 ENVIRONMENTAL ETHICS

Environmental ethics is "a relatively new branch of philosophical ethics" (Benson, 2000, p. 1) and explores and discusses views on the moral status attributed by humans to the living and non-living. Furthermore, Fennell (2006, p. 189) writes that "environmental ethics is not an applied ethic like business ethics" as it presents an "alternative worldview [which should be considered] alongside the application of business ethics in tourism".

This thesis refers to worldview as either an anthropocentric or an ecocentric stance. Worldview consists of pro or anti ecological orientation, as well as nature values, which indicate ideas of instrumental or intrinsic values in nature. The terms 'worldview', 'orientation' and 'nature value', are used interchangeably in the human-environment literature. This has resulted in some confusion in terminology used by researchers and a convergence of the topics on ecological orientation and nature values in the discussion that follows.

3.2.1 Ecological Orientation

Stern (in Winter, 2004), explains ecological orientation as a group of values. When values are grouped, they can represent ecological orientation often referred to in the literature as worldview. Worldview may include both moral status as well as intrinsic or instrumental values afforded to nature, which are discussed in this chapter. Anthropocentrism "posits that nature can only be conceived from the perspective of human values", while biocentrism "considers that all things in the biosphere have the right to exist equally" (Fennell, 2006, p. 190).

Some environmental ethics theorists adhere to the position that if a non-human has sentience and consciousness then it should be afforded independent moral status (Attfield, 2003). Sentience is defined as *the ability to see or feel through the senses*, while consciousness is defined as *being able to use your senses and mental powers to understand what is happening* (Oxford Advanced Learner's Dictionary, 2005). So within the natural world, creatures that

can feel pain and have a sense of understanding within their own world should be considered valuable in their own right outside human use. Several philosophers believe that if natural systems have value in themselves, then a new moral principle is needed. Those who think that finding value in nature is ultimately determined by human interest, deem that existing moral traditions are sufficient (Benson, 2000).

Huiying (2004, p. 18) considers that the challenge of environmental ethics is "for human beings to break away from anthropocentrism". Anthropocentrism refers to a human centered worldview. To break away from anthropocentrism, Huiying (p. 20) explains, "humans must take into account ecological equilibrium and the harmony between nature and human existence whilst pursuing their interests and needs". Within this context, Huiying supports a view that considers humans as part of ecosystems where nature's needs are considered together with human needs. Additionally, Chiarelli (2007) and Sideras (2007) call for a global bioethic to replace what Chiarelli refers to as "a blindly anthropocentric view that ignores evolutionary and ecological behaviour (p. 104). In view of the interdependent relationship that exists between humans and the natural world (Brulle, 2002), these views require consideration. The *precautionary principle*, if adhered to, may provide some support to the natural world against perceived threats of environmental damage (Westra, 1997a). The precautionary principle was defined in Principal 15 of the 1992, Rio Declaration.

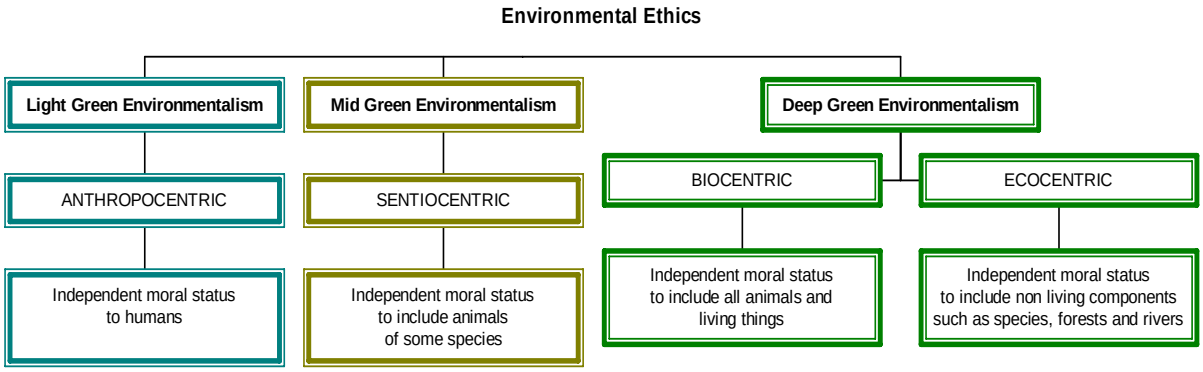
> "Where there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation" (Rio Declaration, 1992).

Moral Status

In the past, dissimilar views on the moral status attributed to nature had separated the academic community as well as resulted in divisions in the environmental movement (Norton 1991). Arne Naess (1973) referred to these differences as 'shallow' or 'deep', while the terms 'reform' and 'radical' and 'green' were also used. The term 'green' has been accepted

generally to express different views because the term is not self-condemning by its label as some of the other terms imply (Benson, 2000, p. 17). The disparate views of green environmentalism are expressed as light green, mid green and deep green as shown in Figure 5.

Figure 5: A Framework of Green Environmentalism



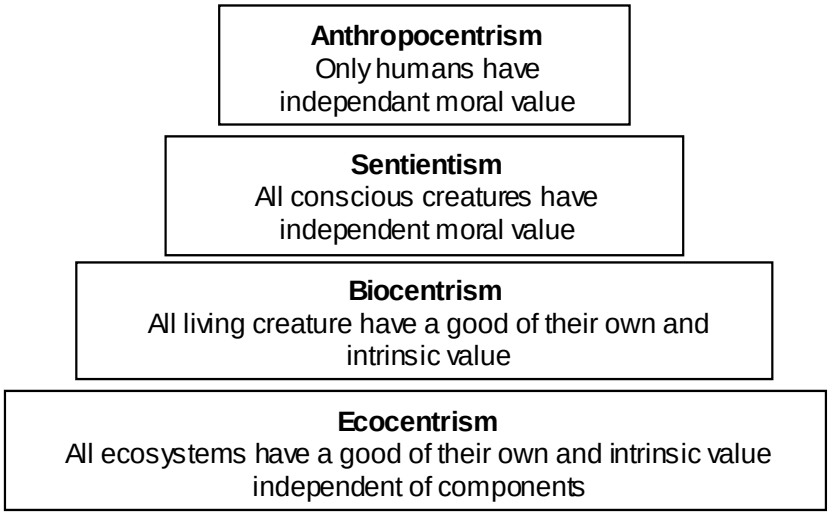
Source: Adapted from Benson (2000, p. 25)

A variety of terms has been used to make a distinction between the different views based on moral status and intrinsic value attributed to nature. For instance, those who believe that nature has intrinsic value are usually referred to as biocentric or ecocentric, while those who argue that human interest is the determining factor are referred to as anthropocentric (Benson, 2000). These terms allow researchers to differentiate between worldviews.

There have been other terms used by researchers to describe worldviews. Merchant (2005) distinguished these views as *homocentric, ecocentric or egocentric*, Holden (2003) as *instrumentalism, conservation, libertarian extension, or ecological extension*, Stern, Dietz and Kolof (1993) and Stern and Dietz (1994) as *social altruistic, biospheric or egoistic*, Schultz, Shriver, Tabanico and Khazian (2004) as *egoistic or biospheric*, and Attfield (2003) as *anthropocentrism, sentientism, biocentrism* and *ecocentrism.* Moral status attributed to the natural world Evanoff (2007) suggests should only apply to non-human entities that are part

of human interactions. However, there are some who put forward a new environmental ethic, such as Schonfeld (2000, p. 414), who proposed "a hierarchical conception of interspecies moral standing". Meyers (2003) has identified the most widely used terms, which are those used by Attfield as shown in Figure 6. This thesis draws on Attfield's work and uses anthropocentric, and ecocentric to define worldview.

Figure 6: Definitions of Worldview Concepts



Source: Adapted from Attfield (2003)

Anthropocentrism

German philosopher Immanuel Kant (1948), proposed the Kantian principal in human ethics which states "Act in such a way that you always treat humanity, whether in your own person or in the person of any other, never simply as a means, but always at the same time as an end" (Kant 1948, p. 91). Although it is apt to "value others for their usefulness" (Benson 2000, p. 86), there are many ways to interpret the Kantian principal. Benson suggests that if viewed negatively, human independent moral status is only attributed to those "humans of value to me" (p. 74). This illustrates an anthropocentric view of human-to-human relationships, which may explain the anthropocentric view that some project towards nature. Traditionally,

the Western view on nature has been referred to as "a form of shallow environmentalism" (Duffin, 2004), which equates to an anthropocentric (Luck, 2003) or light green worldview.

According to Pojman (2005, p. 90) most environmental worldviews are "anthropocentric", human centered, or at least "anthropogenic", generated by humans, as the valuing occurs from the viewpoint of the valuer. Pojman (2005) suggests that an anthropocentric view can only be attributed in association with human participation. Some terms used by Routley and Routley (1980) to describe this anthropocentric view are "humanistic" and "human chauvinism" (Benson, 2000, p. 18). Key beliefs of an anthropocentric view centre on the prospect that humans alone have intrinsic value, which affords them independent moral status, and that non-humans require protection for securing ultimate human wellbeing (Benson, 2000). However, if intrinsic value is afforded to non-humans, then non-humans are still reliant on humans to project intrinsic value onto them (Pojman, 2005). Subsequently, Norton prefers the notion of "human values more so than the concept of attributing intrinsic value to non-humans" (Smith, 1997, p. 17).

According to Norton (1991), the *Convergence Hypothesis* guides many environmentalists, in an attempt to find rational solutions to environmental problems. The hypothesis asserts that all things are interrelated, including humans. Therefore, "policies that serve the interest of the human species as a whole, in the long run, will serve also the interests of nature, and vice versa" (p. 240). Similarly, Lamb (1996) also expresses a mutually beneficial relationship between humans and nature. Alternatively, Westra (1997b) proposes a *weak anthropocentric* approach to policy development and implementation, which she believes will be more effective in producing environmental results.

Domination or Stewardship

Discussions on anthropocentricism need to consider if the view is one of domination or stewardship towards nature, as highlighted in the debate between White and Passmore. White (1967) considered that domination generated from western Judeo Christian beliefs

about creation that taught dominance as a human right. However, Passmore (in Attfield, 2003) and Dobel (in Pojman, 2005) considered the biblical teachings to be non-anthropocentric. Furthermore, Dobel concluded that the Judeo Christian attitude towards nature was "one of stewardship" (p. 31). In support of this view Bourdeau (2004), claimed that eastern religions consider humans as part of nature, while western Judeo-Christian religions that traditionally taught domination have since tempered their view to one of stewardship. Attfield (2003, p. 33) expands on this to surmise that the biblical teachings about nature supported a stewardship interpretation more so than a "rightful mastery" concept. Harrison (1999) who deduced that the historical interpretation of the bible was allegorical, and was suggesting a mastery over our human inner animal nature, not over the natural world, supports this view.

In summary, Attfield (2003, p. 188) refers to White's interpretation of the biblical teachings as a metaphysical belief that "the whole of creation exists purely to service humanity's goals and purposes", which he considers is an extreme view known as *teleological anthropocentrism* (p. 31). This is similar to *traditional anthropocentrism* where nature is viewed on how it affects current humans, while *intergenerational anthropocentrism* is behaviour towards nature viewed from its affect on current and future generations (Stenmark, 2002). Other terms used such as *normative anthropocentrism* considers "values, norms and principles around the moral stance of humans" (p. 188), and is a more accepted approach. Another approach suggested by Norton (1982) is *weak anthropocentrism*, which calls for an educated and considered approach towards the natural environment that can be evaluated ethically.

According to Frierson (2007, p. 171) the work of Adam Smith is recognised for its contribution to environmental ethics through examples of appealing to "anthropocentric metastandards as a way of swaying view" to adopt a more ecocentric stance. Similarly, John Muir, whose philosophical view was in fact biocentric, used an anthropocentric approach to save the American wilderness. Muir understood that if he used a biocentric approach, the government and people would not accept his appeal. However, by using an anthropocentric

approach, he could show them the value that the region held for them (Nash, 1990). Muir masked his biocentric view in his pragmatic approach, which was instrumental in establishing "Yosmite National Park in 1890 and the Sierra Club in 1908" (p. 40). Masking a biocentric view may also explain Rachael Carson's stance as a serious scientist and activist. Her views appear to be anthropocentric, but they also favoured stewardship and the belief that non-humans mattered (Bekoff & Nystrom, 2004). However, her early writings more clearly expressed a non-anthropocentric ethic (Cafaro, 2002). Both Muir and Carson were successful in their conservation efforts by adopting an anthropocentric approach, which showed the benefit that nature could provide to humans.

Supporting the earth charter, which advocates a balanced respect for nature and for future generations, is a pragmatic approach advocated by Bourdeau (2004, p. 9), who suggested that "primary human needs are met first and foremost whereas the needs of other living organisms and ecosystems are allowed to prevail over secondary human needs". A pragmatic approach in discussions on anthropocentric and non-anthropocentric values is suggested by Katz (1999), where "language [is used] that permits compromise, flexibility, and a pluralism of values" (p. 377). Challenging the traditional anthropocentric approach, are those that believe that moral status should be extended past humans to all sentient creatures. This approach is referred to as Sentientism.

Sentientism

Sentient creatures are those that have a "consciousness and the capacity to feel and suffer" (p. 10) and have a moral standing with a value that is independent of humans. This is the view of sentientists, who reject the anthropocentric view that intrinsic value is only linked to human interests (Attfield, 2003). According to Rolston III (in Pojman, 2005), the value concepts held by Singer (1975) and Callicott (1985) infer that wild creatures may value things in their own world such as plants, food and shelter, and that "unconsciously they may consider their young to have intrinsic value" which is evident through putting themselves at risk to bear young and provide nourishment (p. 93). An argument for

extending independent moral status to sentient beings is explained by Benson (2000, p. 87) in Box 1.

Box 1: Independent Moral Status Approach

Premise 1: Human beings have independent moral status because they possess feature F *Premise 2:* Animals also possess F *Conclusion:* Therefore, animals have independent moral status *Note: F = Sentience and Consciousness*

Source: Benson (2000, p. 87)

Regan (1982) and Singer (1975) are credited with extending the moral boundaries to include some animals through their animal liberation theories in the 1970s. However, their approach is considered by some to be too narrow in its interpretation and have called for independent moral status to be extended to other non-living entities (Benson, 2000). Paul Taylor (in Benson, 2000) an opponent of Sentientism, proposed a principle termed "Respect for nature" (p. 87) which extended moral status to all living things, a view referred to as biocentric.

Biocentrism

While biocentrism aspires to equality amongst species, Sterba (2000) suggests that there is a mutually supportive link between the requirements for human health and the requirements for biocentrism. Furthermore, biocentrism can draw together religion and science in a unified approach (Mizzoni, 2004). Discussion by Al-Naki (2004) considers that there are similarities between Islamic teachings and values expressed in biocentrism. Biocentrism is explained in the following quote, which originated from Aldo Leopold (Smith, 1997).

> "A human person is infinitely precious and must be unconditionally protected. Likewise, the lives of animals and plants, which inhabit this planet with us, deserve protection, preservation and care. Limitless exploitation of the natural foundations of life, ruthless destruction of the biosphere, and militarisation of the cosmos are all outrages" (Kung & Kuschel, 1993)

Biocentrism asserts that wild things have intrinsic value in themselves and are not merely for human fulfillment (Norton, 1989) or to further human needs (Taylor, 1986). Intrinsic value is referred to by Attfield (2003, p. 10) as all living creatures have "a good of their own", which encompasses non-feeling things such as plants in their capacity to regenerate, oxygenate and repair. For instance, Cockell (2005) asserts that microorganisms are at the base of the world's food chain and therefore have intrinsic value within themselves as well as instrumental value. He asserts that the only ethical structure in which to consider microorganisms is within a biocentric framework. Different terms have been used to describe this underlying philosophy; *ecological egalitarianism* was used by Norwegian philosopher, Arne Nass, while Kawall (2003) refers to a *reverence for life*, Michael (1996) to the *fundamental value* of all living things, while others refer to the philosophy as *anti-anthropocentric* or *biocentric* (Nash, 1990, p. 146). Taylor offers the following attributes to further explain the biocentric view.

> "Humans are members of Earth's community in the same sense as, and on the same terms that other living things are members of that community. Human species, along with all other species, are integral elements in a system of interdependence such that the survival of each living thing, as well as its chances of faring well or poorly, is determined not only by the physical conditions of its environment but also by its relations to other living things. All organisms are teleological centers of life in the sense that each is a unique individual pursuing its own good in its own way; Humans are not inherently superior to other living things." Taylor (in Benson, 2000, p. 89)

In addition, Taylor (in Benson, 2000, p. 216) affirms that "when such an attitude is adopted as one's ultimate moral attitude, only then is a person considered as having a respect for nature". Taylor's theory centres on the belief that individual living things are "teleological centers of life" (Taylor, 1986, p. 121) and therefore have "a good of their own" (Benson, 2000, p. 90) and consequently should be allocated independent moral status.

There was, however, criticism of Taylor's theory by Hare (1989) and Williams (1995), which centered on the *teleological centres of life* concept. Teleology is used in philosophy to

explain “the theory that events and developments are meant to achieve a purpose and happen because of that [purpose]” (Oxford Advanced Learner's Dictionary 2005). Alternatively, Sumner (1996) debates Taylor’s concept that living things have a *good of their own.* Sumner argues that a subjective view from non-sentient organisms is impossible. On the other hand, Taylor purports to hold an objective view, “that the value of one’s life is independent of one’s own assessment of it” (Benson 2000, p. 97). Nonetheless, Taylor’s theory is applied specifically to individual living things and some feel that the theory is constrictive. James Sherba (1995), while defending Taylor’s theory, modified the theory to what he called *biocentric pluralism,* to avoid similar criticism. Consequently, the concept of ecocentrism emerged, which extended independent moral status to species, ecosystems and non-living things such as rivers and landscapes.

Ecocentrism

The views of 17th century philosopher, Rene Descartes, on the interrelationship between humans and nature have been recognised as the forerunner to modern ecocentrism (Wee, 2001, p. 275). Ecocentrism is largely systems based, and maintains that ecosystems have a “good of their own” independent of their individual components (p. 11). Expanding on this view is the recognition that species as well as ecosystems have intrinsic value (Attfield 2003). Philosopher, Lawrence Johnson (1993) refers to the expanded view as *ecocentric holism,* which bestows moral value on ecosystems, non-living organisms and species. Most ecocentrics maintain that survival of ecosystems and species is central to their worldview (Smith, 1997), however the majority “resist absolutizing” (p. 56), against eating meat, keeping animals, fishing or hunting.

An awareness of the intrinsic value of nature and the importance of ecosystems is evident in the work of ecocentric, Aldo Leopold. Although a keen observer and supporter of wildlife, Leopold maintained enthusiasm for hunting and fishing, although the practice was tempered through his nature observations (Leopold, 1974). His observations uncovered a world of interrelated species and activities operating within a vibrant ecological unit to reveal the

intrinsic value of each non-human within its own complex system. One noted experience was his reaction to what he termed the sky dance of a woodcock, which took place at the same time each evening from April to June (Leopold, 1974). He reported that "no one would rather hunt woodcock than I, but since learning of the sky dance, I find myself calling one or two birds enough" (p. 34). Supporters of Leopold's famous land ethic such as Susan Flader and J. Baird Callicott have worked to extend his vision which includes "moral consideration for fellow human beings" (Smith, 1997, p. 51) within the land ethic, which acknowledges humans as part of whole ecosystem.

3.2.2 Nature Values

While anthropocentric and biocentric terms are used to represent an ecological orientation, nature values are primarily referred to as intrinsic or instrumental values (Kirschenmann, 2001). A fundamental question that environmental ethics seeks to answer is:

> "What kind of value should be attributed to the natural environment, to the things other than human beings, living and non living, with which we share the world? Should we value them, and be careful of our treatment because they are useful to us, or do they have value independent of human interests? (Benson, 2000, p. 1).

Intrinsic value according to Winter, Lockwood and Morrison (2003) is nature valued for itself, while instrumental value is nature valued for what it can provide for others. Intrinsic value attributed to nature is continually debated; however, McShane (2007) believes that intrinsic values are important in understanding moral and ethical views. Values lie at the core of environmental ethics and both guide our view on nature, our environmental orientation (Stern, 2000), and "actions and behaviour" (Blamey & Braithwaite, 1997, p. 32) and therefore can be interpreted as a predictor of ecological behaviour.

In addition, robust philosophical debate about whether values about nature are subjective or objective continues (Domsky, 2004). Maley (1994) agrees with Callicott that it is humans who are doing the valuing, and therefore nature values must be considered subjective. Others

adhere to an objective stance (Attfield, 1998; Rolston, 1994). German 18th century philosopher, Georg Wilhelm Friedrich Hegel who analysed the process of human thought concluded that value is placed on objects through the valuing process, a view that Bates (2003) believes is problematic in discussions on environmental ethics.

Rolston III on Values in Nature

Rolston (1989) deems that humans will always attribute values in nature, because "values exist only where a subject has an object of interest" (p. 111). Nature is the recipient of these values, which can be instrumental or intrinsic, subjective or objective (Rolston, 1989). To explain this concept further Rolston puts forward the following example.

> "In remote woods I come across a plant that can grow, repair itself, reproduces and defends its kind. I observe the plant then step around it to let it live on. This plant has intrinsic objective value, valued *by me [objective]*, but *for* what it is *in itself [intrinsic]"* (Rolston, 1989, p. 111).

Rolston (1989) states that humans perceive value through different levels of perception linked to their worldview. Nature values may extend to values of wilderness perceived for its economic or market value, life support value, recreational value, scientific value, aesthetic value, life value, diversity and unity value, stability and spontaneity value, dialectical value and sacramental value, which is explained by Rolston in Table 5.

Additionally, Rolston (1989) explains that levels of values exist within these values and spans from a subjective position that considering human satisfaction, to an objective position that recognises the intrinsic value of nature in its own right. The values also align with either an anthropocentric or a biocentric orientation. The value levels consist of individual preference market price, individual good, social preference, social good, organism and ecosystem value levels, as shown in Table 6.

Table 5: Values in Nature

NATURE VALUES		WILDERNESS VALUES
Economic Value	Natural resources mixed such as petroleum together with human ingenuity produce products that have economic value.	Market
Life Support Value	Natural resources such as atmosphere, oceans, polar ice caps and ozone layer are essential to the health of the ecosystem and therefore to human welfare.	Life Support
Recreational Value	Natural resources used for recreation such as rock climbing and hiking are considered instrumental together with some sightseeing, which are instruments of pleasure. However, often the recreational value is mixed.	Recreational
Scientific Value	Natural resources studied by natural scientists must be interesting enough to be known, while discovering the satisfactions in the subject matter. Valuing science does not devalue nature.	Scientific
Aesthetic Value	Natural resources such as the mist on an alpine cliff, snowflakes and exquisite crystals, or the intricate pattern of moss on a fern may all add to the aesthetics of a climber's experience.	Aesthetic
Life Value	Natural resources such as organic living things have as much right to be there as humans. Those that cannot find these organic, aesthetic or intelligible justifications for valuing life cannot deny to it an interest value.	Intrinsic
Diversity and Unity Value	Natural resources such as ecosystems contain diversity yet are interconnected and work in natural unity without human interference.	Genetic Diversity
Stability and Spontaneity Value	Natural systems such as gravity, rain and the proliferation of plants and animals are all embedded in ordered stability and spontaneity of processes that we do not fully understand.	Intrinsic
Dialectical Value	Natural systems of nature have been the fertile ground for the development of human cultures, for without nature, humans cannot exist. The wild nature had value to the early pilgrim, explorer and settler.	Cultural Symbolisation Historical
Sacramental Value	Natural systems generate poetry, philosophy and religion. The stormy surf or the midnight sky stimulates the mind to enquiry.	Religious Character Building Therapeutic

Source: Adapted from Rolston (1989, p. 74 and p. 185-7)

Table 6: Value Levels

	LEVELS OF VALUE	
Anthropocentric Egoistic/Altruistic Subjective Instrumental	Individual Preference	Relates to the interest and satisfaction of the individual, which makes it subjective. Objects have no preference value but can be the object of preference.
	Market Price	Using nature for interest satisfaction through buying or selling. This trading is instrumental to satisfy human needs.
	Individual Good	The value placed on something is in a person's interest, whether they choose it or not. Often people are unaware of what is best for them.
	Social Preference	Social will is expressed through society choices. Values characterise groups' not just individuals.
	Social Good	Contributing to society's well being, to allow society to function effectively
Biocentric Biospheric Objective Intrinsic	Organism	Considers what is good for organisms. What are good for humans are sub sets of this comprehensive notion, which recognises intrinsic value in nature.
	Ecosystem	Ecosystems as collective organisms to be viewed similar to people in societal structures. Organisms have intrinsic value in them as well as instrumental value in controlling aspects of ecosystems.

Source: Adapted from Rolston (1989, p. 181)

Summary of Ecological Orientation and Values

The literature suggests that discussion on environmental worldview and nature values will remain a contentious issue because views and values that involve economic wellbeing and environmental protection will always be debated. Economic wellbeing, social belonging or universal self respect for a better world are some motivational factors behind these views, however humans usually adhere to a mixture of views although one may be more prominent than another (Axelrod, 1994). The three most common terms used in the literature to describe ecological orientation or worldviews are anthropocentric, biocentric and ecocentric.

Anthropocentric views are usually associated with economic or social motivation, biocentric with universal self-respect for a better world and ecocentric with universal respect extended to ecosystems. Environmental ethics provides insight into views and values held towards nature. Wild things that have value in themselves and are not merely for human fulfillment. This aligns with the notion of intrinsic value, while the value placed on nature for human use is recognised as having instrumental value. Non-use values indicate preservation for the future. Ecological orientation and nature values that are at the core of environmental worldview can help inform policy and management strategies concerning community.

3.3 ENVIRONMENTAL ETHICS AS AN ACADEMIC FIELD

The process of environmental ethics traditionally examines attitude, intentions, and behaviour towards the environment and according to Ryan (1997) looks to anthropology, sociology, psychological theories such as found in Dann and Cohen (1991) and Urry (2000). The Centre for Environmental Philosophy (2006) describes the First Earth Day in 1970 as the inspiration for the development of environmental ethics as an academic field.

The event prompted environmentalists to urge philosophers associated with conservation groups to consider ethics concerning the natural environment. In the previous decade, debate had centered on the work of Lynn White's (1967) *The Historical Root of our Ecological Crisis* and Garrett Hardin's (1968) *Tragedy of the Commons.* Both works explored

ecological destruction concerning human domination of nature. White's work concluded that the roots of human domination of nature came from the Judeo Christian tradition (Nash, 1990), while Hardin concluded that human centeredness, when it came to common resource use, was the basis for the depletion of natural resources (Hardin, 1968).

Most academic discussion at that time centered on history, theology and religion. The release of a special edition of Aldo Leopold's Sand Country Almanac, by the Sierra Club shifted the discussion to include philosophy. Philosophers' central to the discussions that followed in the 70s, 80s and 90s are shown in Table 7.

Table 7: Philosophy and Environmental Ethics

	Philosopher	**Philosophy and Environmental Ethics**
1972	William Blackstone	Organised the first philosophical conference. The proceedings were published as "Philosophy and Environmental Crisis" in 1974.
	John Cobb	"Is It Too Late? A Theology of Ecology". The first single-authored book written by a philosopher, although the primary focus was theology and religion.
1973	Richard Routley	Paper presented at the 15th World Congress of Philosophy "Is There a Need for a New, an Environmental, Ethic?"
	Arne Naess	"The Shallow and the Deep, Long-Range Ecology Movement" published in Inquiry, became the main journal in the 1970s for environmental ethics.
1974	John Passmore	"Man's Responsibility for Nature" was a response to Routley stating that rights were not applicable to non-humans.
1975	Holmes Rolston III	"Is There an Ecological Ethic?" published in Ethics. The publication brought environmental ethics to the attention of mainstream philosophy.
1979	Eugene Hargrove	Founded the journal "Environmental Ethics", the name of the journal was to became the name of the field.
1981	Charles Birch and John Cobb	"The Liberation of Life: From the cell to the community". This book took a process philosophy approach in accordance with the philosophy of the moral status of nature put forward by Alfred North Whitehead.
1983	Robin Attfield	"The Ethics of Environmental Concern", was the first full-length response to Passmore, followed by a number of single authors in support of respect for nature.
1986	Paul Taylor	"Respect for Nature: A Theory of Environmental Ethics"
1987	Bryan Norton	"Why Preserve Natural Variety?"
1988	Holmes Rolston III	"Environmental Ethics: Duties to and values in the natural world"
	Mark Sagoff	"The Economy of the Earth: Philosophy, Law and the Environment"
1989	Eugene Hargrove	"Foundations of Environmental Ethics"
	J Baird Callicott	"In Defense of the Land Ethic: Essays in Environmental Philosophy"
1991	Bryan Norton	"Toward Unity among Environmentalists"

Source: Adapted from the Centre for Environmental Philosophy (2006)

Aldo Leopold (1974) claimed that the ecological crisis had a philosophical basis, which fuelled the debate and had philosophers thinking about what an environmental ethic would involve (Centre for Environmental Philosophy, 2006). Philosophical discussions in the 1970s, 1980s and early 1990s, shaped the direction of environmental ethics as an academic field. Central themes evolved around the value of nature; does nature have value in itself? How can the valuing be objective if attributed by humans? .

While Aldo Leopold's *Land Ethic* and Rachael Carson's *Silent Spring* influenced early environmental thought, debate on ethics and the environment continued through the eminent work of Callicott (1985), Nash (1990), Attfield (1998), Benson (2000) and others. The psychology literature examined attitude and behaviour in the work of Fishbein and Ajzen (1974), Ajzen (1985), Bagozzi (1992) and Rokeach (1980). These studies enhanced the understanding of environmental ethics and were applied to work that involved people and wildlife such as the study by Edgell and Nowell (1989).

3.3.1 Environmental Ethics in Tourism

The importance of environmental ethics to tourism is aptly explained by Robinson and Phipps (2003), who equate the tourist experience to a personal journey. "To understand culture is to understand tourism and, to understand tourism, is to provide us with at least a glimpse of our own humanity and [our] transient place in the world" (p. 1). Understanding our place in the world can be viewed through our environmental ethic that is "humanity's relationship with nature" (Schultz et al., 2004, p. 31). Furthermore, social and cultural backgrounds influence the experience of tourists in natural settings (Wearing & Deane, 2003). Therefore, insight into the environmental ethic held by participants of the tourist experience would benefit managers in their interactions with communities. Przeclawski (in Fennell, 2006, p. 14) wrote, "Tourism cannot be explained unless we understand man, the human being." Fennel (p. 14) added, "We have not attempted to do this in tourism studies", and furthermore that a concerted effort is needed "to take the first steps in assembling this base of knowledge [by examining tourism and ethics]" (p. 15).

Ethics came to the attention of tourism researchers in the early 1990s, both through the Rio Earth Summit and the International Association of Scientific Experts in Tourism congress held in Paris in 1992. These events highlighted the effect of tourism on less developed countries and called for sustainable practices (Fennell, 2006). Tourism researchers responded by proposing ethical tourism practices such as ecotourism, which considered the impacts of tourism. According to Fennell (2006), tourism needs a true interdisciplinary ethics theory to strengthen the field and shift the attention away from "our focus on impacts" (p. 12) to incorporate values and the natural world.

Early contributors to environmental ethics in tourism included Lea (1993), Karwacki and Boyd (1995), Hultsman (1995), Hughes (1995) and Payne and Dimanche (1996). Fennell, (in Holden, 2003, p. 94), believes that a strong base in ethics studies is a necessary dimension in discussions on tourism, the environment and community interaction with nature. Furthermore, Carter, Baxter and Hockings (2001) query the lack of integration of resource management in tourism studies and call for this to be addressed. While moral consideration within tourism ethics is proposed by Tribe (in Jamal, 2004), as distinct from Fennell's practical ethics, Holden (2003) agrees with Fennell that a new environmental ethic in the tourism industry is urgently needed. Macbeth (2005) calls for an environmental ethic that moves away from anthropocentrism and towards recognition of what Holden (in MacBeth, 2005, p. 976) refers to as an ethic, which recognises the "intrinsic rights of nature".

Environmental Ethics and Tourism Business Ethics

Within tourism there seems to be some confusion between business/tourism ethics and environmental ethics. Tourism research actively incorporates business ethics in its practices, such as in the Romania study by Jamal and Tanase (2005) where terms such as sustainability and ethical practices are apparent. Additionally, recognition of environmental social responsibility and the impact of tourism on the environment is also broadly recognised (Kasim, 2006). Central to environmental ethics are the values people place on the natural

world, which informs their environmental worldview. This aspect has not been a major consideration in tourism studies. In contrast, management studies in environmental ethics for some time have incorporated literature from both psychology and the environmental sciences. The focus for most studies has been in the area of corporation management such as environmental decision-making within corporations (Agle, Mitchell & Sonnenfeld, 1999; 2000; Weaver, Trevino & Cochran, 1999), landscape preferences in planning (Kaltenborn & Bjerke, 2002a) and consumer behaviour (Roberts & Bacon, 1997), which have synergies with tourism.

Tourism Psychology

The work in tourism psychology (Ross, 1994; Pearce & Stringer, 1991; Woodside, Crouch, Manzanec, Opperman & Sakai, 1999; Stringer, 1984) was examined for environmental ethics studies that may inform this work. Although the literature generally examined attitude, intentions and tourist behaviour, the studies were found to have a different focus and purpose to the environmental ethics literature. Such studies have been used successfully in segmentation, to gauge tourist motivation, assess travel choice, attract visitors; develop marketing strategies, and measure visitor satisfaction, behaviour and impacts. Other values studies published in tourism journals have examined individual or collective values (Jewell & Crotts, 2001), motivation and behaviour (Hede, Jago & Deery, 2004), differences in cultural values between Caucasians and non Caucasians which were found to affect motivation to travel (Wolfe & Hsu, 2004) and the effect of environmental values on motivation (Kim, Borges & Chon, 2006).

The distinction between value studies within tourism and environmental ethics lies in the range of techniques used in tourism. These are identified by Dann (in Jamal, 2004) as push/pull theories or seeking/escaping theory such as Iso-Ahola's Social Psychological Model of Tourist Behaviour. Models emanating from Rokeach's (1973) original Value Survey include Kahle's (1983) List of Values, Blamey and Braithwaite's (1997) Social Values, and Vallerand's (1997) intrinsic and extrinsic motivation. Additionally Crick-

Furman and Prentice (2000) proposed two dimension values, emotion/cognition dominant and inner/outer directed to measure tourist multiple values. Value models used in tourism research largely centre on consumer motivation. Subsequently, values used in tourism differ considerably when compared with values in environmental ethics, which are imbedded in environmental orientation and nature values.

Multidiscipline Studies in Tourism

Multidisciplinary studies have made a significant contribution to tourism. The contribution is evident in work that combines tourism, environmental psychology and general planning (Pearce & Fagence, 1996), tourism and environmental psychology (Fridgen, 1984), tourism, politics, social democracy and planning (Burns, 2004), tourism and social psychology (Pearce, 1982), tourism and sociology (Dann & Cohen, 1991), tourism and ecology (Farrell & Runyan, 1991), tourism and human ecology (Fennell & Butler, 2003) and tourism and environmental ethics (Winter, 2006; Hughes, 2001; Holden., 2005). The work of these researchers demonstrates the expansion of traditional tourism studies to incorporate multidiscipline research techniques.

Environmental Ethics and Environmental Concern

Environmental concern is addressed in tourism studies. However, environmental concern has a different meaning to environmental ethics. Schultz and colleagues explain the distinction in the following way. "Environmental concern refers to the effect (i.e. worry) associated with beliefs about environmental problems", while "we use the term *worldview* to refer to a person's belief about humanity's relationship with nature [their environmental ethic]" (Schultz et al., 2004, p. 31). Subsequently, environmental ethics consists of a person's belief system, their principles and values, while concern refers to a physical response.

Concern for an ecological impact caused by tourism and other human activity is already recognised and acknowledged (Worboys & De Lacy, 2003; Buckley, 2004; Wearing & Neil, 1999; Buckley & Pannell, 1990). In an attempt to address environmental concern, different

approaches have been offered. Such approaches include marketing initiatives (Beeton, 2003), policy formulation (Ritchie, 1999; Buckley, 2000; Hashimoto, 1999), visitor management techniques (Buckley, 1999; Weaver, 2000), visitor interpretation and communication (Ham & Weiler, 2003; Kuo, 2002), economic development to fund conservation (Buultjens, Tiyce & Gale, 2003), and through tourism development (Pearce & Butler, 1999) and business practices (Kasim, 2006) that takes into account environmental impacts.

Further studies in tourism examined the variance in environmental concern of tourists (Uysal, Jurowski, Noe & McDonald, 1994). The study concluded that trip preferences and behaviour, more than demographic characteristics, were responsible for this variance. Additional studies assessed the environmental concern of tourism employees and their families towards impacts of tourism (Pizam, Milman & King, 1994), and the perception of environmental impact of tourism (Hillery, Nancarrow, Griffin & Syme, 2001; Liu & Var 1986; Ryan, Hughes & Chirgwin, 2000). Other studies included the environmental attitude of skiers (Holden 1998), tourism businesses (Dewhurst & Thomas, 2003), potential ecotourists (Blamey & Braithwaite, 1997) and festival participants (Kim, Borges & Chon, 2006). Although environmental concern is expressed in these studies, the participants generally were reluctant to alter their lifestyle to support the natural environment. While environmental ethics has not been widely used in tourism studies to date, it has been used extensively in protected area research.

3.3.2 Environmental Ethics in Protected Area Management

The Land Ethic

Environmental ethics and protected area management are synonymous with Aldo Leopold, naturalist and forest ranger. Leopold wrote the *Land Ethic*, which explained a concept of ethics that was applied to nature and "enlarged the boundaries of communities to include soils, waters, plants and animals" (Leopold, 1974, p. 204). Leopold together with Rachael Carson and others laid the foundations for the development of environmental ethics (Norton, 1991). The Land Ethic proposed a change in the role of humans "from conqueror of the land-

community to citizens of it with respect for his fellow members" (p. 204). This statement reflected a philosophical shift from an anthropocentric to a biocentric view of the natural world.

Consideration of views held by communities and the complexity of developing park policy to accommodate these views has been of long-standing concern to management. Aldo Leopold illustrates this dilemma in his 1948 publication *A Sand Country Almanac*, which exposes conflicting views held by communities using parks for recreation.

> "Equally conscientious citizens hold opposite views on what it [outdoor recreation] is and what should be done to conserve its resource base…The Wilderness Society seeks to exclude roads and the Chamber of Commerce to extend them, both in the name of recreation… The game farmer kills hawks and the bird lover protects them in the name of shotgun and field glass hunting respectively. Such factions commonly label each other with short, ugly names, when in fact each is considering a different component of the recreational process." (Leopold, 1974, p. 162)

The citizens described in Leopold's critique have an anthropocentric (human centered), approach to recreation. Leopold also experienced a shift in his own views through direct experience as a park ranger and keen hunter. In his job as ranger, he was responsible for introducing policy to cull large predators in order to increase deer for hunting (Wenz, 2003). His view later changed after observing the biotic community from his "shack on [his] sand farm in Wisconsin" (p. viii). His observation of the role that these large predators played in the health of ecosystems caused him to lobby to protect these predators (Wenz, 2003). Leopold believed that non-humans had a value in themselves. He also understood that humans are reliant on the natural world, which is reflected in his statement, "We fancy that industry supports us, but what supports industry!" (Leopold, 1974, p. 178), the answer is the natural world. Furthermore, he explained, "recreation is not the outdoors [nature], but [rather] our reaction to it" (p. 173). Consequently, our perceptions and values determine our environmental ethic and our reaction to what are acceptable and non-acceptable recreational activities. Leopold (1974) believed that humans should recognise and value the biotic

community, live as part of that community, put aside domination and reject the view that nature is an economic resource.

Existing ecological damage according to Norton (1991) could not be reversed even if humans changed their behaviour today. In support of this statement, he asks, "Would we be willing to reject modern industrialised society, even at the expense of human needs? Blow up the dams, release domestic [and caged] animals and go back to the state of nature?" (p. 156). Both Norton and Leopold agree that these actions would not reverse the damage inflicted on wilderness, and humans cannot create new wilderness. However, Leopold (1974) believes that existing areas can be protected through the designation of protected zones. Additionally, Thomas McNamee (in Norton, 1991) optimistically considers national parks to "encompass vast tracts of magnificent wild country, and in them alone [he questions] is it possible to make the conservation of nature the dominant value?" (p. 156). Rolston (in Stenmark, 2002) is more optimistic and believes that it may be possible to restore some areas to their natural state.

Community

Considering that, "sustainability is a concept that rests on ethical arguments" (Eriksson 2004, p. 12), the involvement of community in conservation and management of protected areas requires an understanding of their environmental ethics. By understanding the environmental ethics of community, managers are able to target communication strategies that will improve relationships with these groups (Johansson 2004), as well as identify those most suitable for involvement in conservation and management.

According to Benson (2000), an environmental ethic can shape a person's response to environmental problems and is based on their view of the moral status afforded to the natural world, a consideration for protected area managers in seeking ways to address environmental issues. Environmental issues are perceived differently by individuals based on their environmental orientation (Benson, 2000) as shown in Table 8.

Table 8: Views on addressing environmental issues

	WORLDVIEW **Environmental Orientation**	
	Light Green Environmentalism **ANTHROPOCENTRIC**	**Deep Green Environmentalism** **BIOCENTRIC/ECOCENTRIC**
Views on moral status and intrinsic value	Only human beings have independent moral status, and any protection afforded to non humans is a consequence of their mattering to humans, and this is the only protection it makes sense to demand	Living things and natural systems (at least those that contain living things) matter in themselves: that is they have independent moral status.
Perceived environmental problem	Environmental problems are identified that pose a danger to human health, comfort or survival.	Environmental problems are identified that pose danger to anything within the restricted area.
Approach to addressing problem	If changes can be controlled, any human has reason to act to avert harm such as changes in personal behaviour and supporting collective adoptive measures.	Action to prevent these dangers requires that human agents recognise duties much more extensive than those recognised by traditional moralities which accord independent moral status only to humans.

Source: Adapted from Benson (2000, p. 17)

A study by Arnocky, Stroink and DeCicco (2007) found that people most likely to protect nature were those who considered themselves part of nature. The link between environmental behaviour and feeling connected to nature (moral status and nature values), has been borne out in many studies in psychology and environment research such as those conducted on two communities and three groups of undergraduate students (Mayer & Frantz, 2004) and in two studies of undergraduate students (Schultz et al., 2004). These studies concurred with studies done by ecopsychologists that confirmed, "connection to nature is a predictor of ecological behaviour" (Mayer & Frantz, 2004, p. 503). Therefore those with ecocentric value orientations are more likely to be pro-environmental (Barr, 2003).

Understanding the environmental ethics of a community will allow park management to identify those most suited for involvement in aspects of park management, and assist in

approaches that build community knowledge and support for strategy that preserve biotic communities. Decisions about natural areas should be based on a "sound appreciation of people's values" (Winter, Lockwood & Morrison, 2003, p. 33).

An understanding of environmental views can assist management to educate users on management zones and resource use and assist in conflict resolution amongst users, while developing effective policies, programs and implementation strategies (Tarrant, Cordell & Green, 2003). Further strategies and uses for integrating environmental ethics into park management are proposed in Table 9.

Table 9: Environmental Ethics and Protected Area Management

ENVIRONMENTAL ETHICS & PROTECTED AREA MANAGEMENT		
Outcomes	**Strategies**	**Uses**
Inform Park Management	Identify community views and values	Identify volunteers, donors, board members, fee supporters Plan and manage community involvement Empower community
	Identify the diversity of views and values	Assist with conflict resolution Accommodate diversity Inform staff Educate community
	Plan Landscapes	Planners consider environmental ethic of community in allocating management zones and resource use
Community Benefit	Build knowledge and respect for biotic communities & resource use	Foster environmentally responsible behaviour Enhance respect for community diversity

Source: Adapted from Tarrant, Cordell and Green (2003)

Environmental Policy

Understanding environmental values can also be extended to policy makers as many important environmental decisions can be influenced by an organisation's internal climate (Flannery & May, 2000). Political governance was examined in a review of both the Kennett and Brack's governments in Victoria from 1992, which revealed anthropocentric approaches (Coffey, 2001). This approach refers to nature as a commodity and can dictate priorities under which park agencies must operate. However, an anthropocentric approach is common amongst governments, corporations and business communities (Macbeth, 2005). In considering tourism in protected areas Worboys and De Lacy (2003), have called for

government leadership in conservation. Forest management in the United States traditionally held anthropocentric views, but a shift in the values base from economic to non-economic values has occurred. According to Tarrant, Cordell and Green (2003), this shift was prompted by changes in community views of forests and their management. Additionally, "the recognition of the importance of public involvement in management decisions" (p. 25) was also noted. Most people want to be involved in environmental solutions, and Kaplan (2000) deems that those that show disinterest in environment have distanced themselves due to feeling helpless to contribute and affect change. Conservation management in national parks in New Zealand found that their "people-parks relationship" (McClave, Espiner & Booth, 2006, p. 547), was complex and involved views about the environment, social and cultural attachments and expectations of conservation management (McCallum & Hughey, 2007).

The influence of environmental ethics on protected area policy and management decisions (Eriksson, 2004) has highlighted diverse approaches to policy development. Stenmark (2002) proposes that goals of environment policymaking as well as policy development are affected by the environmental ethic stance held by agencies as set out in Table 10.

Table 10: Environmental Policy Making

ENVIRONMENTAL POLICY MAKING FROM AN ENVIRONMENTAL ETHICS PERSPECTIVE			
	GOAL	POLICY	WILDERNESS POLICY
INTERGENERATIONAL ANTHROPOCENTRIC	Well being of human progress and survival	To ensure that natural resources are used in an efficient and a farsighted way so that the needs of present and future generations can be satisfied.	Preserve 12 percent of landscape wilderness for future generation of humans to use
BIOCENTRIC	Well being of animals and plants	To ensure that humans in their treatment of nature do not violate the rights of other living things to be left alone and to flourish.	Preserve remaining landscape wilderness for plants and animals to use
ECOCENTRIC	Well being of biotic community and its individual parts	To ensure that humans in their use of nature do not violate the integrity and stability of the biotic community and its individual members.	

Source: Adapted from Stenmark (2002, p. 140)

Consequently, these views will not only influence policy, but also the selection of community members, and subsequent strategies. The influence of varied ethical positions within government and policy decision makers is brought to our notice by Macbeth (2005) who also calls for a "sophisticated and reflective understanding of ethical issues by policy makers, planners and developers… critics and commentators" (p. 980).

Confusion in understanding the concept of environmental values within protected area management has been highlighted in a study by Reser and Bentrupperbaumer (2005). The researchers consider that the confusion over values is a result of the language used in multidisciplinary environmental area management and have called for this to be addressed. They suggest that understanding value concepts in environmental ethics is an important and necessary element in developing policy for conservation outcomes. Considering environmental values and incorporating these into policy and planning will shift the focus towards healthy ecosystems, appease environmental activists and ensure that values of other interested communities are considered. Therefore, a comprehensive understanding of environmental values as well as the values held by community is an essential factor in managing the resource for conservation outcomes.

The role of environmental values in management requires "value to be placed on the integrity and autonomy of systems to function independently of human control (Norton 1991, p. 157). Values are believed to drive attitudes and influence behaviour (Winter, Lockwood & Morrison, 2003) and are fundamental to rational decision making in management (Lockwood, 1999).

Environmental Ethics and User Groups

User groups may be active recreational users, who use protected areas for sport related activities; passive users, who use the area for picnics or family gatherings; or users that rely on the resource for their livelihood such as businesses, graziers, farmers and local community. Furthermore, knowledge of the environmental orientation of a community can

provide insight into their attitude or behaviour towards the resource, towards management decisions, conservation activities and other matters. An examination of studies relevant to protected area management that include recreation users, occupational users and community follows. This section examines the environmental ethics of user groups establishing their environmental ethics and its effect on environmental behaviour.

Recreational Users

Recreational users are those who use the resource for formal or informal sports activities, such as hiking, boating, fishing, bush walking, rock climbing, horse riding and similar activities.

Conservation Behaviour

Recreational boaters were the subject of a study by Cottrell (2003), who found a correlation between knowledge of environmental issues, environmental concern and verbal commitment to environmental behaviour. Previous results from studies of outdoors recreation users has shown varied levels of concern towards the environment, and Schuett and Ostergren (2003) believe that further study is needed. For instance, some early studies by Dunlap and Heffernan (in Schuett & Ostergren, 2003, p. 30) showed that those undertaking passive activities such as hiking, photography and camping "had a higher level of concern than participants in consumptive activities such as fishing and hunting". Participation in outdoor recreation was found "not to be a predictor of environmental concern" (p. 31), due to the variety of recreational activities, which Jackson (in Schuett & Ostergren, 2003) categorises as appreciative, consumptive or mechanised behaviours, which are shown in Table 11.

Table 11: Outdoor Recreational User Behaviour

Behaviour	**Outdoor Recreational Users**
Appreciative Behaviour (non consumptive behaviour)	Cross country skiing, hiking, photography, walking, camping, and bird watching, canoeing, sea kayaking
Consumptive Behaviour	Hunting, angling, sea fishing
Mechanised Behaviour	Motor boats, snow mobiles, off road vehicles, mountain bikes

Source: Adapted from Schuett and Ostergren (2003) and Crick-Furman and Prentice (2000)

Jackson's study of users in the three categories found that those displaying appreciative behaviours were more ecologically focused than those in other categories. These findings were supported by Nord, Luloff and Bridger (1998) who concluded that users displaying consumptive and mechanised behaviour were "less environmentally active" (in Schuett & Ostergren 2003, p. 31) than those displaying appreciative behaviour. Consumptive and mechanised behaviour users however, prefer to be involved in planning processes as a way of protecting their recreation activity, and therefore are likely to join voluntary associations where their membership is represented in resource planning (Ewert, 1999).

A study in the USA on the membership base of two voluntary organisations', one for recreational cyclists and the other for off road vehicle users, suggested that the recreational cyclists identified more with environmental activism than the off road vehicle users (Schuett & Ostergren, 2003). The study supported the findings mentioned previously that users displaying mechanised behaviours are less environmentally active than those displaying appreciative behaviours.

A study of the environmental attitude of skiers undertaken in Scotland by Holden (1998; 2000), within an ecological significant region revealed that most skiers were more concerned with the thrill of skiing than with ecological damage. This result led the researchers to the conclusion that conflict would remain between the conservation groups and skiers. Management was therefore limited in their options to address conservation issues, and was restricted to technology and interpretative measures in addressing ecological problems.

The value of wetlands and forests to farmers, environmentalist and the public, was examined in an Australian study by Winter (2005). The study showed that use through farming aligned with instrumental values and high levels of protection by the environmentalists aligned with intrinsic values. The public displayed a mixture of values. A New Zealand study of eco tourists by Higham, Carr and Gale (2001) revealed ecocentric values. An earlier study by Blayney and Braithwaite (1997) used a social values approach to segment potential eco tourists and non-eco tourists. Potential eco tourists were determined as those that answered

yes to the question "Would you like to spend some of your holidays in the next twelve months increasing your understanding and appreciation of nature?" (p. 34). The study discovered that "potential eco tourists do not necessarily have green values" (p. 29), which may indicate that knowledge is a contributing aspect to ecological behaviour. The role of education in conservation management has been explored in zoological settings (Patrick, Matthews, Ayers, Tunnicliffe, 2007) through "persuasive communication" techniques where the tourist can be "emotionally engaged" in the wildlife encounter and build on their knowledge about impacts on wildlife, through subtle conservation messages (Ballantyne, Packer, Hughes & Dierking, 2007, p. 367).

The studies highlight that those displaying appreciative behaviours are more ecologically focused and environmentally active than those undertaking consumptive or mechanised activities. However, those displaying consumptive and mechanised behaviours are likely to be involved in planning to protect their activities. Additionally, knowledge of the environment can contribute to conservation behaviour.

Occupational Users

Occupational users are those reliant on the resource for their livelihood. These users may be landowners, business owners such as tourism operators, graziers, farmers, local or indigenous community, and national park employees.

Environmental Policy

Environmental attitude was the subject of a study undertaken by Deng, Ryan and Moutinho (1992) of hoteliers in Canada. Results of the study showed that hoteliers agreed with environmental protection policies, which were independent of financial decisions. A similar study was conducted by Kirk (1998) in Edinburgh in Scotland. Both studies indicated that a formal environmental policy did not necessarily reflect pro environmental practices. Cunningham (2005) conducted a similar study on the accommodation sector of Chichijima Island, Japan. The study showed a high level of concern for the environment; however, this

was over shadowed by a conflict of views towards tourism development and conservation. The study also highlighted that the practical application and knowledge required to implement sustainable practices in the businesses was not generally understood. This lack of knowledge to the practical application of policies on the environment was also highlighted in a previous study by Horobin and Long (1996) on small tourism businesses. Dewhurst and Thomas (2003) studied a selection of small tourist businesses in a national park in the United Kingdom. The study revealed that respondents viewed environmental protection as the responsibility of large firms, while economic goals presented as a more pressing issue for the small tourist business and took precedent over ecology. The presence of an environmental policy and expressions of environmental concern in these studies is not necessarily an indicator of pro environmental behaviour. Furthermore, education on the practical application of pro environmental policies and practices may also be necessary. A case study conducted in New Zealand amongst Department of Conservation stakeholders, supported the view that lack of education and information was a factor that inhibited involvement in conservation, however a strong motivation to be involved was nonetheless evident (James, 2001).

Views and Values

A perception that those reliant on a resource for their livelihood generally hold anthropocentric values is borne out in a number of studies. For instance, a Norwegian study by Bjerke and Kaltenborn (2002), of sheep farmers, wildlife managers and research biologists examined the values held towards large carnivores. Sheep farmers showed higher anthropocentric values than the wildlife managers or research biologists. Similarly, a study by Winter, Lockwood and Morrison (2003) segmented the community based on common values. The results confirmed that environmentalists were biocentric, farmers anthropocentric, while the public displayed moderate values towards their recreation use, which ranged from weak anthropocentric to biocentric. A further study in Nebraska examined small and large farms and consumers. Although all were aware and concerned

about land ethics, the large farms were less concerned than the other groups (Schneider & Francis, 2006).

Community Ethics

The complexity of environmental ethics and community is evident through Corral-Verdugo and Armendariz (2000) study of a Mexican community. Two ethical positions were put to the residents "natural balance in nature" a biocentric view and the alternative "control over nature" (p. 25) an anthropocentric view. Although the result was in favour of natural balance, the subjects did not see these two positions as being mutually exclusive. Some researchers are of the view that natural balance has existed for a long time in non-western, indigenous and non-industrialised societies. Furthermore according to Bechtel (in Corral-Verdugo & Armendariz, 2000), industrialised societies such as America see the world as holding either one position or the other, either nature balance or nature control, whereas for Brazil [and Mexico] "there is no conflict in holding both positions" (p. 26). Views such as these, while embedded in culture, can shift, and research has shown that over a period, settlers will take on views more consistent with their new community (Schultz, Unipan & Gamba, 2000).

A study into the different environmental views held by foreign and United States born Latino Americans and Anglo Americans supported this notion. The study highlighted the different views on nature (Schultz, Unipan & Gamba, 2000). The traditional Latino view that "humans are part of nature", and the Anglo view of "humans as protectors or consumers" (p. 23), can change after assimilation. Subsequently, the views held by the new culture may be adopted, particularly if the person has access to technologies and affluence. However, the fundamental cultural beliefs that drive environmental ethics can also be a major difficulty in adopting another culture's views (Duffin, 2004).

An earlier study that examined the ethics of African Americans to Anglo Americans found that although there were differences, there were not marked differences about concern for the environment. The differences were the result of complex economic and life issues that took

precedent over concern for nature (Sheppard, 1995). A study conducted in Turkey by Furman (1998), found that concern for the environment was not confined to industrialised societies and that developing countries shared such concerns. These concepts have led Duffin (2004) to conclude that practicing environmental ethics is more important that arguing over which principle is the most effective. A Swedish study that examined the relationship between environmental ethics and social background did not establish a link between social background and environmental ethics in its municipality (Johansson, 2004).

Views and Values

A number of researchers have studied forest values. Manning, Valliere and Minteer (1999), discovered forests need to be managed to provide a variety of non-material benefits, to cater for varied environmental orientations. Tarrant, Cordell and Green (2003) conducted a study of forest values amongst the public. The results of this study highlighted the importance that urban residents placed on non-economic values of forests and that protecting the environment was more pronounced in women, and younger residents. However, an earlier study by Furman (1998) did not find a strong relationship between age and environmental concern. Similarly, residents, which included members of an environmental group, were subjects of a study in England by La Trobe and Ascott (2000). While the majority of participants provided pro environment responses, the environmental group expressed "a much stronger pro environment response" (p. 16) than other residents.

Residents in the historic world heritage town of Roros in Norway were studied by Kaltenborn & Bjerke (2002b), who uncovered a general responsiveness to ecocentric views amongst their surveyed group. The town economy relied on agriculture and mining, fishing, hunting and forestry. The result signified a positive opportunity for managers who had the task of presenting development and conservation plans to the residents. Consequently, environmental concern and ecocentric points of view were used in communicating with the residents. The study also highlighted that those with an ecocentric orientation preferred wilderness and cultural landscapes while those with an anthropocentric orientation preferred

farm environments, which correlated with instrumental use, which is often associated with anthropocentric views. Kaltenborn and Bjerke (2002b) also noted that a mixture of ecocentric and anthropocentric values was evident within some groups. Manning, Valliere and Minteer (1999) found a similar result amongst forest users in their study.

A similar conclusion was reached by Brown, Reed and Harris (2002) in fourteen forest communities in Alaska. The study examined the potential link between community attachment and specific environment values such as aesthetic, economic, intrinsic and others. The study also considered if people live near places where they feel safe and therefore are likely to value the environment near where they live. The results were inconclusive. However, Brown, Reed and Harris (2002) concluded that communities cannot be perceived as being all the same, and different values are perceived as important by each different community.

3.4 CONCLUSION

The relevance of environmental ethics to community participation in protected area management lies in understanding community views and values. Nature views and values guide our view of nature and determine our environmental orientation (Stern 2000), which influences the way that people perceive and respond to environmental issues.

Worldviews can range from anthropocentrism to ecocentrism and the academic community continues to debate moral status attributed to nature. The difference between ethics, environmental ethics and environmental concern is stated. Ethics is an applied process while environmental ethics consists of a person's belief system and their principles and values, while environmental concern is a physical response.

Studies of user groups have shown connection between environmental behaviour and environmental orientation and values, and many studies have shown that those with "biocentric views are generally pro environmental" (Bar, 2003, p. 229). Knowledge of

environmental issues, expressions of concern and commitment to environmental behaviour were also positively correlated. Consequently, our perceptions and values determine our environmental ethic and our reaction to what are acceptable and non-acceptable recreational activities. Therefore, environmental values incorporated into management plans may shift the focus towards a commitment to healthy ecosystems, appease environmental activists and ensure that values of other interested groups are considered. The environmental orientation of user groups is generally divided into anthropocentric or biocentric orientation. Occupational users such as hotels, businesses and farmers, researchers and wildlife managers commonly displayed an anthropocentric orientation, although tempered to varying degrees. Recreational users and the public however, displayed a diverse range of views from anthropocentric to ecocentric, depending on the activity that they were involved in.

Cultural differences may also explain the range of environmental orientations across communities. While the majority of communities recognise intrinsic value in nature, more pressing issues such as economic and life issues take precedent. However, social background was not established as relevant to environmental ethics values and worldview. Differences are evident in community environmental worldviews. For instance, natural balance, a biocentric view is held in many non-western, indigenous and non-industrialised societies, while control of nature, an anthropocentric view is expressed by western, industrialised nations. However, some communities such as in Brazil and Mexico accept a mixture of both these views. Views such as these, while embedded in culture, can shift, and research has shown that in time settlers will take on the views of their new community.

While environmental ethics helps to explain environmental orientation and values, place attachment refers to the attachments people have to places. Place attachment can be an emotional, symbolic or functional attachment, which connects a person to a place for particular reasons, which will be explored in the following chapter.

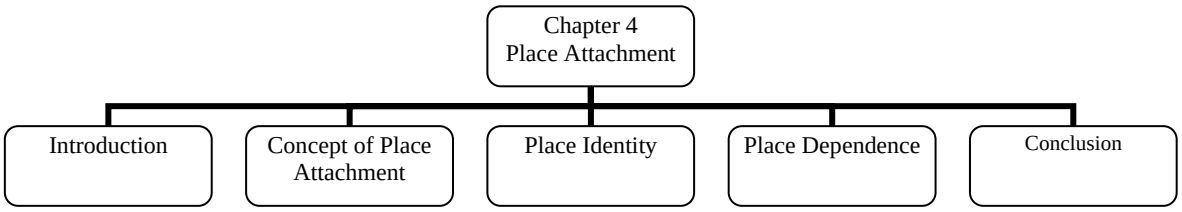
C h a p t e r 4

PLACE ATTACHMENT

"Birds continue to sing and greet the day, plants grow… but I also realise that the pleasure of the experience builds relationships to places and means I care about them. This carries a feeling of responsibility to ensure they survive…and all the living beings that are a part of it".

Respondent 161.

Figure 7: Chapter 4



4.1 INTRODUCTION

The previous chapter discussed environmental ethics and familiarised the reader with the concepts of environmental worldview and values in relation to community and park management. This chapter will introduce the reader to the concept of place attachment and to the literature that is most relevant to the management of parks and protected areas as shown in Figure 7.

According to Williams and Stewart (1998, p. 19), place attachment is "the collection of meanings, beliefs, symbols, values, and feelings that individuals or groups associate with a particular locality". Place attachment, the connection people have with places, such as parks and protected areas is examined in this chapter. The historic summary of humans and environment outlined in the previous chapter, illustrates that attention has focused on environmental issues at times when human existence is threatened. When considered in this context, many people deem that the natural environment is once again in crisis (Mebratu,

1998). The Human Natural World Relationship views, theories and concepts discussed in Chapter 2 may indicate place attachment within their themes as summarised in Table 12.

Table 12: HNWR views influencing place attachment

View, Theory or Concepts		Attitude to PLACE ATTACHMENT
1755	**Noble Savage Concept** (Rousseau, 1755)	Humans in their natural state see value in nature (place dependence & place identity)
1858	**Theory of Natural Selection** (Darwin, 1858)	Nature as part of human self (place identity) & Nature as object (place dependence)
1962	**Social Ecology** (Bookchin, 1962)	Humans as part of nature but possessing a second nature, a human nature and free will (place dependence)
1968	**Tragedy of the Commons** (Hardin, 1968)	Humans reliant on nature (place dependence)
1969	**GAIA Hypothesis** (in Lovelock, 1979)	Humans as part of a self regulating organism (place dependence)
1972	**Deep Ecology** (Naess, 1972, 1973)	Interconnectedness of humans and non-humans. Human spiritual & physical wellbeing linked to wellbeing of planet (place identity)
1972	**Sustainability** (Strong, 1972)	Humans reliant on nature (place dependence)
1974	**Ecofeminism** (D'Eaubonne, 1974)	Interconnectedness of humans and non humans (place dependence) Advocate a reconnection with nature (place identity)
1975	**Animal Liberation** (Singer, 1975)	Animals have absolute rights. Respect for humans and non humans (place identity)
1977	**Bioregionalism** (Berg & Dasmann, 1977)	Recognises humans as part of nature. Must reconnect with their place in nature, for human wellbeing (place identity)
1979	**Eco-Socialism** (Morris, 1979b)	Humans reliant on nature (place dependence)
1984	**Biophilia Hypothesis** (Wilson, 1984)	Humans evolved deeply interconnected with nature. Aversion to nature (Biophobia) due to modern societies (place identity).
1992	**Ecopsychology** (Roszak, 1992)	Nature is part of self. Sense of place is beneficial to human wellbeing. Separation can lead to suffering for both the environment and humans (place identity)
1996	**Ecotheology** (Berry, 1996)	Humans and non-humans as a single integrated community. Mutual benefits coming from reverence for nature (place dependence and place identity)
1999	**Natural Capitalism** (Hawkins, Lovins & Lovins, 1999)	Humans reliant on nature (place dependence)

Societal factors influencing change in the 21st Century and requiring consideration in protected area management practices are outlined in Table 13.

Table 13: Societal factors influencing change

Societal Factors influencing Change					
Technological Advances	Economy Diversification	Cultural Differences	Alterations to Environment	Media coverage of natural ecological processes	Increased understanding of natural processes and loss of protected areas

Adapted from Watson (1999)

Shifts in societal factors are responsible for the changing values and attitudes of communities towards conservation and the protection of wilderness areas (Watson, 2000). As urbanised societies "will continue into the future" (p. 57), the importance of preserving natural areas has taken on new significance. It is essential for protected area management to understand this shift in society's values and attitudes, to allow them to engage the community effectively in conservation management. The examination of place attachment and environmental ethics of community groups will provide park management with additional knowledge to make informed decisions about the suitability and level of community involvement in policy and management strategies for conservation outcomes.

Place Attachment Study Limitations

Existing research in place attachment covers a broad range of subject areas such as social psychology, sociology, environment, anthropology and human geography (Pruneau, Chouinard, Arsenault & Breau, 1999). However, this thesis will focus on those areas most relevant to protected area management within the context of this work. Omitted from this review are the following: the psychology behind place attachment development, the health sciences literature, and the work relating to regional identity. Although the work of researchers such as Ajzen (1985; 1991), Fishbein and Ajzen (1974a; 1974b), Low and Altman (1992), Fishbein and Middlestadt (1995), Kuller (2004) and others is extremely important in understanding the psychology behind place attachment, it is not used in this thesis due to the need for boundaries for the study. Similarly, health science studies that explore attachment, concerning diagnosis or recovery from psychological or physical illnesses or human development processes, do not form a major part of this work. Examples of these are attachment in childhood development (Crittenden & Claussen, 2000; Kerns &

Richardson, 2005; Rolfe, 2004), addiction (Farber, 2000; Flores, 2004) trauma (Freeman, 2005; Webb, 2004) and abuse (Howe, 2005; Kagan, 2004). Researchers examining place attachment initially examined the health science studies, as it is believed by some that a person's place attachment is developed from their attachment to people (Fried, 2000b).

The third area, regional identity, which is the identification of a region, its territorial boundaries, symbolism and institutions (Paasi, 2003), will not be addressed in detail. The author believes that place identity of regions has more synergy with the characteristics of destinations, and tourism regions, as referred to in some geography and tourism studies (Dredge, 2003; Jeong & Santos, 2004; Paasi, 2003). The main purpose of this work is to examine a person's place attachment, not the characteristics or identity of a region. However, the chapter will discuss the two key dimensions of place attachment used in recreation research, place dependence (PD) and place identity (PI).

Place Attachment Approach for this Study

Various concepts held about place attachment make it necessary to clarify the approach adopted for this thesis. A summary by Bow and Buys (2003) puts forward three different views, which are illustrated in Table 14.

Table 14: Place Attachment Concepts

THEORIST	CONCEPT	DESCRIPTION
Hay (1988) Human Geography	**Sense of Place** Place Attachment	Considers Sense of Place in a broader context than Place Attachment
Bricker and Kerstetter (2000) Environmental Psychology	**Place Attachment** Sense of Place/PD/PI	Considers Sense of Place, Place Dependence (PD) and Place Identity (PI) to be forms of Place Attachment
Williams, Patterson, Roggenbuck and Watson (1992) Social Science & Recreation	**Sense of Place/Place Attachment** PD/PI	Considers Sense of Place and Place Attachment to have similar meanings, with Place Dependence (PD) and Place Identity (PI) as dimensions of Place Attachment

Adapted from Bow and Buys (2003, p. 4)

The difference between the three views is the position that sense of place holds in place attachment concepts which varies across the disciplines. Bow and Buys (2003, p. 4) surmise, "The most prominent concept within environmental psychology is place attachment, while human geographers promote the concept of sense of place which incites their interest". The author has aligned this work with theorists Williams, Patterson, Roggenbuck and Watson (1992), as "place attachment conceptualised as being comprised of two components: place dependence and place identity is frequently used in social science outdoor recreation research" (Sharpe & Ewert, 1999, p. 218).

At the completion of this chapter, the key issues in the place attachment literature will have been presented; the purpose of place attachment research in natural areas management; and how this knowledge can be integrated into management practices.

4.2 PLACE ATTACHMENT CONCEPT

The concept of place attachment is describe by Pruneau and colleagues (1999, p. 27) as "the conscious relationship that people have with their community, their culture or a natural or man-made environment". Attachment is the result of "emotional, cognitive, social, cultural and behavioural factors" (Pruneau et al., 1999, p. 28) and is evident through a positive attitude towards a place, extensive knowledge of an area, or frequent visitation (Brown & Perkins, 1992). Tuan (1974; 1977) defines place attachment as a space that has meaning to an individual developed through knowing the place, while Riley refers to place attachment as an "affectionate relationship between people and the landscape" (Sharpe & Ewert, 1999, p. 218). Broudehoux (2001) expands on the concept to explain that human values are structured from places, and forms the means of our cultural identity, from which we orientate ourselves to the world. Combined with lifetime experiences and inner development, place attachment can reflect the basis of a person's life (Fried, 2000b). Harvard biologist, Edward Wilson's Biophilia Hypothesis explains attachment as a deep connection with nature that is ingrained within us (Johnson, 1994). According to Orr (1994, p.39) advances in civilisation have

caused a separation of people from the natural world, causing attachment loss and a complete aversion to nature, which Wilson calls Biophobia.

When place attachment is strong within an individual, group or community, then activism and community involvement is probable (Pruneau et al., 1999). Similarly, Belk (1992) believes that a prerequisite to positive action is a fondness or attachment to a place. In contrast, studies by Lewicki, and also by Perkins and Long (in Lewicka, 2005) showed that place attachment had a "negative correlation to civic activity" (p. 382) and to pro environmental behaviour (Bonaiuto et al., 2002). The study by Bonaiuto and colleagues "supported the motivation to preserve the status quo in places of residence" (Lewicka 2005, p. 382), while Perkins and Long's study found that in one community civic action was related to social attachment more than to place attachment. According to Lewicka (2005), a strong predictor of community activity is a person's social (neighbour ties) and cultural status (cultural capital). However, the author considers that neighbourhood ties and cultural capital are variables of place attachment. Neighbourhood ties relate to the place dependant variable and to a community identity, while cultural capital relate to place identity, either emotional or symbolic.

The early work of human geographers, Tuan (1974; 1977) and Relph (1976) put forward a comprehensive explanation of the importance of place attachment in the use of private, personal and public spaces. Their work has substantially advanced research in geography and other related areas (Stokowski, 2002). Place attachment was introduced to recreation by Schreyer, Jacob and White in 1981 (Wickham & Kerstetter, 2000) and later to tourism and natural resource management. For example, recreation researchers, Kyle and colleagues (2004a) studied the attachment of hikers, boaters and anglers to settings and activities. Hwang, Lee & Chen (2005) examined tourists' attachment and involvement, while visitor attachment and the visitors' view of key park issues, such as grazing and hunting, was examined in natural resource management by Smaldone, Harris, Sanyal and Lind (2005). Predictors of place attachment may include age, length of residence, perceptions of a place, symbolic meanings, environmental attitudes (Jorgensen & Stedman, 2006), physical

attributes and involvement with the destination (Hou, Lin & Morais, 2005), level of experience, motivation and evaluation of management actions (Kyle, Graefe & Manning, 2004a).

4.3 PLACE ATTACHMENT AND SENSE OF PLACE

The terms, *place attachment* and *sense of place*, are the most common expressions used in the literature. The term *place attachment* is mainly used in Environmental Psychology, and *sense of place* in Human Geography (Kaltenborn & Bjerke, 2002b; Sharpe & Ewert, 1999), although the word "place, usually implies geographic space imbued with meaning through personal use" (Kaltenborn & Bjerke 2002b, p. 383).

Human geographers, Ballinger and Manning (1997) and Hay (1988; 1998) view place attachment as a sub set of sense of place, although social scientists and recreational researchers, like Williams and colleagues (1992), deemed that *place attachment* and *sense of place* are interchangeable. These concepts are illustrated in Table 15.

Table 15: Perceptions of Sense of Place

THEORIST	CONCEPT	
Hay (1988) **Ballinger and Manning (1997)** Human Geography	**Sense of Place** Place Attachment	Considers Sense of Place in a broader context than Place Attachment
Williams, Patterson, Roggenbuck and Watson (1992) Social Science & Recreation	**Sense of Place/Place Attachment** PD/PI	Considers Sense of Place and Place Attachment to have similar meanings, and Place Dependence (PD) and Place Identity (PI) as dimensions of Place Attachment

Adapted from Bow and Buys (2003, p. 4) and Ballinger and Manning (1997)

Place attachment studies evolved from studies of sense of place, which began with the work of Tuan (1974; 1977), Relph (1976) and Steele (1981), and generally "emphasise the interconnectiveness of feelings, attitudes and behaviour" (Kaltenborn & Bjerke 2002b, p. 384). In his early work, Tuan (1974) considered that motivation to address environmental

issues relied on the self-understanding of human perceptions, attitudes and values, and that place attachment was linked to self-identity. Similarly, Relph (1976) noted that place attachment can be profoundly affected when a landscape is changed, because people project their lives into a place. Furthermore, according to Steele (1981), places have shaped human history and visible surroundings will affect the perspective of a person's view of the world.

Place Attachment Terms

Researchers have used a number of terms within the place attachment literature to describe aspects of place attachment, referred to in Table 16.

Table 16: Place Attachment Terms

Date	Place Attachment Terms	Researchers
1952	Need for Roots	(Weil, 1952)
1974	Topophilia	(Tuan, 1974)
	Community Attachment	(Hummon, 1992; Kasarda & Janowitz, 1974)
1976	* Insiderness, * Rootedness, * Outsiderness, * Placelessness	(Relph, 1976)
1978	Emotional Linkages To Places	(Hunter, 1978)
1980	Environmental Sensitivity	(Tanner, 1980)
1981	Sense Of Place	(Hay, 1988; Steele, 1981)
	* *Place Dependence	(Stokols & Shumaker, 1981; Williams & Roggenbuck, 1989)
1982	Valued Environments	(Hall, 1982; Lee, 1982)
1983	People-Place Relationships	(Shumaker & Taylor, 1983)
	* *Place Identity	(Guiliani & Feldman, 1993; Proshansky, Fabian & Kaminoff, 1983; Twigger-Ross & Uzzell, 1996)
	* Place Annihilation	(Hewitt, 1983)
1986	Community Identity	(Hummon, 1986)
1989	Place Attachment	(Altman & Low, 1992; Hildago & Hernandez, 2001; Williams & Roggenbuck, 1989)
1990	Settlement Identity	(Feldman, 1990)
1992	Emotional Investments	(Hummon, 1986)
1995	Ecological Identity	(Thomashow, 1995)
1999	* Place Interference	(Sharpe & Ewert, 1999)
2001	* Domicide, * Memoricide	(Porteous & Smith, 2001)
2004	* Displacement	(Blizard & Schuster, 2004)
* For clarity, a brief explanation of these terms follows ** These terms will be used in the study and therefore are described in more detail in the chapter		

Adapted from Pruneau et al. (1999), Relph (1976), Sharpe and Ewert (1999), Blizard and Schuster (2004) and Windsor and McVey (2005)

Some of these terms may be familiar to the reader or will be self-explanatory, such as community attachment, emotional linkages to places, environmental sensitivity, valued environments and emotional investments. However, an explanation of terms such as topophilia, domicide, memoricide and other will be briefly explained, while the terms place dependence and place identity, will be discussed in detail, as they are a major focus in this work.

Tuan (1974) introduced the term, *topophilia,* to describe an affectionate bond between people and places, which he believed contributed to the formation of values. Terms used by Relph (1976) such as *insiderness*, refers to experiencing, belonging and identifying with a place, and *rootedness,* which refers to being settled in a place.

Sharpe and Ewert (1999) use the term *place interference* which is a term used to describe activities that deliberately reverse place attachment, and cause *placelessness*, which is a lack of recognition of special places, the erosion of symbols, or the severing of roots with a place (Relph, 1976). *Place annihilation* originally referred to the destruction of places during war (Hewitt, 1983); however, it now includes place destruction caused by administrations (Windsor & McVey, 2005). The term *domicide,* a subset of place annihilation, refers to the deliberate destruction of places by agencies driven by individuals seeking personal gain or to achieve personal ambition (Porteous & Smith, 2001). The term *memoricide* refers to the "destruction of memories that people have of a place, through the deliberate destruction of public and/or private records, photographs and documents" such as in Kosovo, Yugoslavia (p. 148).

4.4 PLACE ATTACHMENT AND PARK MANAGEMENT

Place attachment research within parks and protected areas is important due to the resources contained within these areas, which hold important value for a range of users. These include historic, cultural, natural, social and economic resources. Understanding the attachment to

places allows park managers to make informed decisions (Ballinger & Manning, 1997), involving aspects of human use and value.

Within national parks, place attachment is significant as the designation of regions acts to protect as well as identify significant historic, cultural and natural resources, which can form part of a community's regional identity and character (Atkisson, 1989). The implementation of place attachment into park management strategies was explained by Presley (2003) and Smaldone, Harris, Sanyal and Lind (2005) to have many benefits for managers and communities, some of which are listed in Table 17.

Table 17: Using Place Attachment in Management

PLACE ATTACHMENT AND PARK MANAGEMENT		
Outcomes	**Strategies**	**Benefits**
Inform Park Management	To identify user groups	Volunteers, donors, board members, fee supporters Planning and management involvement Empowering community
	To identify the diversity of place attachment	Assist with conflict resolution Accommodate diversity Inform staff Educate community
	Planning Landscapes	Planners consider Ecological, Emotional, Symbolic and Cultural meanings in allocating management zones and resource use Inventory of place meanings
Community Benefit	Build knowledge and respect for places	Foster environmentally responsible behaviour Enhance respect for community diversity

Adapted from Presley (2003) and Smaldone, Harris, Sanyal and Lind (2005)

Four key aspects particularly relevant to protected area management are conservation, stewardship, landscapes and land management that are dealt with in the following sections.

Conservation

The association between place attachment and activism is recognised in the literature (Manzo, Perkins & Douglas, 2006). Those who show concern for natural resource conservation recognise the attachment of people to the environment, as discussed in the

previous chapter. Encouraging action that will benefit and protect natural settings has its beginnings in deep ecology and bioregionalism concepts (Pruneau et al., 1999). Understanding these underlying views is important as they may significantly influence a person's place attachment. Deep ecology considers the interconnectedness of humans with the natural world (Zimmerman, 1998), while bioregionalism describes finding a sense of place in nature (Thayer, 2003, p. xiv). Research areas that reflect a bioregionalism or deep ecology influence include, environmental education (Sobel, 1996; Tanner, 1980), social psychology (Low & Altman, 1992; Proshansky, Fabian & Kaminoff, 1983) and cultural geography (Hay, 1988) (Pruneau et al., 1999). Additionally, social ecology recognises that people should be involved in environmental solutions (Bookchin, 2004). Further, ecofeminists propose that place attachment has been disrupted through hierarchy, which has caused a disconnection with nature, that they believe has lead to the environmental crisis (Atkisson, 1989).

Stewardship

While place attachment can encourage conservation stewardship, it can also explain conflict. Therefore, understanding community views has become a significant aspect of park management (Ballinger & Manning, 1997; Kaltenborn & Williams, 2002). Furthermore, Kalternborn and Williams (2002) confirmed that an individual's attachment influences their views towards environment and the value they place on natural resource management. Likewise, when place attachment is supported and encouraged by management, stewardship and sensitivity to management initiatives is also enhanced (Greene, 1996).

Landscapes

Most of the place attachment literature refers to attachment to places as a complex process of beliefs, attitudes and emotions, which can inform an individual's view of the world. However, studies by Stedman (2003), and Parsons and Daniel (2002) expanded on this to examine the importance of the physical features of a landscape and their contribution to place attachment. Both studies concluded that physical features did matter in constructing meaning

to places, and Stedman noted that if the physical features changed then the meanings that people attach to a place might also change. Parsons and Daniels also noted that an appreciation of the landscape could lead to the adoption of sustainable practices by users.

Other landscape studies such as that by Kaltenborn and Bjerke (2002b), confirmed the link between residents' land preferences and place attachment in Roros, a town in a World Heritage area in Southern Norway. While Waterton (2005) explored the diverse cultural meaning of landscapes in a study in England, which led to questioning "why landscape is underplayed in legislation and policy development although it provides a vital ordnance of cultural meaning in relation to identity, belonging and sense of place" (p. 309).

Land Management

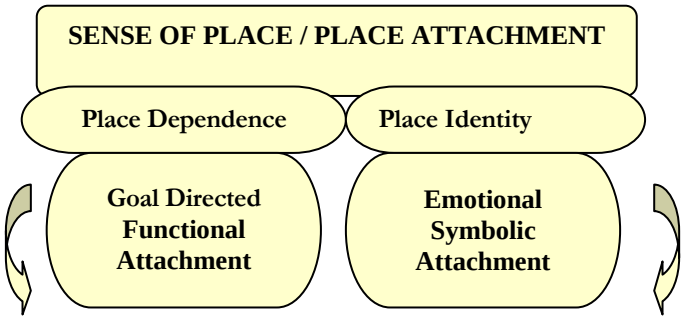
Ways to incorporate place attachment into public land management were explored by Mitchell, Force, Carroll and McLaughlan (1993) and Smaldone et al (2005). Meanwhile Williams and Stewart (1998) Williams & Patterson (1999) and Galliano and Loeffler (1995) and others examined the application of place attachment to ecosystem management (Eisenhauer, Krannich & Blahna, 2000; Schroeder, 2004). Place attachment "can be the source of heightened levels of concern about management practices" and therefore deserve consideration in ecosystem management (Eisenhauer, Krannich & Blahna, 2000, p. 421). The value of places to communities and how these are integrated into management decisions, in deciding boundaries and how places are interpreted, are further matters for consideration (Stokowski, 2002).

4.5 PLACE DEPENDENCE AND PLACE IDENTITY

Place attachment within the recreation literature primarily consists of two components: a goal directed/functional attachment referred to as place dependence (PD), and an emotional/symbolic attachment referred to as place identity (PI) (Presley, 2003; Sharpe & Ewert, 1999; Williams, Anderson, McDonald & Patterson, 1995). The role of place

dependence and place identity within the model put forward by Williams et al. (1992) is shown in Figure 8.

Figure 8: Place Dependence and Place Identity



Adapted from Williams et al. (1992)

Studies listed under the categories of place dependence and place identity often extend beyond their listed category to incorporate elements of the other. For instance, those that have an emotional or symbolic attachment may also have a dependent attachment for occupational or recreational purposes.

4.5.1 Place Dependence

Introduction to Place Dependence

The goal directed/functional attachment, place dependence, explains the dependence on a place for a specific activity such as recreation or employment. In Australia, farmers may be reliant on a national park, for cattle grazing and a dune buggy club may be reliant on a coastal park for their recreational activities. Most place dependence studies include two or three community groups within each study. These may be active recreational users, who use the park for sport related activities; passive users, who use the area for picnics or family gatherings; or users that rely on the resource for their livelihood such as graziers and farmers. All of these users are described as being place dependant; however, passive users may also

choose an area due to an emotional or symbolic link, and therefore these users will be dealt with under the place identity section of this chapter. Place attachment studies can examine the level of dependence on the resource, as some communities may be heavily dependant while others are not. Furthermore, this knowledge can provide insight into attitude or behaviour towards the resource, management decisions, conservation activities and other matters.

Place Dependence and Recreation, Sport, Lifestyle

Place dependence that can develop through reliance on the natural resource for recreational or sporting activities or from living in the region is dealt with in this section.

Place Dependence and Opportunity to used the Resource

Andrews cited in Kaltenborn and Bjerke (2002a) believes that the degree of attachment can be influenced by natural landscapes, a person's workplace, or social or recreational opportunities. When members of a community have the right to enter a region, an attachment is formed even prior to entering the space (Chawla, 1992; Marcus, 1992; Riley, 1992; in Sharpe & Ewert, 1999). This is evident in an Australian study of new residents to the Atherton Tablelands and Woodstock (Measham, 2004), who formed attachments to the region prior to moving there. A person may not be aware of their attachment until an area is under threat, at which time a person's link to a place is recognised (Pruneau at al., 1999).

Place Dependence and Activity Involvement

The influence of dependence on activity involvement was the subject of numerous studies (Cavin et al., 2004; Kyle et al., 2003; Mowen & Graefe, 1999; Mowen, Graefe & Virden, 1997; Proshansky, Fabian & Kaminoff, 1983). The outcome of which showed that activity involvement enhanced the relationship with the setting, which led to positive experiences for those involved. Additionally, Morgan & Soucy (2006), in their study of trout anglers at Montauk State Park in Missouri, USA, found that those with specialised skills were more likely to be involved in environmental education activities than those less skilled.

Place Dependence and Solitude, Motivation and Satisfaction

Daigle and colleagues examined the emotional, symbolic and functional attachment of river and lake users on the St Croix Waterways (Daigle, Hannon & Stacey, 2001). They found that solitude was linked to high levels of place attachment. However, motivation to visit a place did not necessarily lead to the development of place attachment (Kyle, Mowen & Tarrant, 2004).

Satisfaction has also been the subject of various studies about satisfaction and willingness to engage in place decisions (Stedman, 2002), satisfaction and interpretation (Hwang, Lee & Chen, 2005), and satisfaction and crowding (Wickham & Kerstetter, 2000). The first two studies conclude, "Positively influencing place attachment and activity involvement is an effective strategy for increasing visitor satisfaction" (Wickham & Graefe 2001, p. 362). The first two studies showed that place attachment had a beneficial effect on satisfaction, and interpretation (Wickham & Graefe, 2001), while increased attachment to community led to more positive feelings about crowding at community events (Wickham & Kerstetter, 1999; 2000).

Place Dependence and Support for the Resource

Research within park and protected areas has examined active recreational users' attachment to natural areas, such as white-water rafting (Bricker & Kerstetter, 2000), rail-trail users (Moore & Graefe, 1994) and hikers, boaters and anglers (Kyle, Graefe & Manning, 2004b). Presley (2003) believes that this knowledge can be used to identify groups that can support and assist in planning and management. He concludes that these users are likely to donate time and money to assist with the management of this resource for their continued use.

The degree of acceptance for management actions as well as the reasons for taking river trips was examined in a comparative study by Warzecha, Lime and Thompson (1999) in the Canyonlands National Park and Mount Rushmore National Memorial in the USA. Both the agreement levels for management actions and the reasons for the trips differed amongst the

groups, and correlated with different levels of agreement to the statements given about place attachment. A study by Daigle, Hannon and Stacey (2001) showed that differing levels of agreement to place attachment statements had no influence when it came to impacts on the resource, which all groups in the study saw as important.

Place Dependence and Interpretation

Visitors seek to understand and be inspired by a park, which according to Williams and Vaske (2002) are the reasons for most visits. By understanding the meaning that visitors bring with them to a site, Chen and colleagues (2001; 1999) believe that the desired outcomes of fostering stewardship and intellectual or emotional connections to the resource can be achieved partly through the role of interpretation of the resource.

The role of place attachment in interpretation, planning, and zoning decisions is summarised by Lee (2001). He stated that management must re-evaluate their decision-making practices to include place meaning for various groups. The value of place attachment to management and interpretation is recommended in various studies (Chen, Pierskalla, Goldman & Larsen, 2001) and is important to resource managers during the decision making process (Williams & Vaske, 2002). In addition, the results of the study by Chen et al. (2001) suggested that visitors exposed to the interpretive experience might also cultivate a stronger place attachment. However, a number of researchers have noted that the role of place attachment in interpreting cultural heritage requires particular consideration in cultural planning (Markwell, Stevenson & Rowe, 2004; McCool & Moisey, 2001).

Place Dependence and Occupational Users

Occupational users are those reliant on the resource for their livelihood. These users may be landowners, business owners such as tourism operators, graziers, farmers, local and indigenous communities, and national park employees or volunteers. This section considers the effect of place dependence on levels of attachment, conflict amongst user groups and the influence of place dependence on place identity and environmental behaviour.

Place Dependence and Levels of Attachment

Natural resource managers must understand why people consider places as special in order to consider their concerns during the planning process (Schroeder, 2004). Furthermore, Ryan (2005) found that the attachment of volunteers and management varied to those of other users, as did the perspective on how an area should be managed. A study of national forest user groups by Confer, Graefe, Absher & Thapa (1999) revealed higher levels of place attachment amongst those dependant on the resource. The study showed that landowners and horse users had a higher level of attachment than day visitors and other groups. The outcome of this study suggested that management consider these groups during any planning processes.

A strong functional attachment was also found in a study by Zwick and Solan (2001) where attachment was stronger amongst those involved in harvesting activities in Denmark than those not involved. These authors concluded that people form attachment to places through resource use. Likewise, Bricker and Kerstetter (2000) in their study of active recreational resource users also found that those with a specialisation in an activity had a stronger place attachment than those less experienced. A study in Tigray, Ethiopia by Beyene, Gibbon and Haile (2006) showed that land use could also be shaped by historical processes and cultural values. The sense of place and identity associated with farming in Ethiopia has developed over time "as generations pass through the [same] family dwelling" (p. 61). Beyene and colleagues have called on policy makers to pay attention to the attachment farmers have to their lands in matters regarding policies on land distribution and agricultural extensions.

Place Dependence and Conflict

Those dependant on a resource for their activities or lifestyle are more prone to conflict with other user groups because they see the activity or place as central to their wellbeing (Jacob & Schreyer 1980). Managing diversity in attitudes to resource management was addressed in a study by Kaltenborn and Williams (2002) on Femundsmarka National Park in Southern Norway. The study examined tourists and local community attachment to places in relation

to attitudes to the resource and to management priorities. The study concluded that management objectives were more important to those with a higher level of place attachment, which in this case was the local community. Key park management issues such as grazing and hunting were the subject of a study in the Grand Teton National Park in the USA by Smaldone and colleagues (2005). The study found that while place attachment was strong amongst visitors, those negatively affected by issues portrayed a stronger emotional attachment than those unaffected. The study concluded that in discovering place attachment levels management could identify community groups for public involvement in management processes (Smaldone, Harris, Sanyal & Lind, 2005). Opposition to development and landscape change was evident in a study on river communities in Nebraska, which provided management with a meanings based framework for addressing controversial problems (Davenport & Anderson, 2005). Trust and community involvement in decisions in natural resource management agencies were examined by Payton, Fulton and Anderson (2005). The study found that trust was a major issue in mediating civil action. Further, understanding place attachment would lead to developing trust and improving civic relationships.

Place Dependence and Influence on Identity and Environmental Behaviour

The influence of place dependence on place identity was examined by Pretty, Chipuer and Bramston (2003) in Australian rural communities, by Vaske and Kobrin (2001) on youth in natural resource work programs, Kaltenborn (1997) on homeowners in Norway, and Moore and Graefe (1994) on rail trail users. The study by Vaske and Kobrin confirmed that place dependence can influence the development of place identity, which was strongly linked to environmental behaviour. However, a study of traditional mountain farmers in the Hohe Tauere National Park in Austria showed that they did not consider themselves as protectors of the environment although this may have been the perception of others (Ploner, 1995). Further studies reveal that people with a strong place dependence can also develop a strong place identity, which can influence environmental behaviour (Kyle, Graefe, Manning & Bacon, 2004b; Vaske & Kobrin, 2001).

Summary of Place Dependence

The goal directed/functional attachment, place dependence, explains the dependence on a place for a specific activity such as recreation or employment. Place attachment studies identify higher levels of place attachment amongst those who are dependant on the resource. In addition, recreationalists with a specialisation in an activity had a stronger place attachment than those less experienced.

Furthermore, studies found that in discovering variations in place attachment, management could identify community members suitable for public involvement in management processes (Smaldone et al., 2005). In addition, people with a strong place dependence often have a strong place identity, which can influence environmental behaviour (Kyle, Graefe, Manning & Bacon 2004b; Vaske & Kobrin, 2001).

4.5.2 Place Identity

Introduction to Place Identity

Within the context of the place attachment literature, *place identity* refers to the emotional/symbolic attachment to a place, which can also develop from place *dependence*, which is the reliance on a place for functional activities. Williams et al. (1995) explains that the way a person identifies with a place is linked strongly with a special childhood memory, adult memory or a place of special significance, such as a symbol of heritage. A person may have particularly happy childhood memories of holidays in a seaside town; a couple may have special memories of their honeymoon destination; a historic site, such as Anzac Cove in Gallipoli, may hold particular historic importance for many Australians. Users with an emotional or symbolic attachment can be passive recreationalists, users of walking trails or picnic grounds or they may have an interest in historic or cultural aspects, or they may have an emotional or symbolic attachment, which has developed from a functional attachment referred to as place dependence.

Place Identity and Emotional Attachment

Research by Hernández, Hidalgo, Salazar-Laplace and Hess (2007) suggests that place attachment forms before place identity, which is a component of our personal identity. Emotional attachment to a place, Proshansky (1978) explains, is linked to a person's unique socialisation in the world revealed through their place identity. This in turn reflects their personal identity, which is established through a complex web of conscious and unconscious ideas, feelings, preferences and values. Expanding on this concept, other social and physical characteristics of places may also be linked to a person's place identity (Measham, 2004; Mura, 2004) which evolves over time with life experience and inner growth (Measham 2004; Speller, 2000). A case in point was a study that examined the effect of climate on place identity. The study concluded that a person's perception of a place might be influenced by climate, and showed to be a strong influence on those with a high emotional attachment to their residential area (Knez, 2005). There are many aspects that influence place identity, some of which are discussed below. This section considers place identity/emotional attachment in relation to environmental education, past experience, community, destination choice and the role of narrative in identifying emotional attachment.

Place Identity and Environmental Education

A study by Blizard and Schuster (2004), examined children's reactions after a woodland area used for creative play was removed from their use. Blizard and Schuster observed that the children had formed a strong emotional attachment to the trees, plants and animals. The bond to the natural area was evident through the sense of wonderment and care the children displayed towards the area, and the subsequent emotional loss they expressed for both the "loss of nature, their place and the animals that had made their homes in the trees" (p. 60). This expression of loss was also an expression of the loss of the social and physical link to their place identity, that is, their link to their forest home and the community of children that played in the forest and participated in building the forest forts. The study supports environmental education in schools as suggested by Measham (2004), who found that the emotional attachment of place identity is strongly influenced by childhood experiences, more

so than by engaging in adult activities such as land production or recreational activities. Additionally, Measham (2004) explains that environmental education in childhood can encourage learning about places and foster links between the environment and ourselves.

Place Identity and Past Experiences

A person's past experiences is considered an important influence in developing identity. Various studies into the role of past experience in developing place attachment support this argument (Bricker & Kerstetter, 2000; Moore & Graefe, 1994; Williams, Patterson, Roggenbuck & Watson, 1992). Zajonc (2001) explains that if repeated exposure to a place either through the written or visual media can form place attachment, "…then past experience should also be a powerful predictor of place identity" (Backlund & Williams, 2003, p. 321).

Negative past experiences however, can have the reverse effect on emotional attachment as demonstrated in a study by Johnson (1998). The study showed that black Americans had a lower level of attachment to wilderness than white Americans did. Johnson suggests that the collective memory of the groups past experience was linked with the negativity associated with slavery, sharecropping and lynching (Johnson, 1998) which caused displacement and the breaking of emotional connections (Inalhan & Finch, 2004).

Alternatively, inattentiveness or disinterest in local affairs can still occur when community attachment is strong. A study by Lima and Castro (2005) explained that residents were more concerned with global catastrophic events than local ones, as they did not feel threatened and believed that science was quite capable of dealing with these events. Additionally, the residents believed that their community "could not be contaminated with the same problems that concerned them globally" (p. 33). The exceptions to disinterest in local affairs were those residents individually affected by local issues, which are sometimes referred to as the "not in my backyard" syndrome (Lima & Castro, 2005).

Place Identity and Community

The formation of community is the result of common experiences and a shared context of meanings (Ballesteros & Ramırez, 2007) that "shape situations in which participants create values" (p. 2). Furthermore, communities as well as the individual are strong reference points for the creation of identities, which are symbolic realities. According to Auge (cited in Ballesteros & Ramırez, 2007, p. 677), "when strong collective identities are linked to life spaces, a solid sense of community is formed" (p. 677).

A study by Kim and Kaplan (2004) on community identity in an urban environment showed that residents had a strong sense of community identity when natural features and open spaces were present which allowed social interaction. Likewise, social interaction was relevant in a study on residents' place attachment to their homes, neighbourhood and city (Hildago & Hernandez, 2001). Further studies addressed the level of support for tourism development in communities (McCool & Martin, 1994), and government planning of landscapes (Al-Hathloul & Aslam Mughal, 1999), the process that Russell and Harris (2001) believe can foster and result in a strong sense of community identity.

In an effort to understand the relationship between identity and choices that people make in their lives, a study on the elderly in rural communities revealed that they strongly identified with their homes and community and because of this emotional attachment were reluctant to move in their autumn years (Ponzetti, 2003). A study by Billig (2006) on communities in the Gaza region, found that even when people were faced with dangerous situations, they were inclined to stay in the region. In contrast, Mark Halstead, in a review on Yemeni girls who have settled with their families in America (Sarroub, 2005), commented that while struggling with two cultures, the girls must come to terms with an identity constructed mainly from the influence of males, family members and community leaders.

Williams (2002) believes that globalisation has removed the traditional place based community identity, which he refers to as *Politics of Place*. He explains that *Politics of Place*

is when leisure activities are used to "affirm connections to places which in turn can create and structure social differences between locals and outsiders and assert power and authority over place" (p. 352). This will have implications in a global context as communities compete for claims on places.

Place Identity and Loss of Attachment

Displacement is a term used to describe a way of dealing with disruptions to attachment. To illustrate this, an individual may cope by moving to another location or by visiting a site on a different day to avoid noise or crowding (Blizard & Schuster, 2004). Desegregating communities can dislocate personal or community identity (Dixon & Durrheim, 2004), and likewise shifts in social and community attachments can also result in displacing communities (Fried, 2000a). A study by Windsor and McVey (2005) on the displacement of indigenous communities in Canada through dam construction in the 1950s resulted in displacement and a loss of place identity, by the forcible removal of the community from their lands. According to Snyder, Williams & Peterson (2003, p. 109) in regard to indigenous communities, "to move a culture is tantamount to destroying it", this is because so much "is woven into special patterns and localized meanings". Displacement and loss of identity for indigenous cultures is the result of how modern societies interpret human relationships with nature (Snyder, 2003). Modern societies use valuation methods based on legal and economic criteria, "while in a subsistence culture, meaning and relevance of much of the culture's knowledge and practices are specific to geographic places, for example, the knowledge of the particular location and timing of harvestable plants and game" (p. 110).

The displacement of cultures is also evident in a study by Possick (2006) on evicted Jewish settlers. The study described the trauma of separation and an ideological place attachment amongst those effected. Similarly, a study on immigrants by Van Ecke (2005) supported these results. The complexity of attachment, place identity and displacement, accentuated through the Kashmiri Hindu migrants who settled in New Delhi, is worth noting. Displacement occurred through increased military activity and an unstable political climate, and many migrants still cling to the hope of one day returning to their homeland (Duschinski,

2004). Wallace (2006, p. 23) states that the acknowledgement of a community's "collective historic" past and the creation of cultural areas is important in the resettlement of displaced communities.

Place Identity and Destination Choice

Whilst place identity refers to the emotional or symbolic attachment to a place, repeat visitation can play a significant role in strengthening this attachment (Altman & Low, 1992; Belk, 1992). Additionally, an emotional, symbolic or functional attachment also serves to shape activities and preferences for specific settings (Backlund & Williams 2003), for when we are exposed to a place, we can develop a preference for that setting (Zajonc, 2001).

Alegre and Juaneda (2006) assert that the reason for repeat visitation is due in part to developing an emotional attachment to the destination. Similarly, Marles and colleagues (2001; 2003) discovered that a link existed between place identity and repeat tourist visitation, and that emotional bonds are strengthened through repeat visits to a place. Another study of visitors to Myrtle Beach and Charleston in the USA by Lee, Backman & Backman (1997) supported the view that place attachment can help to explain repeat visitation. The two destinations offered a different experience; one offered an historic resource, while the other offered a family facility. Both experiences strengthened emotional attachments to places, while the latter also strengthened attachment within the family unit. However, attachments to places that children form may vary with gender and age. For instance, Min and Lee (2006) established that children in the 10-12 age group preferred city fringe settings, sports facilities and vacant areas, while children in the 7-10 age group preferred play grounds and green spaces. However, common to all children was the preference for natural settings, private and secret places and rest areas, uninterrupted by adult interference. Concerning urban environments, Min and Lee (2006) believe that if a child is exposed to the safe, comfortable built playground environment, they accept this setting as special to them for their psychological and social play needs.

Understanding the significance and meaning of the destination to the visitor is important if managers are to meet their needs (Lee, 2001). Hailu, Boxall and McFarlane (2005) found that place attachment "formed through previous trips to a destination can also influence recreational demand and travel costs" (p. 581). Hailu and colleagues integrated place attachment into a recreational demand and travel cost model. They hypothesised that "as place attachment develops, visits to a site increase, as recreationists perceive fewer sites as adequate substitutes" (Hailu, Boxall & McFarlane 2005, p. 583). By examining the link between place attachment and recreational habits, they were able to calculate likely costs associated with such trips, therefore having "the potential to affect the estimate of per trip consumer surplus" (p. 595).

Williams et al. (1992) in a study of visitors to four wilderness sites, highlighted differences between attachment to a wilderness setting and attachment to a place for other recreational use such as a holiday. The study identified an alliance between wilderness and lifestyle choice, such as membership to an organisation or group, while attachment of other users related to lower socio-economic status. However, a study by Harris and Orams (1990), of regional parks between users and non-users in Auckland, New Zealand found that a lower economic status was more a characteristic of non-park users (Griffin, Wearing & Archer, 2004).

Place Identity and Narrative

The travel experience is particularly valuable for people in transitional stages of their lives, a theme explored by White and White (2004) in a study of visitors to the Australian Outback. The study concluded that self-identity could be revitalised, or changed through the travel experience, which is communicated through postcards, photos or talk about travel. A study by McCabe and Stokoe (2004, p. 602), explained the role of narrative as an expression of place identity "…when tourists relay their experiences of a place their talk about the place becomes their talk about their identity". Place attachment can be expressed as a visual narrative such as a postcard, (Pritchard & Morgan, 2003) or in the tourist's description of a

place (McCabe & Stokoe, 2004). Similarly, Johnstone (1990) explains that the sense of self-identity is rooted in narrative, as stories about places can create meaningful attachments. Trauer and Ryan (2005, p. 483) conclude that "narrative serves to structure a person's sense of self and place while also influencing interactions with others on a personal as well as a community level".

Place Identity and Symbolic Attachment

Symbolic attachment to a place is assigned by "individuals, groups and societies, and is not necessarily related to the physical attributes of a place" (Williams, Patterson, Roggenbuck & Watson, 1992, p. 33). Moreover, either the recreational experience, according to Tuan (1977) can be a "direct experience of the senses" or it can be experienced through "cognitive/symbolic processes" (in Williams, Patterson, Roggenbuck & Watson, 1992, p. 33).

Most community studies are in urban or rural settings, and within these communities are symbols that contribute to both self-identity and community identity. Place identity studies generally support the view that a person's identity is closely linked to their community identity (Dixon & Durrheim, 2004; Fried, 2000a; Hildago & Hernandez, 2001). A study by Hull, Lam and Virgo (1994) on community icons identified a connection to the past through symbols, which represented social groups that the residents, belonged to, or identified with, or were reminders of personal accompaniments and concerns that evoked feelings and emotions.

This next section considers place identity/symbolic attachment to National Parks, historic and cultural sites, cultures and spirituality, all of which contain symbolic meaning to particular individuals or communities.

Place Identity and National Parks

National Parks are considered national symbols, which can "evoke memories of experiences, developed through cultural and social meanings attached to the place" (Griffin, Wearing & Archer 2004, p. 265). Recognition of the cultural and psychological benefits of a quiet untouched setting as found in national parks has been well recognised in the research (Mace, Bell & Loomis, 2004). It is important to note that ethnic groups may not relate to the park as a national symbol but are more likely to use urban parks or national parks that are close to their community as a social space, as they are large enough to accommodate family gatherings (Griffin, Wearing & Archer, 2004, p. 274). Moreover, those who have never been exposed to national parks are unlikely to visit them "because they do not have the cultural attachment and traditionally will follow their own cultural habits" (p. 267). However, if park managers are aware of these cultural differences, they can develop strategies that will encourage new users, such as gatherings or events that will attract specific community groups. This would potentially support the development of community identity and social meaning for the users. Social value has become an important feature of community identity and maintaining broad community support for national parks is important if environmental, economic, socio-cultural, physiological or psychological benefits are to be realised (Griffin, Wearing & Archer, 2004). Using a site for family gatherings can result in attachment, through the process of identifying with the site for social or cultural activities.

Place Identity and Historic or Cultural Sites

Symbolic attachment was examined in a study on visitors to the Historic Lincoln, Vietnam and Korean War Veteran Memorials in Washington DC USA (Chen, Wang & Larsen, 1999). The study showed that the connection to the past was deep and profound for most visitors who "reconnected with the principles and values of the sites, reflected and reconnected with the past and honoured those that had passed before them" (p. 343). People who visit historic or cultural sites, according to Svensson (1998), reconnected with their separation from culture and nature through the tourist experience. By understanding the tourist's relationship to the

sites, managers may be in a better position to stimulate and foster stewardship (Svensson, 1998).

Fredrickson (2001) examined symbolic attachment through studying visitors' knowledge of the cultural and natural history of the region they were visiting. The importance of this study showed that those who considered this knowledge important had a stronger place attachment, which in turn had a favourable influence on their environmental ethic. A further study of Taiwanese cultural tourists found that "the meaning and the formation of place attachment may differ depending on the background of the tourist (Hou, Lin & Morais, 2005, p. 221). Hou and colleagues found that those tourists with the same cultural background as the host community expressed identity with the community, while those from non-ethnic backgrounds expressed a dependence on the resource to define their place attachment. These authors also found that destination attractiveness and involvement were linked to the formation of place attachment and the formation of cultural identity (Hou, Lin & Morais, 2005).

Place Identity and Cultures

The symbolic attachment that people have to their environments was evident in many studies. Finland is known for its lakes and waterways, which form part of everyday life and hold iconic meaning in the Finnish Culture (Tauhinu & Pitkanen, 2004). Similarly, island communities often have the sea as a major active force in their mythic history, while American Indians may emphasise a relationship between earth and sky" (Steele 1981, p. 6). Symbolic attachment and community identity have been used to reflect the heritage of mining towns in Spain (Ballesteros & Ramırez, 2007). Furthermore, features such as "geographical, social and economic isolation" are common to many mining communities worldwide (p. 3). "Strong nostalgic feelings and the desire to preserve cultural heritage" (Cunningham 2004, p. 505) were considered most important in a community study in the Ogasawara Islands of Japan. Consisting of 30 islands, Ogasawara was declared a National Park in 1994, and the community retains strong cultural links to activities in the islands

during the Second World War. The attachment of communities living near the main waterways of the Mississippi and the Missouri Rivers was examined in the USA. The study explored community attachment to the river location and found that community image and identity varied between the locations (Rice & Urban, 2006).

The symbolic attachment of cultures can be an emotional experience and "create intense and heated views and lead to conflict amongst groups" (Presley, 2003, p. 27). Symbolic attachment and conflict amongst user groups is evident in a case study of Devils Tower Monument in the USA. The American Indians, who held a deep symbolic attachment to the monument as a sacred site, were in conflict with the rock climbing community who were place dependant on the site for rock climbing (Dustin, Schneider, McAvoy & Frakt, 2002). To avoid this issue in the future requires park management to understand the meaning attached to places by user groups.

The symbolic attachment of cultures has implication for communities displaced by natural events or unrest. Cultures and community attachment was examined in the resettling of immigrants (Mazumdar, Mazumdar, Docuyanan & McLaughlan, 2000; Ng, 1998). These authors found that re-establishing the social and ritual activities of the migrant groups, helped them to settle into the community. Low (in Griffin, Wearing & Archer, 2004, p. 265) explains that these activities bring cultural meaning and worth to a new community because "a symbolic relationship exists between people and places". A study of Padampur Villages in Nepal found that lack of consultation with the local people led to strategies that threatened the heritage and culture of the villages and the relationship with their environment (McLean & Straede (2003). The case study highlighted the importance of community consultation in relationships between people and their environment.

Place Identity and Spirituality

Spiritual attachment in ancient philosophies and eastern religions began with the worship of nature spirits (Wall, 1994). This attachment is evident in contemporary society in those with

a great compassion for animals, as displayed by the Buddhist community (Wall, 1994), and activists such as animal liberationists. In comparison, the Judeo-Christian traditional religions taught the domination of nature, through which Mebratu (1998) believes the attachment to the natural world was compromised. Ecotheology seeks to address this by calling for reverence for nature and the continuity between humans and non-humans as a single integrated community (Berry, 1996).

Spiritual attachment is evident in a study of the community of Nazareth, which consists of Christian and Muslim-Arab residents. The purpose of the study was to establish the attitudes of the community towards heritage tourism development. Uriely, Israeli & Reichel (2003) found that the Christian minority were more likely than the Muslim majority to support the development as it would promote their beliefs and culture. The authors also suggested that the culture that was not promoted (Muslim-Arab) should be allowed to develop their own sites and benefit from promoting the region as a heritage tourism site through tax incentives and other initiatives.

The effect of wilderness attachment on spirituality has been examined (Brayley & Fox, 1998; Driver et al., 1996; Stringer & McAvoy, 1992). A summary by Heintzman (2003) concludes that people who visit wilderness places "alone and participate in nature orientated experiences are more likely to experience spiritual benefits". Likewise, some places have a spiritual resonance for particular groups such as the rapport that Buddhists have to the Himalayas (Frumkin, 2003), which is likened to a retreat experience at a monastery (Ouellette, Kaplan & Kaplan, 2005), or the spiritual attachment of indigenous communities to their ancestral land. This capacity of humans to reconnect with the earth is also an anticipated outcome of James Lovelock's GAIA hypothesis. A study by Kidd (2002) examined the impact of laws that took away traditional land rights of the Australian Aboriginal and subsequently lead to severing their spiritual attachment, which was closely linked to the landscape. Kidd stated that from the perspective of the aboriginal community, without traditional lands, the ancestral spirit totems that reside in the landscape, as well as the personal and community identity of these people has disappeared. Similar to the American

Indians, the indigenous communities linger with nowhere to direct their spirituality or anchor their community identity.

Frumkin (2003) found that the attachment that people have with places can have either a positive or a negative impact on a person's wellbeing, and he concluded that health should be synonymous with place. Additionally, religious rituals have a positive effect on place attachment (Mazumdar & Mazumdar 1993; 2004), while the rituals of indigenous cultures also have a positive effect in their connection with the earth through songs, chants and prayers (Dunbar, 2000).

The spiritual and restorative aspect of the nature experience, which may include adventure and health therapies, has been the subject of examination in the area of Ecopsychology. Ecopsychology considers that sense of place in nature is beneficial to human wellbeing (Devereux 1996) and when humans are separated from nature; it can lead to suffering for both the environment and humans (Seed, 1994). Bioregionalism (Metzner, 1999) and deep ecology (Taylor & Zimmerman, 2005) also recognise that the relationship between humans and the environment can have mutually restorative benefits.

The restorative benefits of holidays have been reported in the tourism literature by Gilbert and Abdullah (2004) and Mura (2004), while the restorative benefits of natural settings have also been examined (Hartig, Kaiser & Bowler, 2001; Korpela & Hartig 1996; Korpela, Hartig, Kaiser & Fuhrer, 2001). The first two studies examined the restorative qualities of favourite places though the authors noted that the physiological benefits of travel had not been adequately explored in the tourism literature. The study by Hartiz et al. (2001) considered that people who believe the restorative aspects of nature are important also behave more responsibly towards natural environments.

Summary of Place Identity

Within the context of the place attachment literature, place identity refers to the emotional/symbolic attachment to a place. A person's past experiences is considered an important influence in developing identity, and underlies various studies into the role of past experience in developing place attachment (Bricker & Kerstetter, 2000; Moore & Graefe, 1994; Williams, Patterson, Roggenbuck & Watson, 1992). Furthermore environmental education in schools is supported by Measham (2004), who found that place identity is strongly influenced by childhood experiences, more so than by engaging in adult activities such as land production or recreational activities.

A study by Kim and Kaplan (2004) on community identity showed that residents had a strong sense of community identity when natural features and open spaces, which allowed social interaction, were present. Williams (2002) stated that globalisation had removed the traditional place based community identity, which can also occur through the integration of communities (Dixon & Durrheim, 2004).

As place identity refers to the emotional or symbolic attachment to a place, repeat visitation can play a significant role in strengthening this attachment (Altman & Low, 1992; Belk, 1992). A study by McCabe and Stokoe (2004, p. 602), explained the role of narrative as an expression of place identity "…when tourists relay their experiences of a place their talk about the place becomes their talk about their identity".

Symbolic attachment to a place is assigned by "individuals, groups and societies, and is not necessarily related to the physical attributes of a place" (Williams et al., 1992, p. 33). Within communities are symbols that contribute to self-identity and a distinctive community identity. Place identity studies generally support the view that a person's identity is closely linked to their community identity (Dixon & Durrheim, 2004; Fried, 2000a; Hildago & Hernandez, 2001).

4.6 CONCLUSION

An important aspect of the human-environment relationship is place attachment, the connection that people have with places. This chapter has looked at a selection of the place attachment literature and its purpose and use in park management. Omitted from the review are the psychology literature behind place attachment development, and the health sciences literature. This work draws heavily on the concept put forward by Williams et al. (1992), who use the dimensions of place attachment, place dependence and place identity.

Place attachment reflects the basis of a person's life, through a complex process of beliefs, attitudes and emotions, which inform an individual's view of the world. When place attachment is strong, then activism and community involvement is probable. Changes to landscape can affect place attachment, because people project their lives into a place. Place interference, refers to a deliberate reversal of place attachment, while displacement describes moving away from a place when a person's place attachment is disrupted. Place attachment is an important concept in addressing planning issues for tourism, local culture and heritage to avoid conflict between local communities and visitors. Place attachment studies have been used to inform public land management, ecosystem management and interpretation.

Place dependence explains the dependence on a place for a specific activity, such as employment, sport or recreation. Through place dependence studies, management can identify community groups suitable for public involvement in conservation and management processes. The outcomes of current studies suggest that those who are dependant on the resource have a higher level of place attachment than do others. Place attachment shapes activities and preferences for specific settings for sport and recreation users. People with a strong place dependence, also have a strong place identity and this attachment can influence their environmental behaviour.

Place identity refers to the emotional or symbolic attachment to a place. Understanding this attachment allows park managers to make informed decisions that consider community

attachment to avoid conflicts. Studies have shown that a person's past experience is considered an important influence on their place identity. Repeated exposure to a place, either through written or visual media, can encourage place attachment. Repeat visitation can play a significant role in strengthening place attachment, while motivation to visit a place does not necessarily lead to the development of place attachment. A person's identity is closely linked to their community identity and shifts in social and community attachments can also result in displacing communities and likewise desegregating communities can dislocate personal or community identity.

A review of the literature has shown that place attachment can inform management and influence views about conservation. The role of place attachment in the management of protected areas is summarised as a process of re-evaluating decision-making practices to include place meaning for various groups in interpretation, planning, and zoning decisions. The value of places and how these are integrated into management decisions, about who decides boundaries and how places are interpreted, are also matters for consideration, as well as trust and community involvement in decisions in natural resource management agencies.

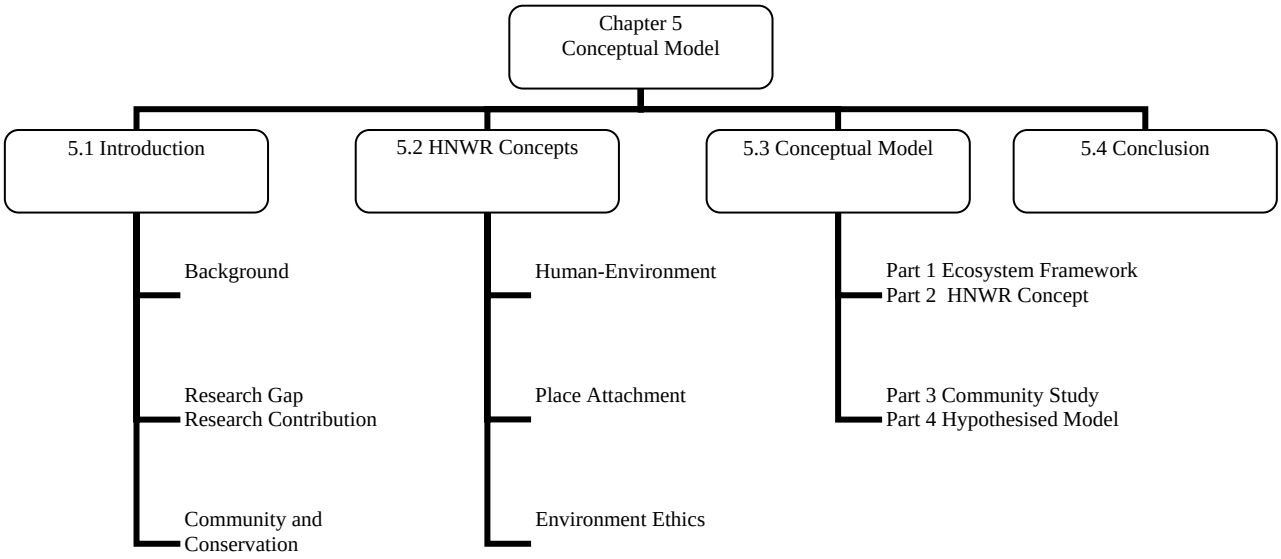
C h a p t e r 5

CONCEPTUAL MODEL

"It is our collective and individual responsibility to protect and nurture the global family, to support its weaker members and to preserve and tend to the environment in which we all live."

. Dali Lama

Figure 9: Chapter 5



5.1 INTRODUCTION

The Human Natural World Relationship (HNWR) has been described and the place attachment and environmental ethics literature discussed in the previous chapters. These chapters have examined the human-environment literature relevant to this study. This chapter will restate the background to the study, the research gap and research contribution that underlies the concepts and conceptual model described in this chapter as shown in Figure 9. The study uses the concepts of human-environment research, environmental ethics and

place attachment, placed within an ecosystem framework. The conceptual model consists of four parts. Part 1 and Part 2 of the model sets out the ecosystem framework and the HNWR concept within the framework. Part 3 of the model sets out the concept for the community study, which encompassed Part 4, the hypothesised model.

Background

The dilemma of managing human use while protecting ecologically significant areas has continued to pose challenges for park agencies. One solution is to involve community in conservation and management. However, for this to be effective, park agencies require a clear understanding of community interaction and relationship with the natural area, to implement strategies that support the park agency and foster sustainable conservation outcomes. A shift in thought from a short-term industrialised economic focus to a long-term environmental focus is essential in order to preserve natural areas that support life and provide the potential for economic benefits into the future (Purser, Park & Montuori, 1995).

The Research Gap

According to Holden (2003) and Macbeth (2005), the lack of research on values and environmental ethics has been identified within the tourism literature and needs to be addressed. This study will assist in bridging the gap between the natural and social sciences, identified as important by Fennel and Butler (2003). Hargroves and Smith (2003, p. 15) have stated that over the last decade an important lesson can be learnt from natural science experts in "the significance of understanding values and ethics, which underlie assumptions about conservation."

Research Contribution

This study contributes to a largely untested area in the tourism and park management literature by combining theories of place attachment and environmental ethics within a national park setting. Previous protected area studies have measured park users' perceptions, motivation and satisfaction levels and were largely undertaken to gain financial support,

improve services, and inform marketing and management strategies (Griffin, Wearing & Archer, 2004). However, these studies did not address conservation management, nor focus on the Human Natural World Relationship, or explore a community's potential to contribute to conservation management.

This study sits within a framework that recognises human values, alongside non-human values, as important elements in ecosystem management. Furthermore, human values can influence behaviour towards the environment (Blamey & Braithwaite, 1997; Stern, 2000), which is examined through place attachment and environmental ethics in this study.

Other contributions include:

- Understanding community conservation efforts through an appreciation of the link between human views and values and environmental activities.
- Understanding the relationship between human behaviour and environmental problems by use of multidisciplinary research that combines environment, psychology, geography, recreation and tourism research.

Community and Conservation

Figgis (1999) suggests that in the future management of parks in Australia will take a bioregional approach that will extend park boundaries to link protected areas with buffer zones under regional and local land stewardship arrangements. This will involve "diverse ownership over broad landscapes, under overarching management principles" (Figgis, 1999, p. 5). An example of this model is the Bookmark Biosphere Reserve in South Australia, which includes protected areas; private lands and land owned by private conservation organisations for biodiversity conservation. Selman (2004) believes that it is unlikely that communities will formally manage extensive areas; rather their involvement would be restricted to managing specific locations. Researchers agree that community involvement is important in addressing conservation issues. For instance, Hornback and Eagles (1999) and Roberts and Bacon (1997) held the view that protected area managers

require a clear understanding of community beliefs and attitudes towards the environment if they are to maintain support for conservation (Griffin, Wearing & Archer, 2004). Human-environment concepts have been utilised, and the model designed for this study is based on these concepts.

5.2 CONCEPTS

The concepts of the Human Natural World Relationship, environmental ethics and place attachment have been detailed in the literature review and a summary is included in this section for continuity. The research instruments used in the study to examine place attachment and environmental ethics will also be summarised.

Human-Environment Concept

A human-environment research approach has been used to examine the community's relationship to the national park. Humans have always affected their environment due to their reliance on the earth's resources to sustain life, and in the 1980's the seed of contemporary environmentalism emerged to examine the human-environment interaction and its role in conservation management (Mebratu, 1998). Metzner (2006, p. 89) deemed that the global environmental crisis has resulted in a world position that calls for "the examination of basic values and assumptions in every area of knowledge and enquiry".

Stern, Young and Druckman (1991) proposed that a multidisciplinary approach to human-environment research could link an individual's values and attitudes to environmental concern. Furthermore, by developing new ways of thinking about the relationship of humans to the environment, management will be equipped to implement conservation and management strategies with community support and assistance. Worboys, Lockwood and De Lacy (2001) deem that strategic management decisions are best formed from a clear understanding of the relationship people have with the natural environment, by considering ethics, beliefs and attitudes.

Environmental values within environmental ethics, according to Schultz et al. (2004, p. 32) "refers to values that specifically relate to nature or that correlate with specific environmental attitude or concern". Additionally, the interchangeable terms of 'place attachment' in environmental psychology, and 'sense of place' in human geography involved the study of human-environment interactions (Williams, Patterson, Roggenbuck & Watson, 1992). Williams and Patterson (1999, p. 142) considered that environmental psychology "is most likely to situate the individual in an ecological context" and has the capacity to examine tangible, subjective and symbolic meanings that can shape and influence human behaviour. This study combines both place attachment and environmental ethics in the community study.

Place Attachment Concept

Place attachment can establish an emotional, symbolic or functional attachment to a place and is used in the study to establish community attachment to the national park. The importance of place attachment to ecosystem management may lie in identifying "…symbolic, cultural and expressive meanings that develop through social relationships and are embedded in social practices and institutions" (Williams & Patterson, 1999, p. 142). This study draws on the work of Williams and colleagues (Williams & Roggenbuck, 1989; Williams & Patterson, 1995; Williams et al., 1995; Williams et al., 1992) and will be discussed in Chapter Six, Research Methods.

Environmental Ethics Concept

Environmental ethics studies usually refer to an environmental worldview such as an ecocentric or an anthropocentric stance. An anthropocentric stance is traditionally held by western cultures and is defined as a state where human justice and equity dominate over nature (Luck, 2003). A biocentric or ecocentric stance proposes that nature has intrinsic value and the protection of nature is the central focus (Thompson & Barton, 1994). Establishing these views involves measuring environmental attitude, intentions, and beliefs, which according to Bagozzi (1992) and Fishbein and Ajzen (1974) can be a predictor of

behaviour. However, influencing environmental behaviour is more difficult as it requires a change in attitude, which in turn requires altering salient beliefs (Bright, Manfredo, Fishbein & Bath, 1993). Two instruments were used in this current study to establish environmental ethics; they were the New Ecological Paradigm (Dunlap & Van Liere, 1978) and the Natural Area Value Scale (Winter & Lockwood, 2004). The New Ecological Paradigm Scale examined general environmental orientation, which referred to a pro ecological or anti ecological view. The Natural Area Value Scale measured values attributed to nature by humans, such as intrinsic, instrumental and non-use values. By combining environmental orientation and nature values, a community's environmental worldview can be established. The research instruments are discussed in detail in Chapter Six, Research Methods.

The full ecosystem framework has the capacity to measure human value, environment value, and economic value; however, the focus for this study is restricted to measuring human values.

5.3 THE CONCEPTUAL MODEL

The prevailing purpose of the research is to examine the way that park management can involve community in conservation management. This may be achieved through a better understanding of the human-environment interaction, which in turn can inform conservation and management strategies.

The conceptual model is explained in four parts.

Part 1 HNWR Ecosystem Framework. The framework consists of eight steps. Between steps, three and four of the framework is the Human Natural World Relationship (HNWR) concept.

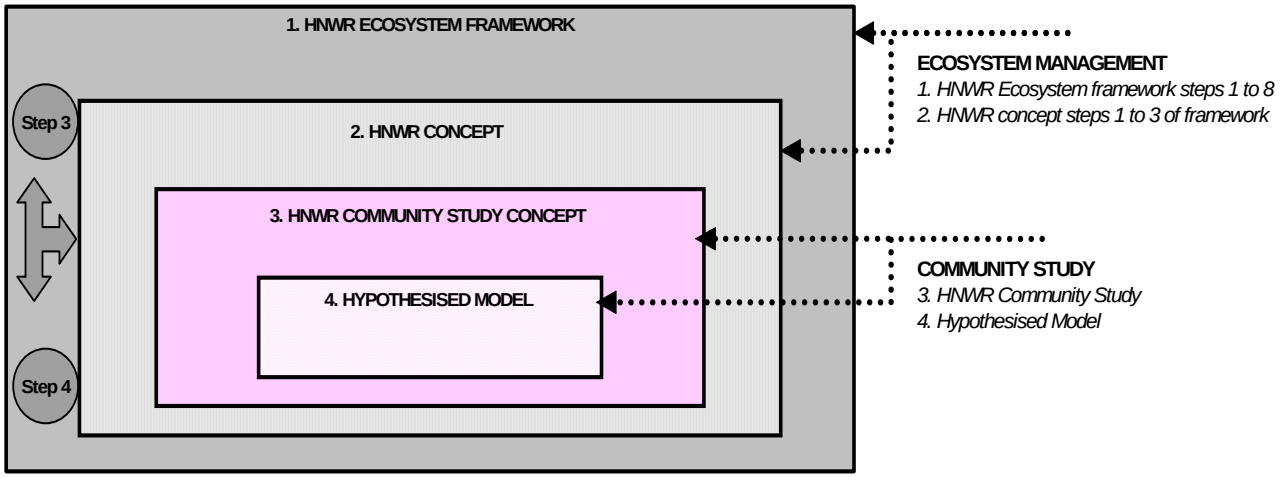
Part 2 Human Natural World Relationship (HNWR) Concept. The HNWR concept was designed as part of the framework to include humans in ecosystem management, and to establish human values.

Part 3 HNWR Community Study Concept. The study was developed in response to the research question, "What is the extent of the Human Natural World Relationship within a community and how this can understanding enhance protected area conservation and management strategies" and placed within the HNWR concept in the framework.

Part 4 Hypothesised Model. The model is placed within the community study and explains a series of hypotheses that were tested in the study.

The four stages of the conceptual model are shown in Figure 10.

Figure 10: The four stages of the conceptual model



Part 1: HNWR Ecosystem Framework

Ecosystem Management

Ecosystem management in modern societies must not only manage human systems but also recognise that human-environment interactions guide environmental research and management (Williams & Patterson, 1999). Additionally, Williams and Patterson (1999) deem that ecosystems are socially constructed places and are at "the intersection of natural forces, social relations and meanings" (p. 154). While environmental and natural scientists

have measured interactions between ecosystems and sentient and non-sentient beings, determining the relationship of humans to the ecosystem, particularly intangible relationships, has been more difficult to assess. For instance, economic value is used to measure tangible values, although it is recognised that intangible values also exist (Hein, van Koppen, de Groot & van Ierland, 2006).

Developing the HNWR Ecosystem Framework

The ecosystem framework formed the broad concept for this study and drew on guidelines developed by the World Conservation Union (IUCN) and Shepherd (2004, p. 3) as shown in Box 2.

Box 2: IUCN and Shepherd's Five Step Process

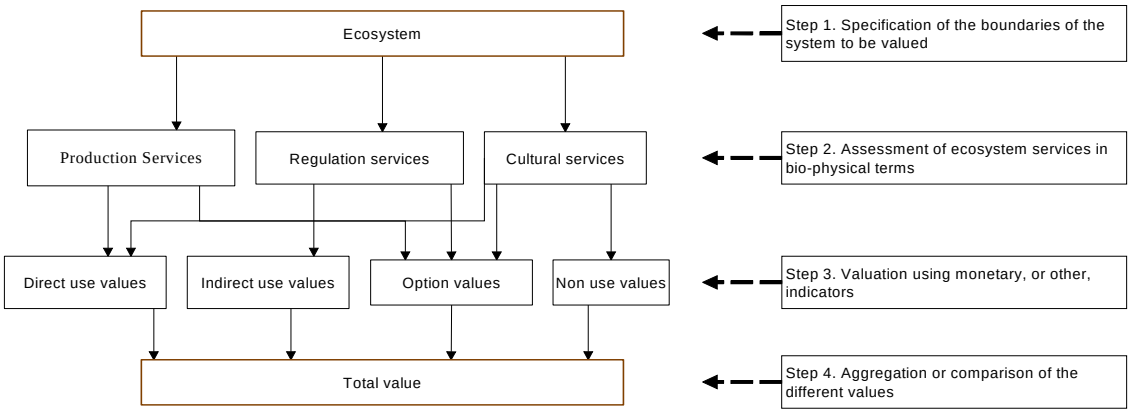
- Determine the main communities, defining the ecosystem area, and developing the relationship between them
- Characterising the structure and function of the ecosystem, and setting in place mechanisms to manage and monitor it
- Identifying the important economic issues that will affect the ecosystem and its inhabitants
- Determining the likely impact of the ecosystem on adjacent ecosystems
- Deciding on long-term goals, and flexible ways of reaching them

Source: IUCN and Shepherd (2004, p. 3)

Additionally, the ecosystem valuation framework of Hein and colleagues (2006) shown in Figure 11 was used as a basis for the new Human Natural World Relationship (HNWR) framework.

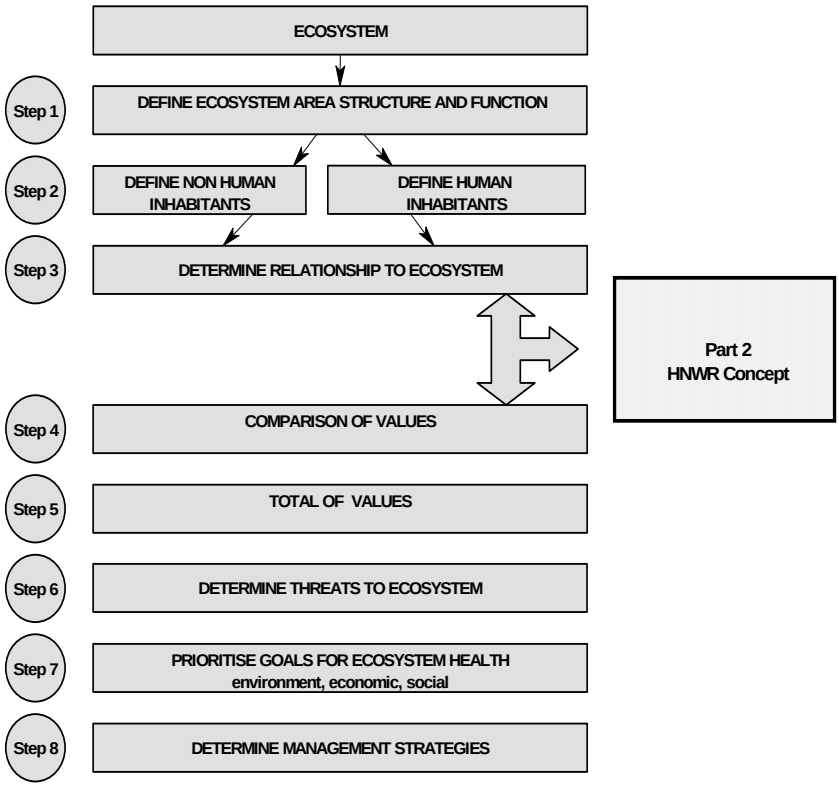
Hein and colleagues developed their valuation framework from procedures set out by the Millennium Ecosystem Assessment (2003). This study combined the guidelines shown in Box 2 with the framework shown in Figure 11; additional steps were added to form the new HNWR Ecosystem Framework, which is shown in Figure 12.

Figure 11: Hein and colleagues Ecosystem Valuation Framework



Source: Hein, Van Koppe, de Groot and van Ierland (2006)

Figure 12: Part 1: HNWR Ecosystem Framework



Source: Adapted and further developed from Hein et al. (2006),
Millennium Ecosystem Assessment (2003) and IUCN and Shepherd (2004)

Steps in the HNWR Ecosystem Framework

The HNWR framework examines the Human Natural World Relationship concept, in step three of the process however, for continuity of the ecosystem management process; an outline of the full framework has been included. As the following steps form part of standard planning, management and decision making processes, they will not be discussed in detail in this thesis.

Step 1 Defining the Ecosystem

The framework begins by defining the ecosystem, where boundaries are often defined by climate, species and other interrelated factors, more so than by geographic borders (Millennium Ecosystem Assessment, 2003).

Step 2 Defining the Inhabitants

Step Two defines the human and non-human inhabitants of the ecosystem. The IUCN and Shepherd (2004) and the Millennium Ecosystem Assessment (2003) all consider humans to be part of whole ecosystems. The non-human inhabitants are defined by environmental scientists, whilst the human inhabitants may be defined by social scientists.

Step 3 Defining Relationship to Ecosystem

Step Three considers the relationship these inhabitants have to the ecosystem, which in the past has been assessed in environmental and economic terms. The framework allows the Human Natural World Relationship to be examined in order to establish the importance of the national park to the human community. Williams and Patterson (1999, p. 143) consider that "focusing on intangible and symbolic meanings, will help managers understand broader social processes…and that many important meanings and values [cannot be] identified through exchange or market transactions alone".

While the relationship to the ecosystem of non-human inhabitants is vital to ecosystem health, equally important is the Human Natural World Relationship. While environmental science can establish the relationship of non-humans to the ecosystem, social science has much to offer ecosystem management in understanding the relationship between humans and their environment (Williams & Patterson, 1999). Step Three of the framework has been expanded to include the HNWR concept, which focuses solely on determining human relationships to the ecosystem. To provide continuity for the reader, Part 2 of the conceptual model, the HNWR concept will be explained, and Steps Four to Eight of the framework will be addressed in the latter section following the HNWR concept.

5.3.2 Part 2: The HNWR Concept

The HNWR concept is a process that examines the Human Natural World Relationship. It is widely recognised in human-environment research that individuals bring with them feelings and values about the environment that may influence their decision-making processes and behaviour towards natural areas. The HNWR concept is based on the premise that values can be indicators of environmental behaviour (Blamey & Braithwaite, 1997; Stern, 2000), and understanding community values is central to conservation management and enlisting support for conservation initiatives (Presley, 2003).

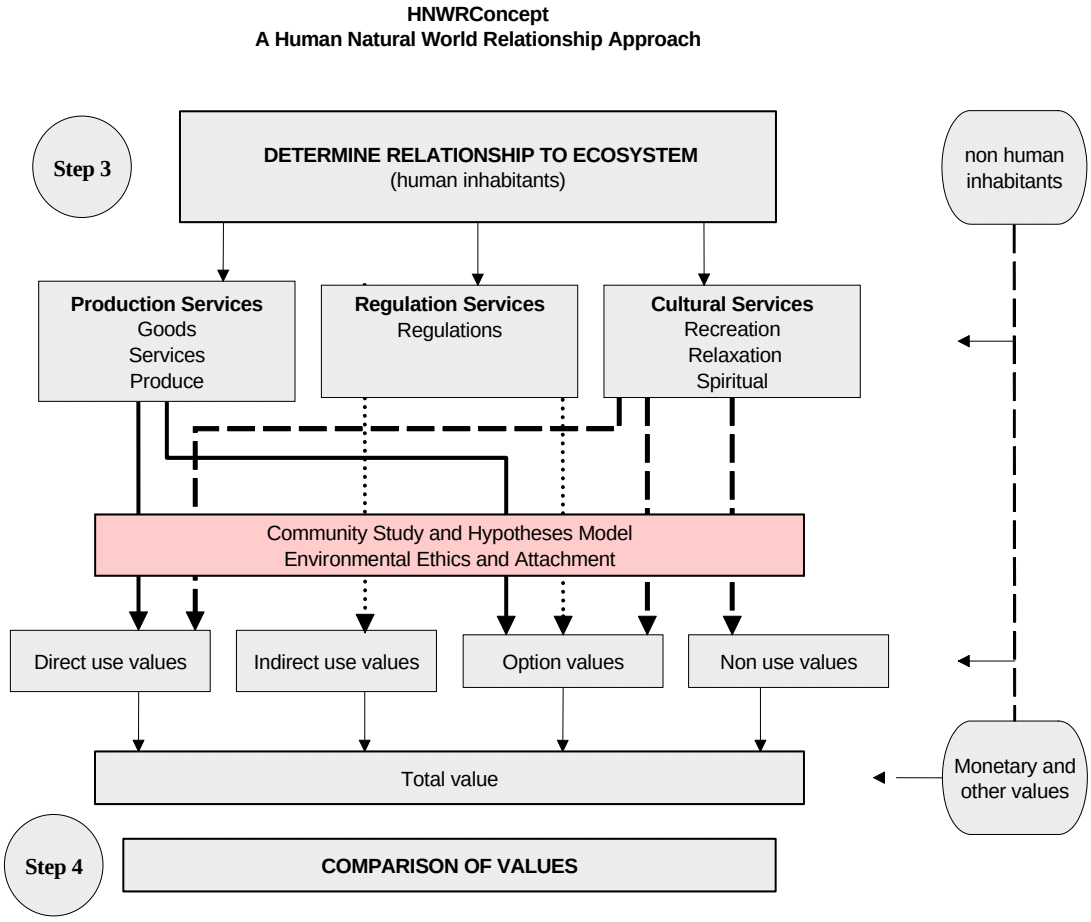
Values placed on ecosystem services such as production, regulation and cultural services are examined through the community study to establish the value of ecosystem services to human communities. The HNWR Concept is shown in Figure 13.

Ecosystem Services

Three ecosystem services are recognised in the HNWR concept. These services are production services, regulation services and cultural services. An explanation of these services is described by Hein et al. (2006, p. 4) as follows.

- *Production services* are "goods and services produced in the ecosystem" such as food, fuel and timber.

Figure 13: The HNWR Ecosystem Concept



Source: Adapted and further developed from Hein et al. (2006), Millennium Ecosystem Assessment (2003) and IUCN and Shepherd (2004)

- *Regulatory services* refer to the "capacity of ecosystems to regulate climate…earth surface processes, and a variety of biological processes", such as rainwater flows, temperature and habitat.
- *Cultural services* refer to the "benefits people obtain from ecosystems through recreation, cognitive development, relaxation and spiritual development".

Human decisions can inform the direction of production, regulation and cultural services made by decision makers. Within the HNWR concept, community views and values are also considered, and used to inform management decisions. The production, regulatory and

cultural services are examined through the Human Natural World Relationship approach using place attachment and environmental ethics.

Provisional and regulatory services can be assessed through monetary or environmental value, however most cultural services with the exception of recreation and ecotourism (Millennium Ecosystem Assessment, 2003) cannot be assessed solely in economic terms. Evaluating a cultural service when it is not linked to a production service has proved to be difficult and ways to address this are constantly being explored (Millennium Ecosystem Assessment, 2003, p. 65). Assessing non-economic values through the Human Natural World Relationship seeks to address this issue. The Millennium Ecosystem Assessment Framework referred to the three systems as provisioning (Hein and colleagues refer to this as production), regulating and cultural as shown in Table 18. Applying the HNWR concept allows values and attachments to be assigned to these services as shown in the lower part of Table 18.

By examining place attachment and environmental ethics, the type of views, values and attachments can be established. The HNWR concept goes some way to "measuring the range of meanings humans assign to places" (Williams & Patterson, 1999, p. 142) by examining services that ecosystems offer as well as by investigating the use and non-use values placed on these services (Hein et al., 2006).

Ecosystem Values

The HNWR Concept shown previously in Figure 13 uses four ecosystem values; direct use, indirect use, option values and non-use values. The majority of ecosystem values are viewed from an anthropocentric stance, that is they provide products or services for human use either directly (direct-use value) or indirectly (indirect-use value) or they are preserved for future use (option /non-use values) (Millennium Ecosystem Assessment, 2003). When intrinsic value is attributed to sentient and non-sentient beings then the ecosystem values are viewed from an ecocentric stance. The Millennium Ecosystem Assessment framework

Table 18: Ecosystem Services

PROVISIONING SERVICES	**REGULATING SERVICES**	**CULTURAL SERVICES**
Products obtained from ecosystems	**Benefits obtained from regulation of ecosystem processes**	**Non material benefits obtained from ecosystems**
Food Water Fuel Fiber Biochemical Genetic Resources	Climate regulation Disease regulation Water regulation Water purification Pollination	Spiritual and religious Recreation and ecotourism Aesthetic Inspirational Educational Social relations Sense of place Cultural heritage
Values and Attachment **Nature Values**: Use (direct, indirect) Instrumental or Intrinsic Non-Use (option) instrumental or intrinsic **Attachment**: Dependent, Identity, Community Identity, Place Commitment		
Use Value (direct) Non-Use Value (option) Instrumental Value Dependent Attachment Community Identity Place Commitment	Use Value (indirect) Non-Use Value (option) Instrumental Value	Use Value (direct/indirect) Non-Use Value Intrinsic Value Identity Attachment Dependent Attachment Community Identity Place Commitment

Source of Services: Millennium Ecosystem Assessment (2003, p. 57)

recognises this aspect under its cultural services, which includes religious, spiritual and other values derived from this service.

The four use values put forward by Hein et al. (2006) and the Millennium Ecosystem Assessment (2003) and included in the HNWR concept establish community use values (direct, indirect and option), and non-use values. Valuing through the Human Natural World Relationship approach is a non-economic valuing system that will assist in explaining the relationship that communities have to ecosystems.

Use-Values

Use-values are defined by Hein et al. (2006, p. 5) as

- *Direct use values* are those for "sale or consumption", these are mainly "through production or some cultural services".
- *Indirect use values* are benefits derived from regulation such as cleaner air and river and ground water flows.
- *Option values* according to Turner and colleagues (in Hein et al., 2006, p. 5) "are very difficult to assess", as they relate to keeping an option open for future use.

Non-Use Values

Non-use values are defined by Hein et al. (2006, p. 5) as

- *Non- use values* are values placed on the ecosystem and "depend on the moral, aesthetic and other cultural perspectives of the communities involved".

In this study, non-use values and option values are combined and referred to as non-use values. This concludes the HNWR concept and the focus returns to the HNWR ecosystem framework discussion now.

Continuation of the HNWR Ecosystem Framework

Step four through to step eight have been included for completion of the discussion of the ecosystem management process.

Step 4 and 5 Comparisons of Values, Total Values

When total human values have been established, they can be compared alongside monetary, environmental or other values in step four. The total value of the ecosystem is established in step five. In comparing economic and non economic values, Pearce and Turner (in Hein et al., 2006) advise that the total value of an ecosystem is the sum of the use (direct, indirect and option) and non-use values. They suggest that non-monetary values can be expressed alongside monetary values for the reader to compare the two value types. This study will provide the non-economic values that will allow protected area management to compare non-economic values of the community alongside economic and environmental values to arrive at a total ecosystem value.

Step 6, 7, 8 Determine Threats, set goals and determine management strategies

The total ecosystem value will allow managers to determine threats (step 6), prioritise goals (step 7) and determine management strategies (step 8) necessary for ecosystem health that includes the Human Natural World Relationship within ecosystem management.

Ecosystem Framework and HNWR Concept Summary

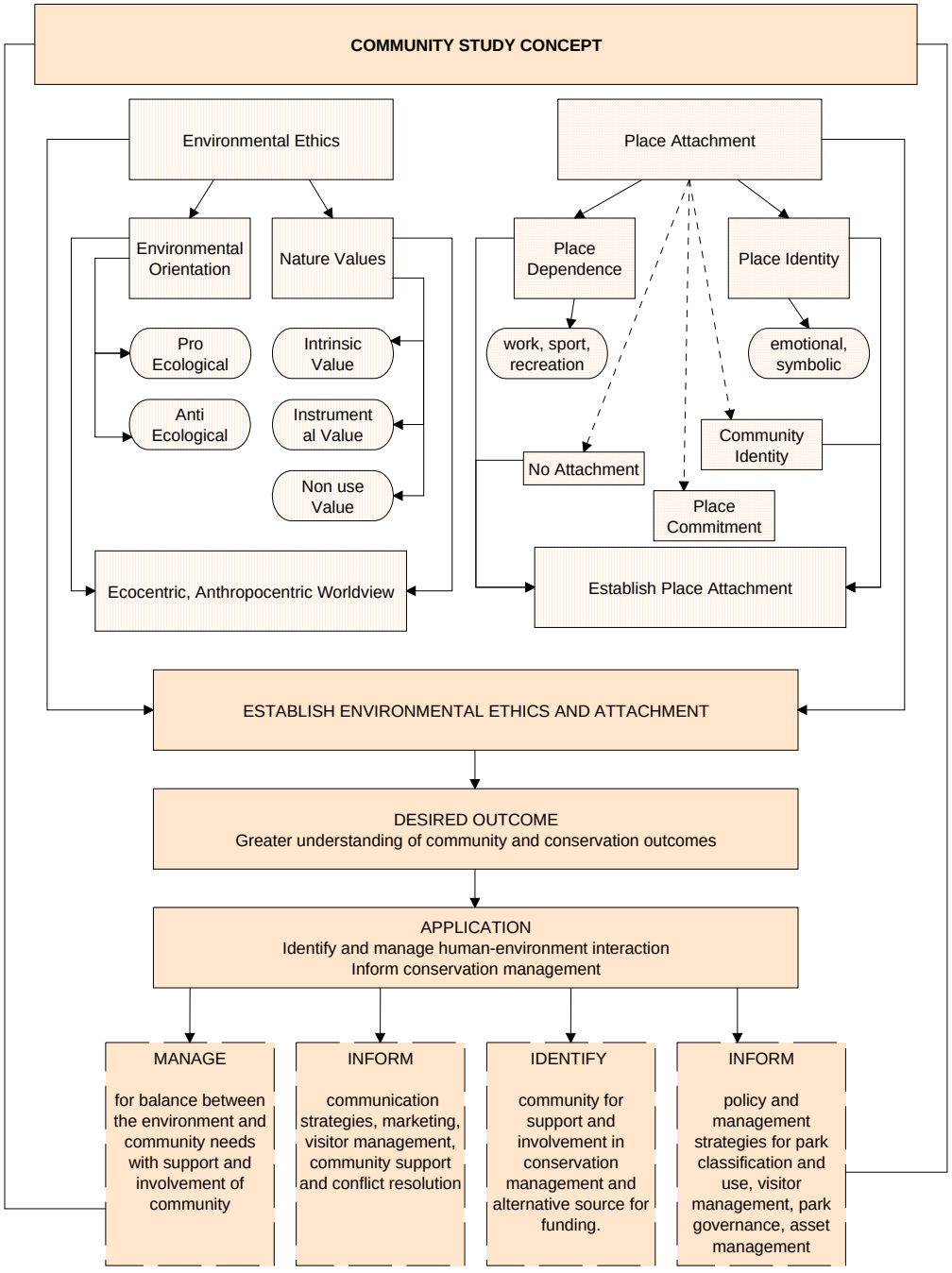
The eight steps of the ecosystem framework have been explained. Set within step three and step four of the framework is the HNWR Concept, which examines production, regulatory and cultural services and values through the Human Natural World Relationship to explain how humans value the ecosystem. Environmental ethics and place attachment are used to examine the Human Natural World Relationship through the community study, which is Part 3 of the conceptual model.

5.3.3 Part 3: The Community Study Concept

The community study explains the concept of examining environmental ethics and place attachment to inform strategies and allow management to include humans in ecosystem management. Establishing community views, values and attachments to the national park and identifying community potential for involvement in conservation and management all form part of the concept as shown in Figure 14.

The community study explores place attachment and environmental ethics. The dimensions of place attachment used in this study are identity and dependent attachment, community identity, place commitment and no attachment. Environmental ethics consists of ecological orientation, which is referred to as pro ecological or anti ecological views in the study; and nature values, which can be intrinsic, instrumental, or non-use values. The outcome of the study will allow the non-monetary values to be assigned to the Human Natural World Relationship, so that these can be assessed alongside economic and environmental values, ensuring a holistic approach that includes humans in ecosystem management. Additionally, the study will ensure a better understanding of the community's conservation behaviour and

Figure 14: HNWR Community Study Concept



their ability to contribute to conservation and management of the national park. The environmental ethics and attachment of the community will be established in the study through a series of hypotheses tests, which is explained in the hypothesised model in Part 4.

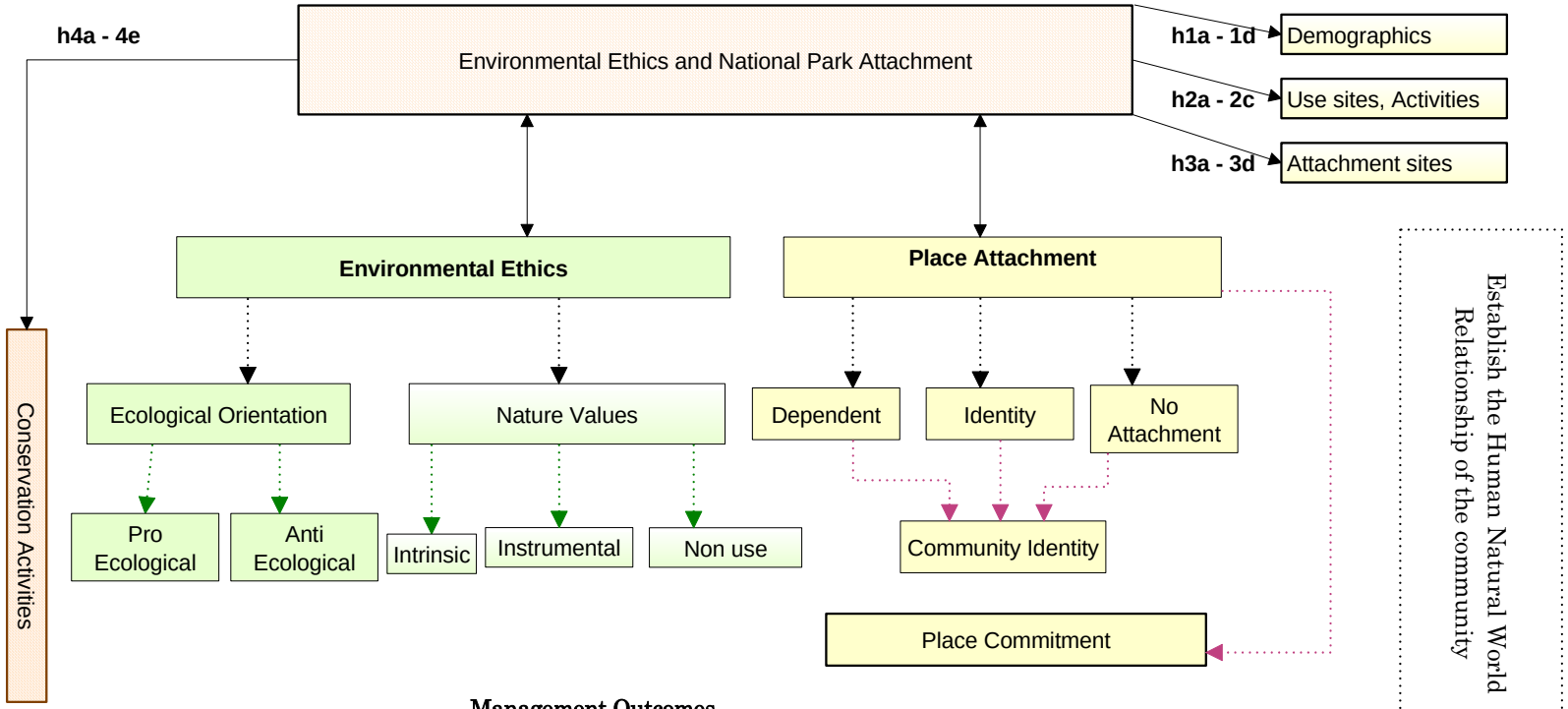
5.3.4 Part 4: Hypothesised Model

The final stage of the conceptual model is the hypothesised model shown in Figure 15, which demonstrates the associations that were tested through a series of alternative hypotheses tests. The community was segmented by their environmental ethics and national park attachment, and a series of hypotheses, which are shown in Box 3 were tested on the emerging clusters.

Box 3: Hypotheses

	Demographics
Hypothesis 1a	There are differences between the groups' environmental ethics and park attachment due to their age.
Hypothesis 1b	There are differences between the groups' environmental ethics and park attachment due to their education.
Hypothesis 1c	There are differences between the groups' environmental ethics and park attachment due to gender distribution.
Hypothesis 1d	There are differences between the groups' ethics and park attachments due to their location.
	Use Sites and Activities
Hypothesis 2a	There are differences between the groups' environmental ethics and park attachment due to the sites they use in the region.
Hypothesis 2b	There are differences between the groups' environmental ethics and park attachment due to the use of other sites not listed in the survey.
Hypothesis 2c	There are differences between the groups' environmental ethics and park attachment due to the type of activities they are involved in.
	Attachment
Hypothesis 3a	There are differences between the groups' environmental ethics and park attachment due to the attachment they have to their community.
Hypothesis 3b	There are differences between the groups' environmental ethics and park attachments due to the attachment they have to Mallacoota Inlet.
Hypothesis 3c	There are differences between the groups' environmental ethics and park attachments due to the attachment they have to sites within the park.
Hypothesis 3d	There are differences between the groups' environmental ethics and park attachment due to the attachment they have to other local sites not specified in the survey.
	Conservation Activities
Hypothesis 4a	There are differences between the groups' environmental ethics and park attachments due to their membership with volunteer organizations'.
Hypothesis 4b	There are differences between the groups' environmental ethics and park attachment due to their national park volunteer status.
Hypothesis 4c	There are differences between the groups' environmental ethics and park attachment due to their inclination to donate to the national park.
Hypothesis 4d	There are differences between the groups' environmental ethics and park attachment due to their willingness to volunteer for the national park.
Hypothesis 4e	There are differences between the groups' environmental ethics and park attachment due to their willingness to adapt their lifestyle for the environment.

Figure 15: Hypothesised Model



Referring to Figure 15 and Box 3, the community's demographics were tested in hypotheses 1a to 1d, sites used and activities undertaken in hypotheses 2a to 2c, place attachment sites in hypotheses 3a to 3d and conservation activities in hypotheses 4a to 4e.

Application

Establishing the Human Natural World Relationship of the community may allow managers a greater insight into influences on community decision-making processes. Its application in protected area management is numerous; however identifying community participants for involvement in conservation and management initiatives is the purpose of the study. Other application may be to inform communication, policy and planning initiatives, community conflict resolution, governance, funding and asset management.

5.4 CONCLUSION

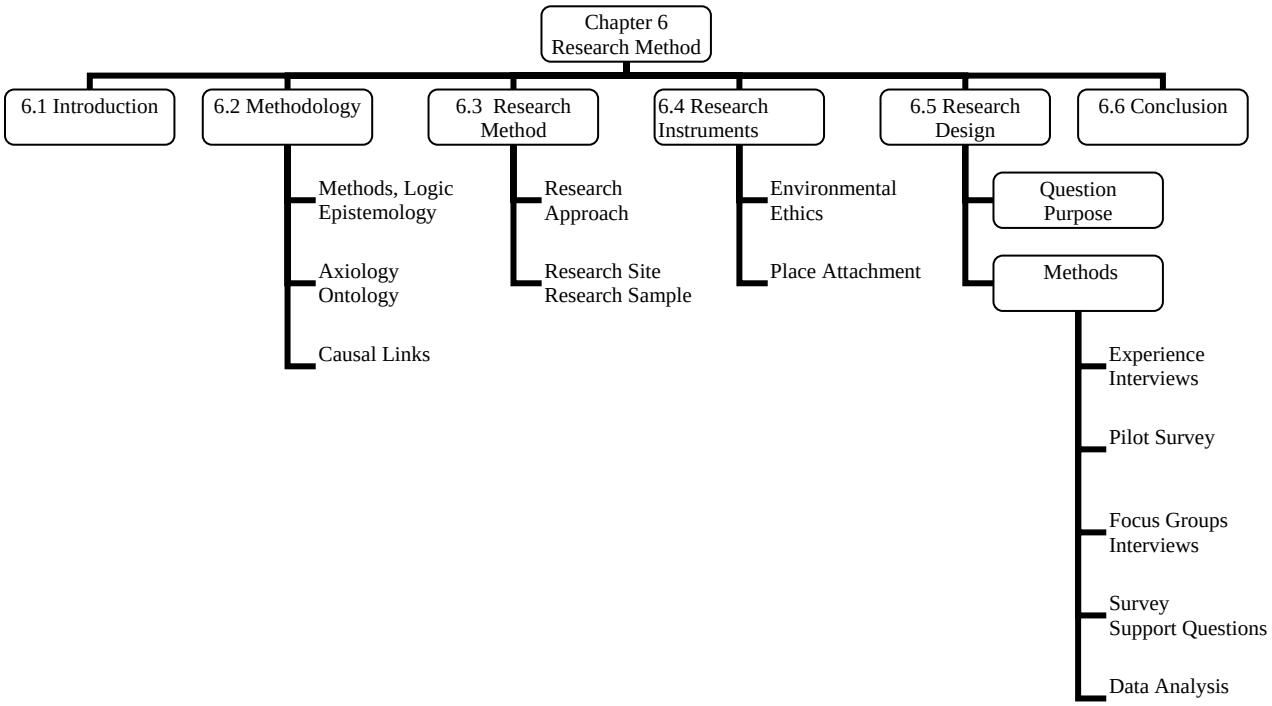
This chapter has described the conceptual model and the concepts that contribute to the development of the model. The model is divided into four parts. Part 1 and Part 2 explain the ecosystem framework, while Part 3 and Part 4 explain the study undertaken for this research. The study examines the community's Human Natural World Relationship and their potential for involvement in conservation and management of the national park. The following chapter will set out the methodology and methods used in the study.

C h a p t e r 6

RESEARCH METHOD

"Study what interests and is of value to you, study it in the different ways that you deem appropriate, and use the results in ways that can bring about positive consequences within your value system" *Tashakkori and Teddlie on Pragmatism (2003, p. 30)*

Figure 16: Chapter 6



6.1 INTRODUCTION

The conceptual model was outlined in the previous chapter and its four parts were described. The community study is embedded within the HNWR concept and placed within an ecosystem framework. The study allows human views and values to be assessed alongside economic and environmental values. This chapter will describe the methodology and methods used in this study to establish the environmental ethics and place attachment of the community as shown in Figure 16.

6.2 METHODOLOGY

This study has mostly utilised a pragmatic, inductive, mixed methodological approach. An explanation of the pragmatism paradigm by Tashakkori and Teddlie (2003) is shown in Table 19.

Table 19: Pragmatism

PRAGMATISM	
Methods	Quantitative & Qualitative
Logic	Deductive & Inductive
Epistemology	Both Objective & Subjective points of view
Axiology	Values play a large role in interpreting results
Ontology	Accept external reality. Choose explanations that best produce desired outcomes
Causal Linkages	There may be causal relationships but we will never be able to pin them down

Source: Tashakkori and Teddlie (2003, p. 23)

Methods

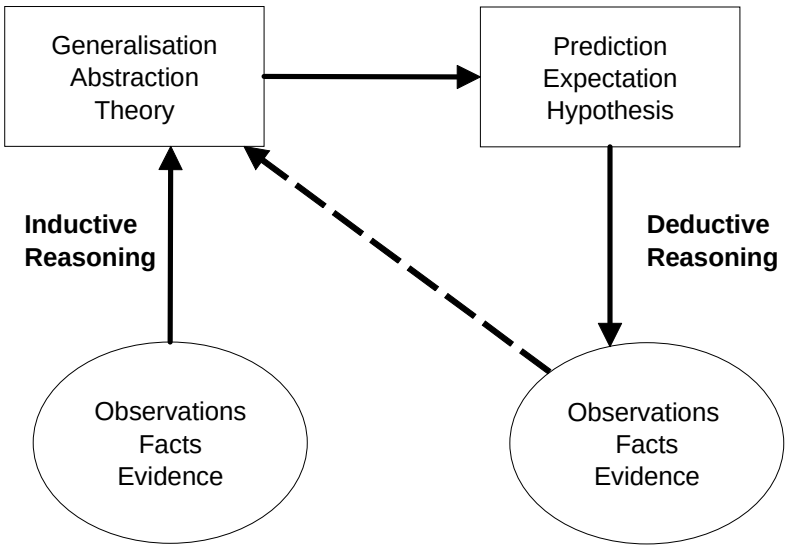
Tashakkori and Teddlie (2003, p. 101) describe *pragmatism* as the "essential criteria for making design decisions that are practical, contextually responsive and consequential". *Inductive studies* describe when the researcher is working in *discovery mode* (p. 196), and a *qualitative* driven project is supported with *quantitative* methods. The research approach, adopted for this study, has been driven by the research question and purpose as suggested by Tashakkori and Teddlie, and has used both quantitative and qualitative methods to discover the views and values of the community.

Logic

The research cycle is shown in Figure 17 and demonstrates the use of inductive and deductive reasoning. Tashakkori and Teddlie (2003), explain that researchers will travel through this process at least once during the course of research development. Inductive reasoning has been used in this research as it has built the conceptual framework on

previous findings. The conceptual framework has then been used "as a basis for planning the course of the research" (p. 25).

Figure 17: Research Cycle



Source: Tashakkori and Teddlie (2003)

Epistemology and Axiology (Values)

The orientation of the researcher has been both subjective and objective during the course of inquiry into the research question. Given that the study focuses on attachment, views and values, it is to be anticipated that the researcher's views will at times be "interactive while at other times stand apart from what is being studied" (Tashakkori & Teddlie, 2003, p. 26).

Axiology refers to the values held by the researcher and how these can "control or influence results and interpretations" (p. 26) in the research. Personal values have guided the choice of the research topic as is common in pragmatists and generally in the social and

behavioural sciences, especially when the research has important social consequences" (p. 26). Furthermore, methods were chosen that would find answers to the research question.

Ontology (the nature of reality) and Causality

Pragmatists and post positivists agree to "an external reality and that we should explore causal relationships" (Tashakkori & Teddlie, 2003, p. 29). Another similarity is the view that "there are multiple explanations to the results of any research study", however how these are explained is the point of difference. While a post positivist will choose the "better explanation", the pragmatist will choose an explanation closer to the researcher's values. Tashakkori and Teddlie (2003, p. 29) believe that the results will be the same as they are both based on the researcher's design and operational definitions for the study. Optimism regarding the truth is therefore the basic difference between the two viewpoints and a pragmatist view is referred to as "cautiously optimistic pragmatism" (p. 29).

6.3 RESEARCH METHODS

Research Approach

A case study strategy was used in the approach to the research. Yin (2004, p. 13) explains that this strategy is useful when multiple sources of evidence are used, for the exploration of intercepting ideas that are essential to an understanding of the specific topic". The strategy is useful for studies that focus on behavioural events and contemporary issues.

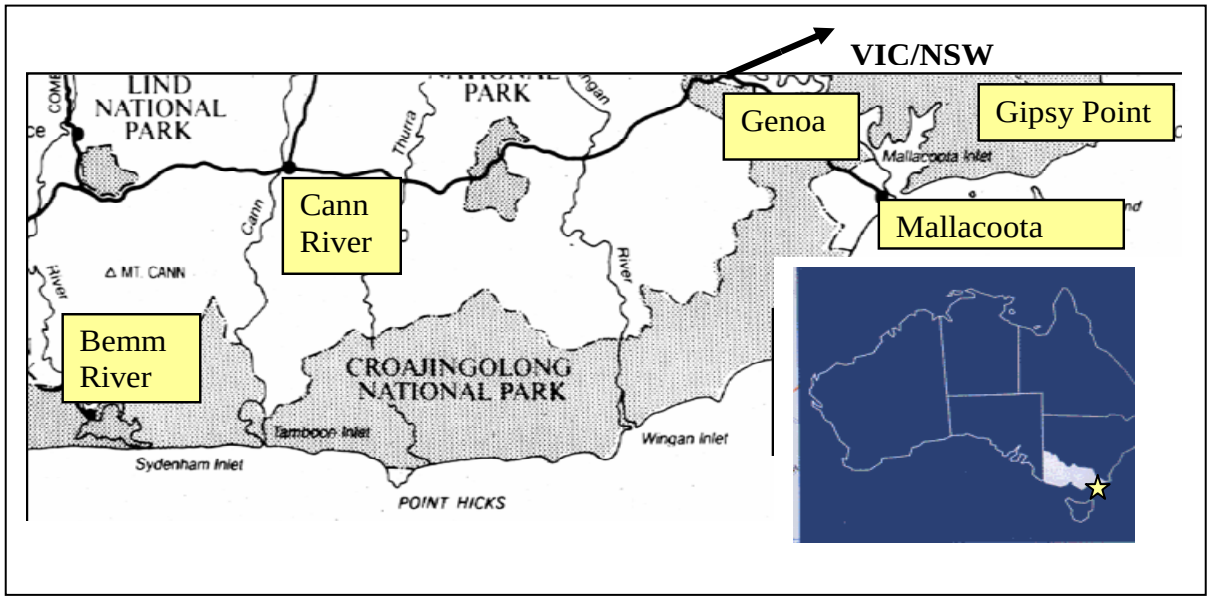
Research into humans and the environment demands a multidisciplinary approach to link an individual's values and attitudes to environmental concern (Stern, Young & Druckman, 1991). Furthermore, by developing new ways of thinking about the relationship of humans to the planet, management would be equipped to implement conservation and management strategies with community support and assistance (Stern, Young & Druckman, 1991). It is important that strategic management decisions be formed from a clear understanding of the relationship people have with the natural environment, through considering their ethics,

beliefs and attitudes (Worboys, Lockwood & De Lacy, 2001). As most studies that involved environment and humans are in environmental psychology, human geography and environmental education, these disciplines were the main source of the literature and methods.

Research Site

Croajingolong National Park and Biosphere Reserve in South East Victoria is the site chosen for this research as shown in Map 1.

Map 1: Research Site



The park was declared a Biosphere Reserve in 1977 and covers 87,500ha of hinterland and coastal plains (Meredith, 1994). It has a rich diverse ecosystem and its remoteness attracts many visitors throughout the year. On the outskirts of the park are the communities of Mallacoota, Genoa, Gipsy Point, Bemm River and Cann River. Both Mallacoota and Cann River are entry points to the park. Cann River is situated on the highway at the junction to Muller and Tamboon Inlets, which are favourite camping spots in the park. Mallacoota is surrounded by Croajingolong National Park and Gippsland lakes, which makes it a popular

holiday destination. Residents consider their town to be a park town and apparently value the park for the remoteness it offers.

Croajingolong National Park is one of 13 Biosphere Reserves in Australia. These reserves form part of the United Nations Educational, Scientific and Cultural Organisation's (UNESCO), Global Man and the Biosphere Program. Biosphere reserves combine conservation and sustainable use within its charter to include the participation of communities within management strategies.

The Australian Government (2006) explains the purpose of Biosphere Reserves as:

> "A place where government decision makers, scientists, managers and local people cooperate in developing a model program for managing land and water to meet human needs while conserving natural processes and biological resources. …use of resources for the wellbeing of people… and support sustainable relationships between people and their environment".

According to the Australian Government (2006), the main approaches taken by UNESCO in Man and the Biosphere Reserves are to:

- Minimise biodiversity loss through research and ecosystem management
- Promote environmental sustainability
- Enhance linkages between cultural and biological diversity

Considering its location, proximate communities, the approach set out by UNESCO, and the Man and the Biosphere concept, it would seem that Croajingolong National Park is a fitting location for human- environment research. Biosphere reserves are recognised as being inclusive of humans in conservation efforts; however, Pujadas (2007) questions whether conservation goals and limitations set by institutions are consistent with community involvement. Understanding the community's capacity for involvement may require an adaptive and reflective approach to a framework that includes all community members (Mendis-Millard & Reed, 2007).

Sampling Frame

This study examined the community located on the boundary of Croajingolong National Park. This area includes the main towns of Mallacoota and Cann River and the smaller localities of Bemm River, Gipsy Point and Genoa. Initial contact with the community was through relevant business, industry and community associations in the region. The sample frame involved the whole community over the age of 18 years, approximately 800 persons. A pilot survey was tested on 30 participants, which included staff from Parks Victoria, fellow academics and members of the public. Experience interviews were held with 12 key community members to confirm attachment sites, data collection processes and establish community contact. There were 38 participants who took part in a series of focus groups and semi structured interviews and 189 participants who completed a self-administered survey.

6.4 RESEARCH INSTRUMENTS

Environmental ethics examines both ecological orientation and nature values to determine environmental worldview, which is often expressed as an ecocentric or an anthropocentric worldview. Nature value is expressed as intrinsic, instrumental or non-use values. Place attachment establishes an emotional, symbolic or functional attachment to a place. The examination of environmental orientation, nature values and place attachment required three different instruments. A range of instruments were examined that studied the human-environment interaction such as Pro Environmental Behaviour (Seguin, Pelletier & Hunsley, 1998; Stern, Dietz & Kolof, 1993), Ecocentric and Anthropocentric Attitudes Toward the Environment (Thompson & Barton, 1994), Connectiveness To Nature Scale (Mayer & Frantz, 2004), Inclusion of Nature In Self (Schwartz, 2001), Forest values (Rolston, 1989; Brown et al., 2002) and others. Most of instruments were found to be unsuitable for this research as either they did not suit the purpose of the study, or the language was considered unsuitable for the respondents. The study does not seek to examine the psychology of environmental behaviour, but rather the ethics and attachment of the community and the

association between environmental ethics, place attachment and conservation activities. The instruments that were chosen for the study are shown in Table 20.

Table 20: Research Instruments

RESEARCH INSTRUMENTS		**CONTRIBUTION**
New Ecological Paradigm	(Dunlap & Van Liere, 1978)	Environmental Orientation
Natural Area Value Scale	(Winter & Lockwood , 2004)	Nature Values
Recreational Attachment.	(Williams & Roggenbuck, 1989; Williams & Patterson, 1995; Williams et al., 1995; Williams et al., 1992)	Place Attachment

The New Ecological Paradigm (Dunlap & Van Liere, 1978) examined environmental orientation, the Natural Area Value Scale (Winter & Lockwood, 2004) examined nature values while place attachment was examined using the Recreational Attachment Scale developed by Williams and colleagues (Williams & Roggenbuck, 1989; Williams & Patterson, 1995; Williams et al., 1995; Williams et al., 1992).

Environmental Ethics

In the context of this study, two opposing paradigms sit at the core of environmental ethics, which incorporate environmental orientation and nature values. These paradigms are referred to as anthropocentrism and biocentrism. The term ecocentric is used in this study and encompasses biocentric views. Anthropocentrism "posits that nature can only be conceived from the perspective of human values", while biocentrism "considers that all things in the biosphere have the right to exist equally" (Fennell, 2006, p. 190). These paradigms represent a person's orientation towards the natural world, their worldview (Winter, 2006), and embedded within their environmental worldview, are values attributed to nature, which are primarily referred to as intrinsic or instrumental values (Kirschenmann, 2001). Intrinsic value, according to Winter, Lockwood and Morrison (2003), is nature valued for itself, while instrumental value is nature valued for what it can provide for humans. Based on a review of the environmental ethics literature, intrinsic value is mostly associated with ecocentrism, and instrumental value with anthropocentrism.

Measuring the ecological orientation and nature values of the community located near Croajingolong National Park can also reveal attitudes or beliefs, which help to form ecological views and values. Understanding beliefs and attitudes is important because according to Bagozzi (1992) and Fishbein and Ajzen (1974a), attitude is a predictor of behaviour. Additionally, changing an attitude requires a change in salient beliefs (Bright et al., 1993).

The implications for this research lie in the park agency's ability to understand attitudes and beliefs towards the national park, so that marketing and communication strategies can be developed to influence the community's conservation behaviour.

6.4.1 New Ecological Paradigm Scale

A revised version of the New Environmental Paradigm by Dunlap and Van Liere (1978) referred to as the New Ecological Paradigm Scale (NEP) was used for this study. The NEP scale was designed to test ecological orientation. The scale was developed to examine changing worldviews from the mid 70s Dominant Social Paradigm (DSP), to the New Environmental Paradigm (NEP) where Dunlap and Van Liere challenged the fundamental view of the human-environment interaction at that time. The NEP scale has been used to test the environmental orientation of respondents (Crick-Furman & Prentice, 2000), and to measure the relationship between people and the rest of nature (La Trobe & Acott, 2000). While many studies support the view that "a pro ecological orientation should lead to pro environmental beliefs and attitudes on a range of issues" (p. 428), Gardner and Stern (in Dunlap et al., 2000) propose caution in expecting a strong relationship to emerge due to the range of issues that can influence pro environmental behaviours in specific situations.

The scale has been updated and revised and has been used in many environmental studies to measure human-environment views of volunteers (Schuett & Ostergren, 2003), local community (Corral-Verdugo & Armendariz, 2000) visitors (Jurowski, Uysal, Williams, & Noe, 1995; Uysal, Jurowski, Noe, & McDonald, 1994) and in relationship to wildlife (Edgell

& Nowell, 1989). The Australian Environmental Protection Authority continues to employ the NEP scale for its analysis of industry and environmentalism (Geno, 2000).

Although the NEP scale was originally designed to examine pro ecological views, contemporary use of the scale has measured attitudes, beliefs and values (Dunlap et al., 2000). The most typical use of the scale is to test "whether the underlying anthropocentric or ecocentric dominated orientation channeled the views of the respondents" (Crick-Furman & Prentice, 2000, p. 70). The scale does not measure values but rather an underlying ecological orientation. A criticism of the scale is that it is not grounded in social-psychological theories of attitude structures (Stern, Dietz & Guagnano, 1995). However, these authors concluded that the scale does measure generalised beliefs about human-environment interactions, which are influenced by values and social structure.

NEP Scale Structure

The revised NEP scale shown in Box 4, consisted of 15 statements each with a five point response category from strongly agree to strongly disagree.

Box 4: New Ecological Paradigm Scale

New Ecological Paradigm Scale

1. We are approaching the limit of the number of people that earth can support.
2. Humans have a right to modify the natural environment to suit their needs.
3. When humans interfere with nature, it often produces disastrous consequences.
4. Human ingenuity will insure that we do NOT make the earth unlivable.
5. Humans are severely abusing the environment.
6. The earth has plenty of natural resources if we just learn how to develop them.
7. The balance of nature is strong enough to cope with the impacts of modern industrialised nations.
8. Plants and animals have as much right as humans to exist.
9. Despite our special abilities, humans are still subject to the laws of nature.
10. The so-called "ecological crisis" facing human kind has been greatly exaggerated.
11. The earth is like a spaceship with very limited room and resources.
12. Humans were meant to rule over the rest of nature.
13. The balance of nature is very delicate and easily upset.
14. Humans will eventually learn enough about how nature works to be able to control it.
15. If things continue on their present course, we will soon experience a major ecological catastrophe.

The scale was designed to include five dimensions of ecological orientation, with three items representing each dimension. The dimensions are; the reality of limits to growth (1,6,11), anti anthropocentrism (2,7,12), referred to as 'domination' in this study, the fragility of nature's balance (3,8,13), rejection of exemptionalism (4,9,14), and the possibility of an ecological crisis (5,10,15). Human exemptionalism means "humans unlike other species are exempt from the constraints of nature" (in Dunlap et al., 2000, p. 432; Dunlap & Catton, 1994). Dunlap and colleagues explain that "the odd numbered items were worded so that agreement indicated a pro ecological view, and the seven even numbered items so that disagreement indicated a pro ecological view" (p. 432). A high score will indicate a pro ecological orientation, while a low score represents an anti ecological orientation (Dunlap et al., 2000).

The scale is considered to have predictive validity of behavioural intentions and known group validity (Casey & Scott, 2006; Edgell & Nowell, 1989), which suggests that it also has criterion validity (Dunlap et al., 2000). The scale does not purport to examine values, however it has been used extensively in recent times for that purpose. The results of this study will use this instrument to reveal either a pro ecological or an anti ecological orientation.

6.4.2 Natural Area Value Scale

While the NEP scale is useful in measuring the broad ecological orientation of the community, the Natural Area Value Scale (NAVS) can measure an individual's nature values by classifying values as intrinsic, instrumental or non-use values (Winter & Lockwood, 2004). According to Winter and Lockwood (2004, p. 12), "From a decision-making point of view, there is limited value in identifying broad value orientations." This view is illustrated in studies which showed that different groups can hold similar broad biocentric views but express quite different values when examined more closely (Winter & Lockwood, 2004).

In order to capture individual dimensions, the Natural Area Value Scale (NAVS) developed by Winter and Lockwood (2004) has been used. The scale examines instrumental, intrinsic

and non-use values. Winter and Lockwood drew on definitions of instrumental value from the economic literature and intrinsic value from the environmental philosophy literature (Winter, Lockwood & Morrison, 2003). They used a definition for instrumental value from O'Neil (in Winter & Lockwood, 2002) who stated, "An object has instrumental value insofar as it is a means to some other end" (p. 2). Referring to O'Neil's definition, the NAVS developers suggest that non-use values are linked to instrumental values, as non-use values "are a means to some other end", while an object has intrinsic value if it is an end in itself." (Winter & Lockwood, 2002, p. 2). The recently developed NAVS scale has been used to segment Australian communities (Winter, Lockwood, & Morrison, 2003), campers (Winter, 2005a; 2005b) and community views on forest management systems (Ford, Williams, Bishop, & Webb, 2005).

The environmental ethics literature reviewed previously considers that environmental values rely on the consideration of the moral status afforded to nature (Attfield, 2003). Moral status that is afforded to humans alone is referred to as an anthropocentric view, which is aligned with instrumental values, while moral status afforded to non-humans explains an ecocentric view, which is aligned with intrinsic values (Benson, 2000). Individuals with anthropocentric views consider that nature is important for what it can provide to humans. Ecocentric views, on the other hand consider that nature has value as an end in itself outside human use (Benson, 2000). Non-use values consider nature to have value into the future. The researcher considers that non-use values may align with either intrinsic or instrumental values. For instance, a person with strong intrinsic values supports non-use due to their ecocentric views, and a person with instrumental values considers non-use values due to their anthropocentric views.

The original scale used by Winter and Lockwood consisted of seventeen items, five intrinsic items, five non-use items, five use items (instrumental) and two recreation items. The study has used a scaled down version of 15 items. A decision was made to exclude the two recreational items as the scale was used with a place attachment scale, which encompassed recreational use in its dimensions. The developers confirmed that dropping the two

recreational items dropped from the scale would not affect the scales sub scale validity. The remaining 15 items examined the intrinsic, instrumental and non-use dimensions of nature value. The scale consists of five reverse coded intrinsic value items (1,2,3,4,5), four use items which represent instrumental value items (6,7,8,9,10) and five non-use items (11,12,13,14,15) as shown in Box 5.

Box 5: Natural Area Value Scale

Natural Area Value Scale

1. The value of nature exists only in the human mind. Without people, nature has no value.
2. The only value that a natural place has is what humans can make from it.
3. Ugliness in nature indicates that an area has no value
4. The value of an ecosystem only depends on what it does for humans.
5. Only humans have intrinsic value – that is, value for their own sake.
6. Forests are valuable because they produce wood products, jobs and income for people.
7. To say that natural areas have value just for themselves is a nice idea but we just cannot afford to think that way the welfare of people has to come first.
8. All plants and animal's lives are precious and worth preserving but human needs are more important than all other beings.
9. Our children will be better off if we spend money on industry rather than on the natural environment.
10. It is better to test new drugs on animals than on humans.
11. I'm seeing natural areas the next generation [of children] may not see, and that concerns me.
12. I need to know that untouched, natural places exist.
13. Natural areas are valuable to keep for future generations of humans
14. We have to protect the environment for humans in the future, even if it means reducing our standard of living today.
15. Even if I don't go to natural areas, I can enjoy them by looking at books or seeing films.

6.4.3 Place Attachment

The place attachment scale used in this study was developed by Williams and colleagues (Williams & Roggenbuck, 1989; Williams & Patterson, 1995; Williams et al., 1995; Williams et al., 1992). The scale developers identified 61 place attachment items to choose from, each with a five-point response category from strongly agree to strongly disagree. Many studies have used six place dependence and six identity items with reliable outcomes. Versions of William's scales have been used to study place attachment of winter backpacker users (Gibbons & Ruddel, 1995), host communities (Jurowski, Uysal &

Williams, 1997), rail trail users (Moore & Graefe, 1994), and attitudes of local residents to resource management (Vorkinn & Riese, 2001).

The two main items identified by Williams (1995) are place dependence and place identity. Place Dependence is the use of a place for functional activities such as employment or sport. Place Identity describes a personal link to a place developed through special childhood or adult memories or as a symbol of heritage. This study has used 17 of the 61 place attachment items to examine place dependence (items 2, 4, 6, 8, 12), place identity (items 1, 3, 5, 7, 9, 11), lack of attachment (items 10, 13, 14, 15), place commitment (item 17) and community identity (item 16). The items used in this study have been tested by Williams and colleagues in a range of studies and have shown to be reliable measures. The 17 place attachment scale items used in this study are shown in Box 6.

Box 6: Place Attachment Scale

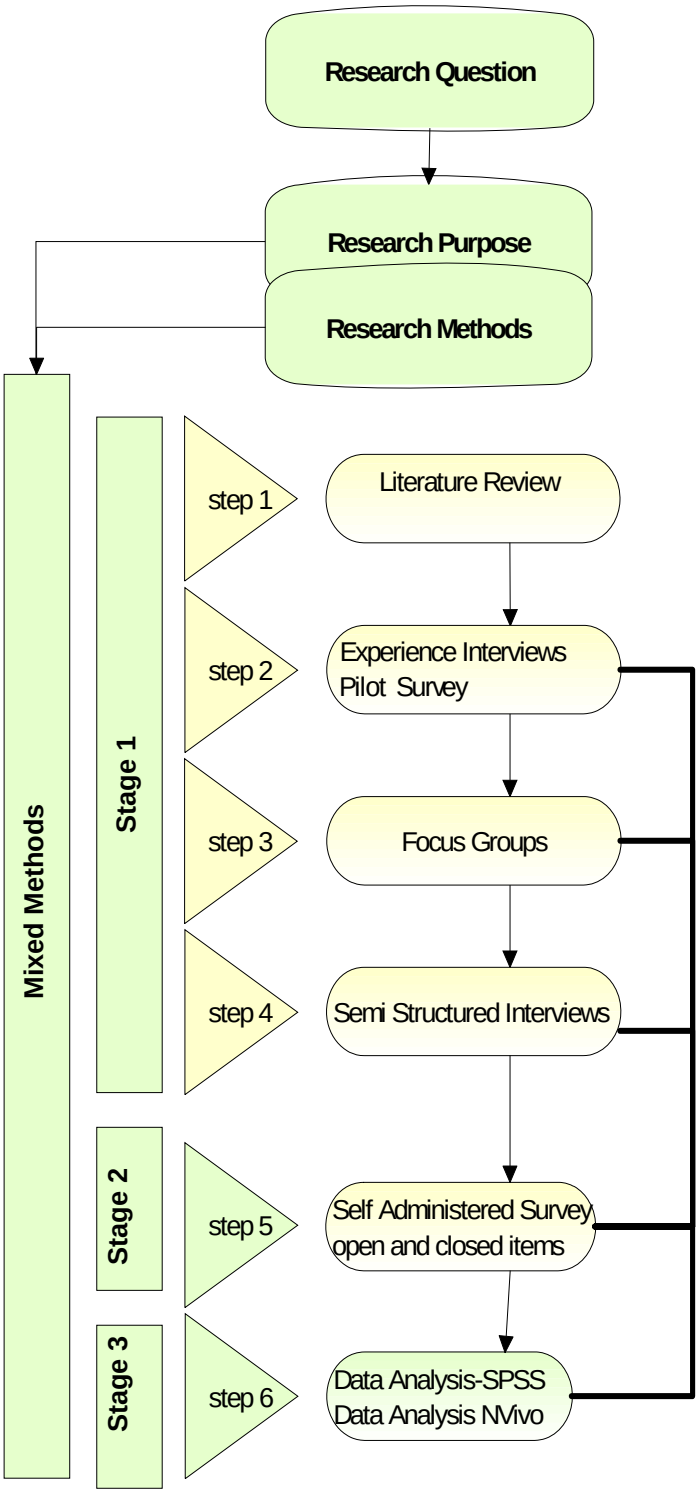
Place Attachment Scale

1. I feel like CROAJINGOLONG NATIONAL PARK is a part of me.
2. This NATIONAL PARK is the best place for what I like to do.
3. This NATIONAL PARK is very special to me.
4. No other place can compare to this NATIONAL PARK.
5. I identify strongly with this NATIONAL PARK.
6. I get more satisfaction out of visiting this NATIONAL PARK than from visiting any other place.
7. I am very attached to this NATIONAL PARK.
8. Doing what I do in this NATIONAL PARK is more important to me than doing it in any other place
9. Visiting this NATIONAL PARK says a lot about who I am.
10. The things I do at this NATIONAL PARK I would enjoy just as much at another site.
11. This NATIONAL PARK means a lot to me.
12. I wouldn't substitute any other area for doing the types of things I do in this NATIONAL PARK.
13. I feel no commitment to this NATIONAL PARK.
14. The time I spent here could just as easily be spent somewhere else.
15. I do not really feel that I relate at all to this NATIONAL PARK.
16. I identify with the lifestyle and values of the people who live here (or come to) this NATIONAL PARK.
17. I have (or am willing to) invest(ed) my heart and soul into this NATIONAL PARK.

6.5 RESEARCH DESIGN

A mixed methods research design was used as shown in Figure 18. The research question and the purpose for the study were defined, following the interactive process outlined by

Figure 18: Research Design



Tashakkori & Teddlie (2003). The research design encompassed the literature review, pilot survey, experience interviews, focus groups and semi structured interviews, the distribution of a self-administered survey with closed and open-ended questions, and the analysis of the data.

Research Question

The first part of the research question, "*What is the extent of the Human Natural World Relationship within a community…*" is addressed through qualitative and quantitative methods described in this chapter, which examined the place attachment, environmental orientation and nature values of the community. To engage the community in the study snowballing techniques and experience interviews were used, then the data were gathered through focus groups, semi structured interviews' and a self administered survey.

The second part of the question "*How can this understanding enhance protected area conservation and management strategies"* was addressed through the use of the qualitative methods. While the literature has clearly identified ways and means of integrating community views into management policy and decision-making, this research has also identified a number of key issues about conservation and management, from the community's perspective, which is discussed in Chapter Seven, Results and Discussion.

Research Purpose

In terms of addressing the research question, Tashakkori and Teddlie (2003, p. 186) describe the interactive process between the purpose of the study and the research question, as a prerequisite to choosing the research methods. The study has followed Tashakkori and Teddlie's design, to incorporate the research purpose and methods, which are determined by the research question. Tashakkori and Teddlie identified nine research purposes of which three were relevant to the study as shown in Table 21.

Table 21: Interactive Research Process

Research Question	Research Purpose	Research Methods
"What is the extent of the Human Natural World Relationship within a community and how can this understanding enhance protected area conservation and management strategies."	**Have a Personal, Social, Institutional, Organisational Impact** Set priorities, Influence change, Improve practice, Change structures	Qualitative research (context-bound, value laden, politically conceptualised as well as quantitative (mixed) research to test hypothesis relating to values idiosyncratic to the context
	Understanding People	Qualitative research (holistic, inductive studies of settings, cultures, people) and quantitative (mixed) research that uses multivariate techniques and considers multiple communities
	Inform Constituents Enlighten, Public relations, Describe present	Qualitative and Quantitative descriptive research (mixed methods)

Adapted from Tashakkori and Teddlie (2003, p. 186)

The purpose of the study is to allow park management a greater understanding of the local community who are the main users of the park. This knowledge may help inform policy, improve practices and influence change in the way parks are managed.

Community place attachment and environmental ethics may inform management of the value of the park to the community, so that this information can be incorporated into management decisions. Ultimately, this study explores the relationship between place attachment and environmental ethics and conservation activism.

Methods

The Literature Review

The literature review has shown that views, values and attachments can assist management agencies to understand communities. Additionally, the literature has shown that place attachment can be disrupted, and that views and values are predictors of conservation behaviour. Given that we know that these values help management agencies, methods

highlighted in the literature, to measure environmental ethics and place attachment, have informed the methods used in this study.

Pilot Survey

As suggested by Tashakkori and Teddlie (2003), a pilot version of the hard copy survey and the identical electronic version were used to test the survey on 30 participants, which included the general public, university staff and Parks Victoria employees. The pilot survey tested the structure, terminology and wording, and the time it took to complete, and the results are discussed in Chapter Seven, Results and Discussion.

Experience Interviews

Informal experience interviews were conducted with 12 key members of the community, which included park rangers and business and community representatives from Mallacoota, Cann River and Bemm River. The basis of experience interviews and surveys according to Zikmund (1984, p. 106) is exploratory for the purpose of "clarifying and formulating" information rather than "developing conclusive evidence". As the knowledge of the national park and the community lies with the local park management and the community, experience interviews were valuable in sourcing this local knowledge. The researcher visited the site prior to the study to establish and confirm the recreational sites in the national park, the most suitable time to conduct the focus groups and the most appropriate way to distribute the survey. The interviews were informal for the purpose of gaining local knowledge of the area and gaining contact with the community.

Focus Groups

Following the experience interviews, a snowballing technique was used to engage participants for the focus groups and the semi-structured interviews. Snowballing was used to ensure that there was a level of homogeneity within each group, so that the discussion on views and values could move forward without argument about positions.

Participants representing community, business and conservation from the areas of Mallacoota, Cann River, Bemm River, Genoa and Gipsy Point were invited to take part in the focus groups held in Mallacoota. Due to the large number of residents wishing to participate in the focus groups, two community group sessions were held, one conservation group and one business group. The focus groups consisted of sixteen representatives from the community, ten representatives from conservation and six representatives from business. According to Zikmund (1984, p. 109) focus groups are popular due to their "unstructured free flowing interview" style. This style is suitable for topics about how people feel and why they hold certain views (Bryman, 2004). Focus groups and interviews may also "add good interpretative validity" (Tashakkori & Teddlie, 2003, p. 308) to the quantitative data.

The focus groups provided insight, depth and richness to the environmental orientation, nature value and place attachment experiences of the community, which according to Flick (2002), is a general strength of focus groups. Methodological triangulation was used to add robustness to the study and "to extend and complete the possibilities of knowledge production" (Flick 2002, p. 227), from the quantitative data. The focus group questions explored experiences related to place attachment, environmental orientation and nature value, as well as views on managing the national park.

Semi Structured Interviews

While preparing for the business focus group, it became clear that the business community was divided in their views to the extent that some businesses did not attend the focus group. Subsequently, the business group was conducted with a small number of business owners. A decision was made to conduct semi-structured interviews with a further six business owners, to ensure that the range of business views were represented. The businesses that declined the focus group invitation were contacted and these businesses agreed to be interviewed. The semi-structured interviews addressed the same questions and followed the same format as the focus groups. According to Flick (2002, p. 84) semi-structured interviews can "reveal existing knowledge in a way that it can be expressed in the form of answers and so become

accessible to interpretation". They also provide depth to information (Tashakkori & Teddlie, 2003).

Self Administered Survey

A self administered survey that included both qualitative data and quantitative Likert-type statements was distributed to the major communities surrounding the national park. A hard copy survey was distributed through the post, and copies made available through a number of outlets in the towns. Initially, a hard copy and an identical electronic version of the survey were developed for businesses and for those with email access. After speaking to the business community, it was determined that many of the small businesses did not use email and even fewer used email in the local community. The electronic version was discarded and the survey was distributed by post. A Census style approach was used to ensure that the whole community had the opportunity to participate in the study.

The survey measured environment orientation, nature values and place attachment. The data was explored by a combination of parametric and non-parametric analysis. This process identified the level of the community's ecological orientation, nature values and place attachment. The survey also included participant demographics, locations visited in the region by the respondents, their activities and conservation behaviour. The purpose of the open-ended questions in the survey was for methodological triangulation. The questions were placed at the end of each of the three instruments to allow a range of views to be expressed. A copy of the survey is in Appendix B.

Data Analysis

The quantitative and qualitative data were analysed. The focus groups were examined, then the quantitative data, and finally the open ended questions, for methodological triangulation and to further inform and explain the quantitative findings. The quantitative data was

examined using a number of statistical techniques in SPSS, which are outlined in Table 22 and the results are discussed in Chapter Seven, Findings and Recommendations.

Table 22: Quantitative Analysis

Analysis Method		**Purpose**	**Variables**	**Outcome**
Descriptive	Descriptive Statistics	Population demographics	Age, Gender, Location	Profile of survey population
Data Reduction	Confirmatory factor analysis, a priori criterion, orthogonal confirmatory rotation and extraction.	Reduce the metric data into dimensions	Place Attachment	Reduced 17 items to 5 factors and explained 76% of the place attachment data
	Confirmatory factor analysis, a priori criterion, orthogonal confirmatory rotation and extraction.	Reduce the metric data into dimensions	Nature Value	Reduced 15 items to 4 factors and explained 68% of the nature value data
	Confirmatory factor analysis, a priori criterion, orthogonal confirmatory rotation and extraction.	Reduce the metric data into dimensions	Ecological Orientation	Reduced 15 items to 5 factors and explained 65% of the ecological orientation data
Form groups	Cluster Analysis using K means Cluster	Allocate respondents into three groups	Fourteen factors used	Three groups formed with memberships of 38, 22, 84
Identify differences	Descriptive of Clusters	Identifies differences between clusters in terms of mean and std dev of factor scores	Fourteen factors used	Clusters described in terms of factors
Confirm relationships	MANOVA	Confirm the relationship between the fourteen factors and their group membership	Three cluster groups and fourteen factors at once	Relationship confirmed between the factors and group membership
	ANOVA	Independent variable consists of more than two non metric categories; dependant variable is metric	Three cluster groups and fourteen factors individually	Groups identified as different
Identify differences	Crosstabulation using Chi Square Test	Test non metric variables against the three groups at once	Age, gender, postcode, significant sites used, conservation and use activities, attachment sites	More detail provided for groups to build profile
	T-test	Test metric variables to explore relationships	Place Attachment Nature Value Ecological Orientation	

Confirmatory factor analysis with a priori criterion and using varimax and rotated component matrix was used to reduce the statements in each scale, environmental ethics, nature value and place attachment to their respective factors. A total of fourteen factors were found,

which represented the underlying themes within each scale. The respondents' were allocated into three groups through cluster analysis. To identify the differences across the three cluster groups for the variables regarding attachment, ecological orientation and nature values, analysis of variance (ANOVA) was used. T Test's were used to identify the differences between two groups at a time, while crosstabs were used to test for differences across the three groups at once.

Focus Groups and Semi Structured Interviews

The qualitative data collected from the focus groups and the semi-structured interviews and the open-ended questions in the survey were analysed using the qualitative analysis program NVivo 7, and the results are discussed in Chapter Seven. Identical questions were used for the focus groups and interviews and were combined and analysed together. Each of the eight questions was examined and the collective answers from all the participants were divided into nodes, which produced a thematic interpretation of the answers. Each question in the series explored the concepts of place attachment, environmental views and nature values as shown in Table 23.

Table 23: Focus Group and Interview Questions

FOCUS GROUP AND INTERVIEW QUESTIONS			
Question Type		**Topic**	**Question**
1	Introduction Question	Values and views	What is the first picture or idea that comes to mind with the words "humans and the natural environment.
2	Transition Question	Attachment	Can you think back to a memorable experience you have had in a natural setting? (These can be good or bad experiences)
3	Transition Question	Influences on attachment	In your opinion has your experiences influenced your view towards natural settings?
4	Transition Question	Values and views	What behaviours would typify someone with a strong connection to natural settings?
5	Transition Question	Values and views	What behaviours would typify someone with a weak connection to natural settings?
6	Key Focus Question	Attachment to national park	How you come to live in this region? Did the national park influence your choice? What does it means to you to live near a national park?
7	Key Focus Question	National park purpose	What would you consider the most important purpose or role of a national park?
8	Key Focus Question	National park changes	With this in mind, what changes would you like to see in [Croajingolong] National Park?

The questions were designed using one introduction question to introduce the topic to the participants and four transition questions to move the participants towards three key focus questions as suggested by Hurworth (1996). The questions were designed for triangulation to provide descriptive meaning and depth to the topics.

Two persons, the moderator and assistant moderator conducted each focus group, as suggested by Hurworth (1996). The groups were audio taped and detailed notes taken. The audio recordings were transcribed and the transcripts entered and analysed in NVivo 7.

Open-Ended Questions

The open-ended questions within the self administered survey related to the place attachment, environmental orientation and nature values scales as shown in Box 7.

Box 7: Open-Ended Questions.

OPEN-ENDED QUESTIONS IN THE SELF ADMINSTERED SURVEY		
1	Environmental Worldview	Please explain any other views you have about the natural environment that you consider important.
2	Nature Value	Please explain any other views you have about the value of plants, animals and nature that you consider important.
3	Place Attachment	Please tell us about other places within the park that are of special significance to you and why.

The responses to each of the three questions were examined and coded to represent a thematic interpretation of responses. The narrative provided by the participants was used for triangulation purposes to explain and provide meaning to their views, values and place attachment. The narrative also allowed participants to express views that they considered were not adequately covered within the confines of the survey. The open-ended questions were transcribed into a word document prior to analysis in NVivo 7.

Validation of the Data and Instruments

The researcher has approached the validity, reliability, credibility and dependability of the study through a range of techniques. The qualitative data, which included the focus group transcripts and recordings and the open ended questions, have been examined independently to ensure that accurate transcripts have been used for the interpretation. Triangulation was used to provide credibility through the use of quantitative and qualitative methods. Validation of the research techniques as well as the interpretation of the scales have been discussed with experts in their respective areas of study as suggested by Flick (2002). The place attachment and environmental ethics instruments were tested in previous studies and proved to be valid and reliable, and were tested again in this study using techniques in SPSS, which are discussed in Chapter Seven, Results and Discussion.

6.6 CONCLUSION

The methods used for this study were driven by the research question and purpose of the study. This study examined the community located on the outskirts of Croajingolong National Park. Three different instruments were used, which examined ecological orientation, nature value and place attachment to reveal attitudes and beliefs towards the national park. The New Ecological Paradigm scale was used to test ecological orientation; the Natural Area Value scale, nature values; and the Attachment scale, place attachment. The study methods and techniques used to engage community included snowballing and experience surveys, while data was gathered through focus groups, semi-structured interviews, and a self administered survey with open and closed items.

Community place attachment, environmental ethics and conservation behaviour may inform management of the value of the park to the community, so that this information can be integrated into conservation and management strategies.

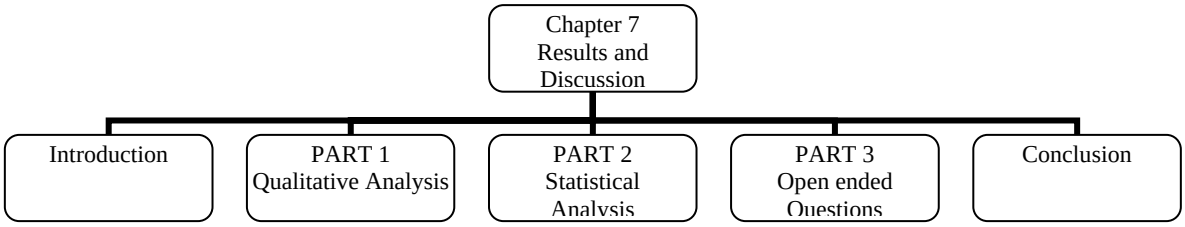
C h a p t e r 7

RESULTS AND DISCUSSION

"That little seal came down and looked at me…and I touched him and he shook away, and I touched him again and he came back. Then I touched his whiskers, then I ran my hand around his body, and finally we were actually holding each other and doing a tango… I'd been diving for 20 years and that's one of the days I really remember because it was so wonderful"

P&M, Business owners

Figure 19: Chapter 7



7.1 INTRODUCTION

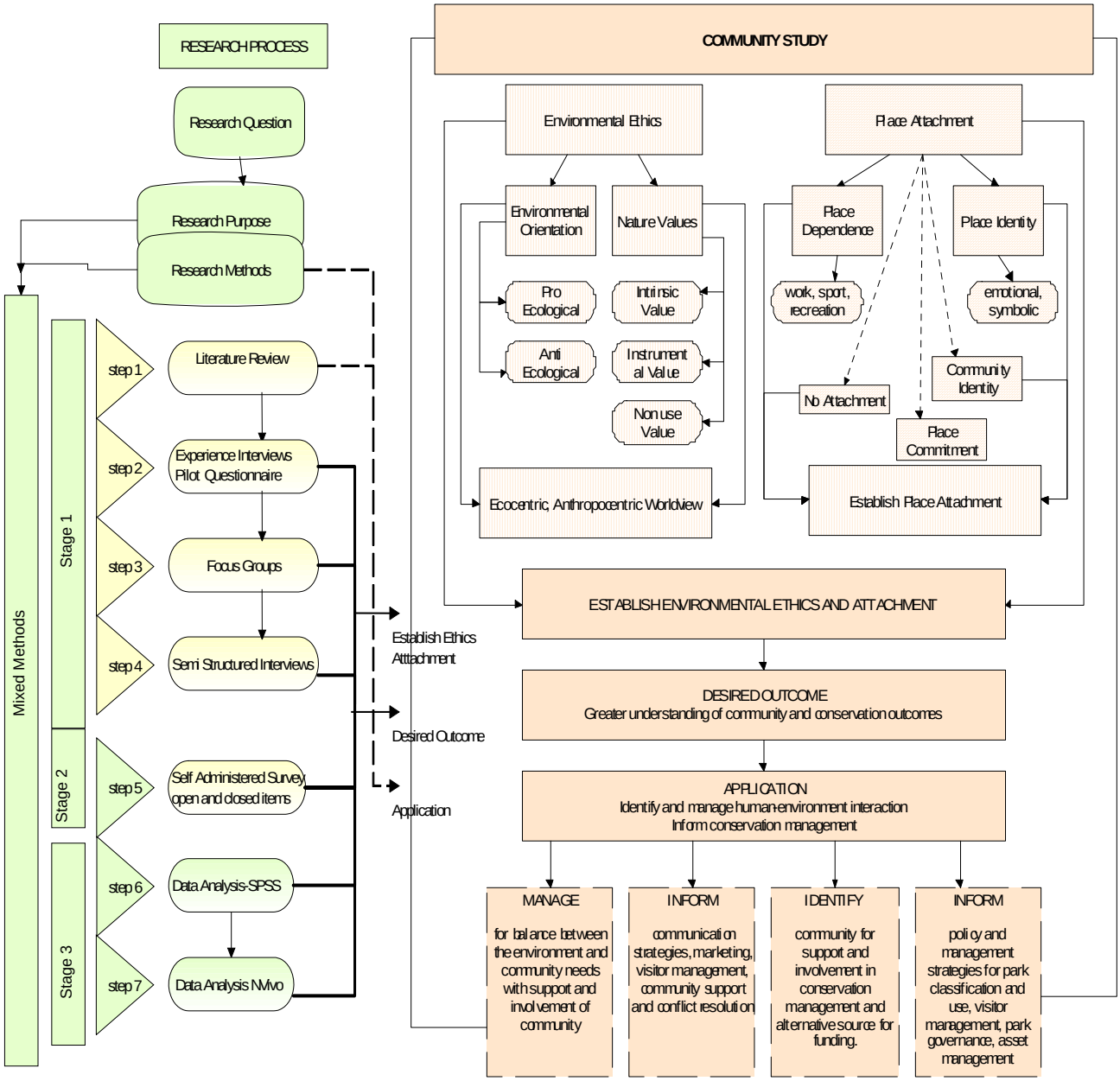
The previous chapters have discussed the conceptual model, which was informed by the human-environment literature in Chapters Two to Four. The concepts and conceptual model that underlie the study were outlined in Chapter Five and the methodology and methods used to examine the Human Natural World Relationship were explained in Chapter Six. This chapter outlines and discusses the results of the data analysis as shown in Figure 19.

The chapter is divided into three parts; Part 1 discusses the outcome of the pilot survey, experience interviews, focus groups and semi structured interviews and theoretical constructs. Part 2 discusses the results of the self-administered survey and tests a series of hypotheses. Part 3 discusses the findings of three open-ended questions that supported the quantitative instruments regarding place attachment, environmental orientation and nature value in the self-administered survey.

The Research Design and the Community Study

The research was designed around the community study concept and their association is shown in Figure 20.

Figure 20: Research Design and Community Study



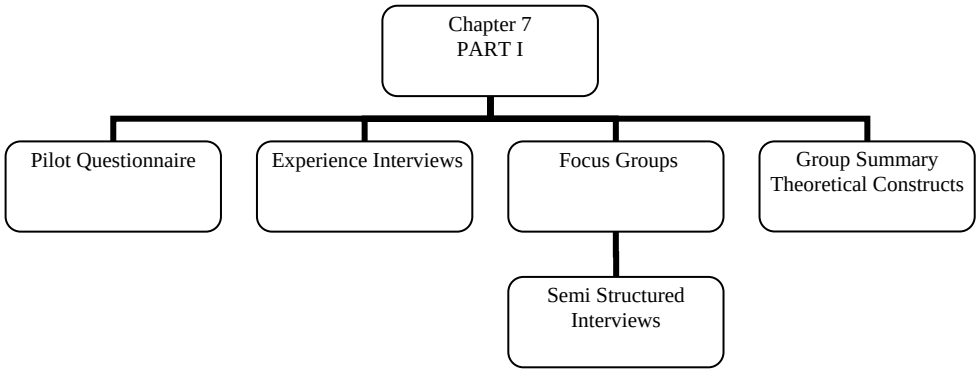
The pilot survey, experience interviews, focus groups, semi structured interviews and open-ended questions, were all used towards establishing and understanding views, values and attachments of the community to the national park. The outcome of the study was to achieve a greater understanding of the community and their capacity for involvement in conservation and management of the national park.

The pilot survey and the experience interviews were conducted prior to the focus groups, semi structured interviews and the distribution of the community survey. The focus groups included members from business, conservation and the general community to achieve a level of homogeneity within each group, while the quantitative data, was segmented into groups with similar environmental ethics and park attachment.

The quantitative data from the survey were analysed through SPSS, while the focus groups, semi-structured interviews and open-ended questions were analysed in NVivo. The responses to each of the questions were grouped into nodes, which represented the range of responses.

7.2 PART 1: QUALITATIVE ANALYSIS

Figure 21: Chapter 7, Part 1

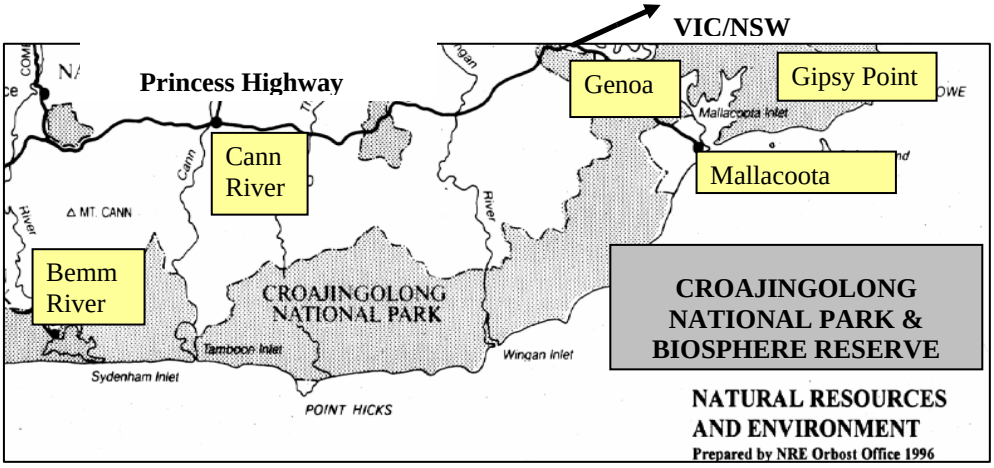


Introduction

The qualitative analysis in Part 1 of this chapter discusses the outcome of the pilot survey and experience interviews and the findings of the focus groups and semi-structured interviews as shown in Figure 21. It is acknowledged in qualitative research that the interaction of the researcher with the participants, as well as personal views and values will influence the interpretation of the results. A conscious effort has been made by the researcher to remain impartial.

The study was conducted in the community surrounding Croajingolong National Park in East Gippsland, Victoria. Residents from the towns of Mallacoota, Cann River, Genoa, Gipsy Point and Bemm River participated in the study. The locations of the towns surrounding the park are shown in Map 2.

Map 2: Croajingolong National Park Towns



Source: Adapted from Natural Resources and Environment Map, Orbost Office

7.2.1 Results from the Pilot Survey

The survey was tested for language, terminology, and the time it took to complete. Minor changes were made to the language and terminology in the survey. The participants reported that the survey took fifteen to twenty minutes to complete for both the electronic and the hard copy version. This information was then included into the introduction page of the survey. Adjustments were made to the language, the place attachment sites were corrected and the location of Seal Rocks was added. The pilot survey was administered in two forms, an electronic version and a hard copy version. Although the electronic version was effective, a decision was made to discard it, as many in the community, including some businesses did not frequently use the internet.

7.2.2 Results from the Experience Interviews

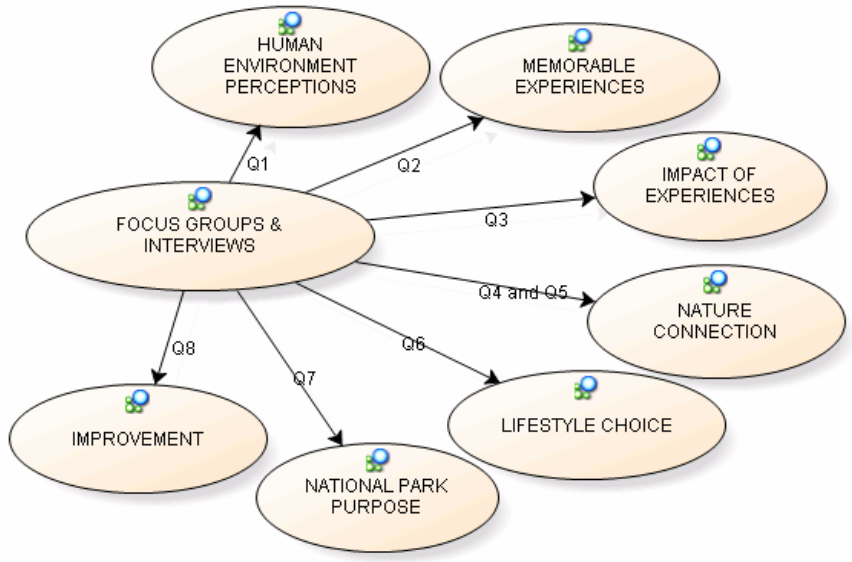
The experience interviews established the cost and method of distributing the survey by post, as well as through the community meeting points such as the supermarket, the hotel, community centre and the post office where additional copies of the survey were left. The most important place attachment locations within the park were confirmed and others

added. One of the most valuable outcomes was the contact with community members for involvement in the focus groups, which began through the technique of snowballing. While the experience interviews were important for the practical and logistical aspects of conducting the study, the focus groups and semi-structured interviews were integral to the interpretative validity of the statistical data.

7.2.3 Focus Groups and Semi Structured Interviews

The same questions were used for both the focus groups and interviews and the combined answers are presented in this section. The eight questions were designed to ascertain the views, values and attachments of the community, which are themes represented in the quantitative data. Question eight was included to give participants the chance to express opinions about the national park. The results were compared to the statistical findings and similarities emerged across both data sets, which are discussed throughout this chapter. The focus group questions were named according to the underlying theme represented in the questions one to eight as shown in Figure 22.

Figure 22: Focus Groups and Interview



Participant Introduction to the Focus Groups

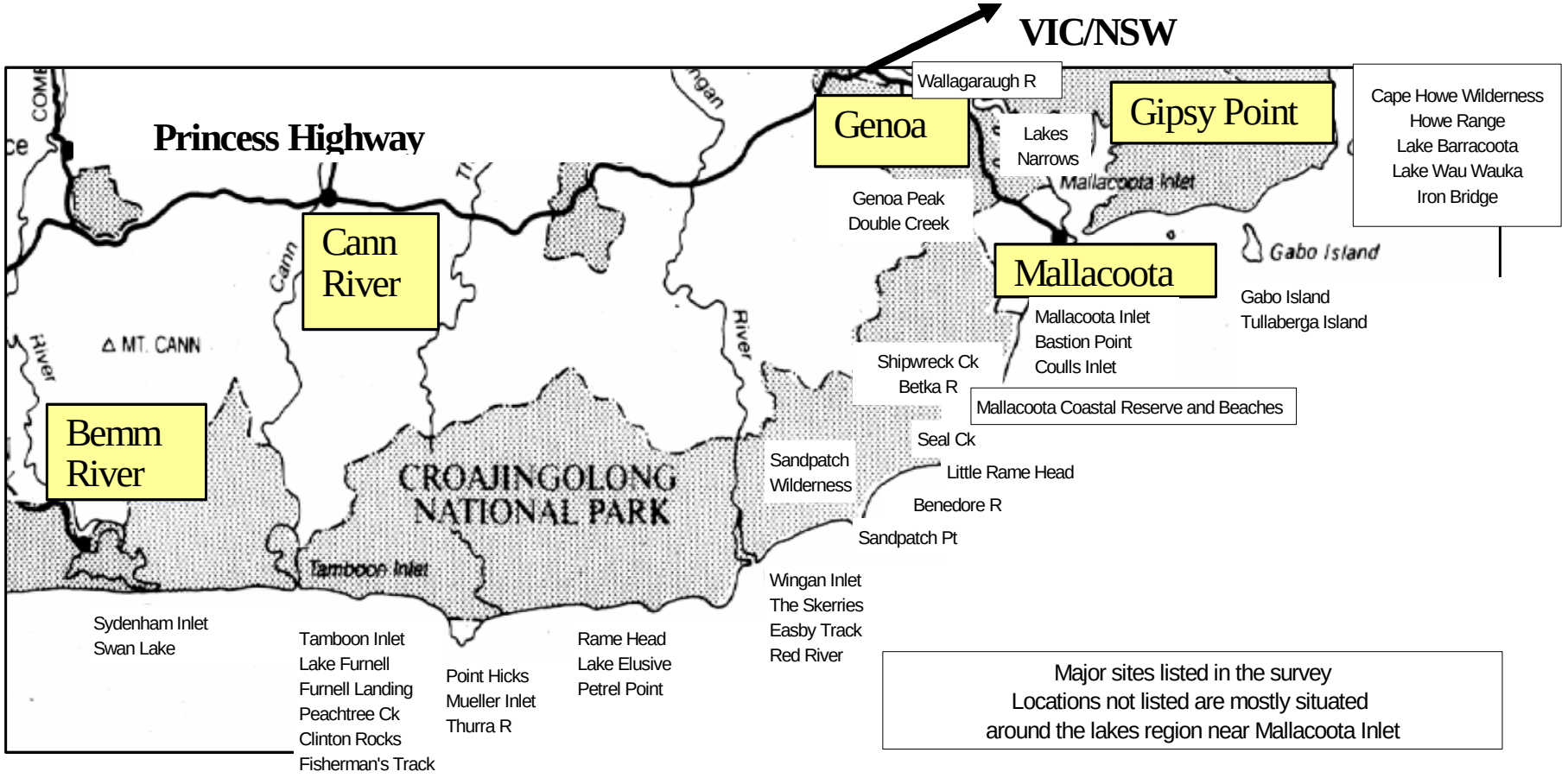
Prior to addressing the focus group questions, the participants were asked to introduce themselves and to talk about a location that was special to them. This topic was used as an icebreaker. The favourite locations are listed in Table 24, and the reader is directed to Map 3 for the site locations. The map can be used to locate sites discussed in this chapter.

Table 24: Favourite Locations Emanating from the Focus Groups

Favourite Locations				
Business owners	**Business**	**Conservation**	**Community 1**	**Community 2**
Lake System	Lake System			Lakes System
Shipwreck Creek	Shipwreck Creek	Shipwreck Creek		
		Howe Range	Howe Range	Howe Range
		Gabo Island	Gabo Island	Gabo Island
		Double Creek	Double Creek	
		Thurra River	Thurra River	
		Benedore River		Benedore River
			Bastion Point	Bastion Point
			Wingan Inlet	Wingan Inlet
			Genoa Falls	Genoa Falls
Casuarina Walk		Croajingolong NP	Habitat fungi/orchid	Betka Beach
Gipsy Point	Goodwin Sands	Lake Barracoota	Seal Creek	Rainforest Gullies
Historic Sites		Point Hicks	Tullaberga Island	
		Quarry Beach		
		Sandy Point		
		Secret Beach		
		Wallagaraugh River		

The introductory responses allowed insight into locations of interest to the participants, which were found to be similar to the place attachment sites in the quantitative analysis discussed in Part 2 of this chapter. The favourite locations centered on the sites listed in Table 24, and during this discussion, the researcher was made aware of a proposed marina development at Bastion Point that had the effect of dividing the Mallacoota community. It seemed that Bastion Point was a favourite and valued location for family activities. As the research progressed, Bastion Point became a focal point for discussion and disagreement in the community, and was reflected across the data sets. The impact of the proposed development on the community's place attachment and environmental ethics will be discussed in Part 3 of this chapter.

Map 3: Site Locations



Q1. Human-Environment Perceptions

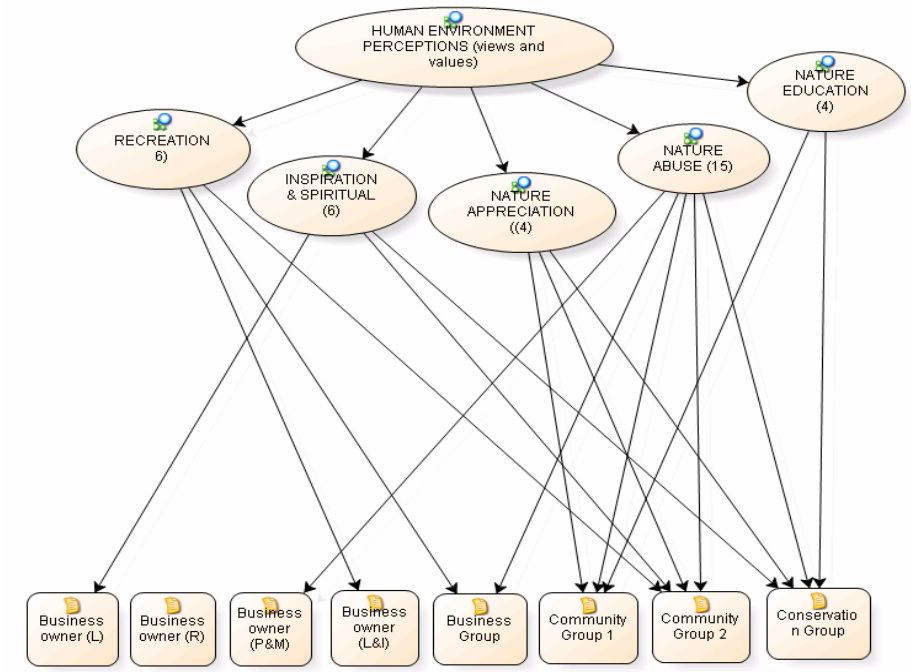
To introduce the topic of natural settings and to provide a focal point for discussion, the participants were asked to briefly state in one or two words the first idea that came to mind with the words “humans and the natural environment”. The question is shown in Box 8.

Box 8: Focus group question 1

Theme	QUESTION 1
Views and Values	What is the first picture or idea that comes to mind with the words “humans and the natural environment”.

Five themes emerged from the responses. The answers were collated and summarised under five principal nodes, recreation, inspirational and spiritual, nature appreciation, nature abuse and nature education. These headings revealed the range of views, followed by the number of participants that contributed, represented by a number in brackets in Figure 23.

Figure 23: Q1 Human-Environment Perceptions



The focus groups and semi structured interview participants are shown at the base of the diagram. The semi-structured interviews are represented with the initial of the participant in brackets. The arrows in the diagram show the groups or the individual business owners who have contributed to the node. Quotations from the participants is followed by brackets, which contain the initial of the participant and their focus group, for instance (J, Conservation).

Nature Abuse

Human impact and abuse of nature was the most prominent node for the human-environment perspective, with fifteen participants expressing concern for nature abuse. They used terms such as *"humans abusing it"* (J, Business); *"humans are the cancer of the natural environment"* (M, Community 1); *"desecration"* (M, Community 2). One participant linked these thoughts to human morals, and stating that there was a *"morality about the bush that humans often struggle to meet [and suggested the need for] moral example"* (B, Conservation). One business owner talked about the difficulty of balancing human and environment needs.

> Its not an easy one, I mean humans (pause) its what we do, we build houses, we have cats and dogs and of course in Mallacoota we have foxes and rabbits as well. Which I think is contradictory to the national park you know." Personally, I think that Mallacoota should be incorporated into the park, as a park town, with different rules to everywhere else. (P&M, Business owners)

Concern for nature by these participants indicated the presence of intrinsic values and pro-ecological views.

Recreation

This node represented those participants who made a connection between recreation and nature interaction. This perception was described as *"humans relaxing and enjoying healthy outdoor activities", "People walking along bush tracks, looking at birds and wildflowers and things like that*" (L & I, Business owners). The node suggests that a small number of participants thought of recreation, when considering the human-environment interaction. Recreational activities are linked to dependent attachment, which suggests that these participants have a dependent attachment to natural areas.

Inspirational Spiritual

The inspirational and spiritual power of nature was represented in this node. Inspiration gained from nature was expressed in terms such as *"humans in harmony", "inspirational" "enrichment"* (Conservation Group) and *"peaceful, inspiring"* (L, Business owner). The human-environment interaction as spiritual was expressed as a *"spiritual connection"* (N, Community 2), however this group also expressed concern for the nature due to the *"separation from spirituality"* (M, Community 2*).* This notion was discussed in the literature review and is associated with the notion that people and nature are intricately connected, a pro-ecological view, and when separated from nature, people are separated from their own spirituality. The participants that contributed to this node reflect an inner connection with nature, which may align with symbolic or emotional attachment, or it could indicate the presence of intrinsic values, where nature is considered to have value outside human use.

Nature Appreciation and Education

These two nodes represent appreciation of nature and the need for education in encouraging nature appreciation. Nature appreciation was summed up by one participant simply as *"appreciation of the environment"* (T, Community 2), while another participant talked about the need to understand *"the long historic connection [of humans and environment in order] to balance impact"* (T, Conservation*).* Views on education were expressed as the *"need for education, we know what we are dealing with and we know the effects we have on things by what we do*" (P, Community 1) and the need to be "*encouraged to appreciate"* (B, Conservation) nature. The respondents recognised the link between nature appreciation and education as important. People who express an appreciation of nature are likely to have pro ecological views and recognise the intrinsic value of nature.

Discussion: Human-Environment Perceptions

The respondents in the focus groups and semi-structured interviews considered the relationship between humans and the natural environment differently. Some respondents related the human-environment interaction as business or recreational activities, which is a dependent attachment. Nature appreciation and the inspirational and spiritual relationship that some people experience in natural settings can represent a belief in the intrinsic value

of nature or an identity attachment to the location. Participants that showed concern for nature abuse are likely to have pro ecological views. Education was suggested as one way of addressing nature abuse, as many of the participants thought the abuse occurred through ignorance. Education may help to influence views and values, which in turn affect behaviour towards the natural environment.

Q2. Memorable Experiences

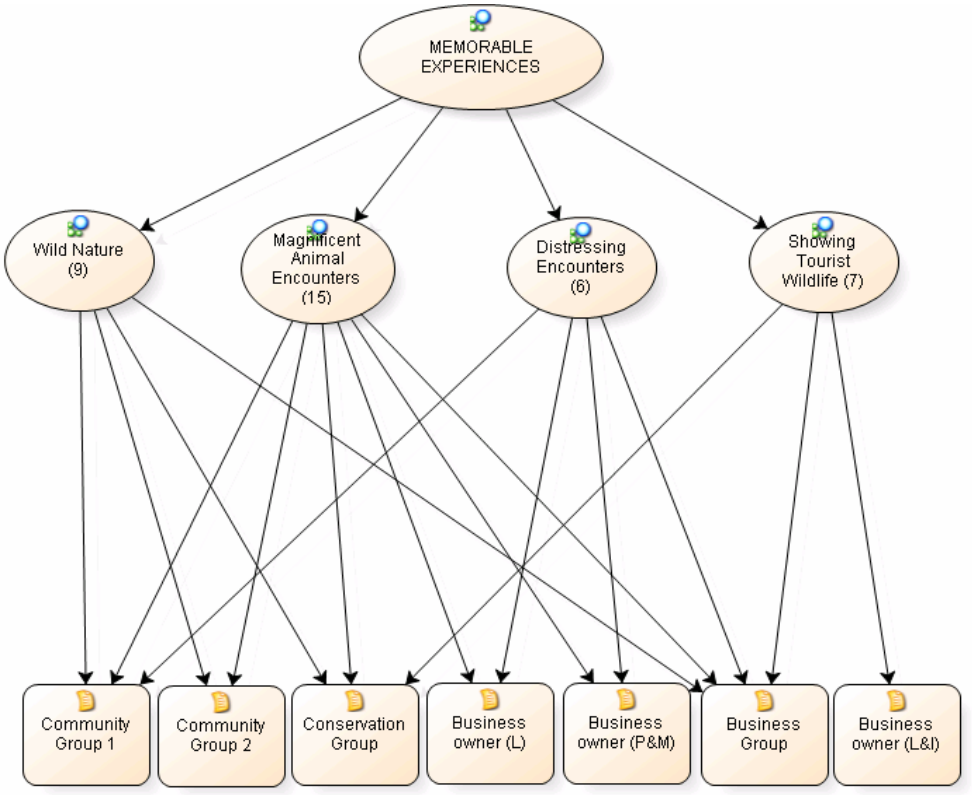
Place attachment can evolve through using natural settings. When an area is used for business, sport or recreation, the person is said to have a dependent attachment. Natural settings that are important because of an emotional event or because of cultural significance evoke an identity attachment, where memories are formed in the minds of participants. The participants were asked to discuss a memorable experience they had in a natural setting as shown in Box 9.

Box 9: Focus group question 2

Theme	QUESTION 2
Attachment	Can you think back to a memorable experience you have had in a natural setting? (These can be good or bad experiences)

The answers were summarised under four primary nodes; wild nature, magnificent animal encounters, distressing encounters and showing tourists wildlife as shown in Figure 24.

Figure 24: Q2 Memorable Experiences



Magnificent Animal Encounters

The largest response to this question was represented in this node. These magnificent animal encounters suggest the presence of intrinsic values and pro-ecological views amongst participants. The experiences may align with either a dependant or an identity attachment or both. The majority of the encounters were related to the coastal location, seals, whales, dolphins, stingrays, sea eagles and black swans. Encounters with owls, goannas, kangaroos, and a big cat were mentioned. Many of the experiences happened while people were relaxing or working, and the nature experience was unexpected. These experiences affect the way nature is viewed by the respondents, which has made a lasting impression on them.

The Stingray at the Jetty

> One day during my working life I went down to the jetty at Wingan, it was a winter's day. I stood on the end of the jetty; there was no one in sight, the tide was high and the water was that far off the top of the jetty [indicating centimeters]. I was there soaking it all up and I felt something hitting me on the leg. I looked down and there was the biggest stingray I had ever seen, backing up out of the water and his sting was hitting me on the leg as hard as that [whack, whack]. As if to say this is my place go on get off. That one thing sticks in my mind from many years ago. (P, Community 1)

The intelligence and curiosity of the animal world is illustrated in the following human animal encounter, and is an example of the formation of views, values and attachments.

Dolphin Mother and Calf

> One time I was surfing off the breakwater at Bastion Point, it was early, a beautiful summer morning and a pod of dolphins came through. They often swim around you, role their head and look up underneath to see you. And on this particular morning there was a calf and the mother and the calf started coming towards me and it got as far as you are to me right now [indicating one meter], and the mother came from the side and just nuzzled it away from me, as if to say "move away this could be dangerous", and it was just the most magical thing. It was just right there and was just in the environment and it was wild. (J.P, Conservation)

The participants also recalled memorable experiences during activities such as *"surfing near Davis Creek and seeing the whales"* (J, Community 2), *"kayaking and seeing swans, egrets and sea eagles"* (M, Community 2), and sailing across the lake to Goodman Sands, *"and I realised that the black line, wasn't night, but was 300 black swans"* (T, Conservation).

Leatherback Turtle

> Last season a leather back turtle come up the side of the boat. It was the biggest thing, I couldn't believe how big it was, and fortunately, I got photos of it. Those photos went right through the Adelaide University, Melbourne Aquarium, through Parks; it was a truly unique animal. It was on the last legs of its life, on the warm currents down the coast, and that was a unique experience. (M, Business)

The respect for nature is evident in these encounters, which suggests intrinsic values and pro-ecological views. Dependent attachment while undertaking activities is evident, however the emotional responses from the encounters suggest that an identity attachment is also present.

Wild Nature

This node represented experiences, which left the participants in awe of the power of nature. For instance, surf riders from across the country visit Mallacoota to experience the natural features the coastline provides. The surf riders represent the young members of the community, and one participant expressed the most memorable experience for him was when he "*caught three waves together"* (T, Community 2), which is considered a once in a lifetime experience for surf riders. The awe of nature's power was also expressed through the following experience.

> Remember the Christmas New Year storm in 87, six inches of rain one night and six inches of rain the next night. Remember the lightning along the Howe Range; it wasn't going like that

> [vertical gesture] it was going like that, [horizontal gesture] all night non-stop, incredible. (P, Community 1)

Other memorable experiences related to the beauty of the landscape, which capture a respect for nature, aligned with pro-ecological views.

> I suppose one of the most dramatic places that I have experienced that always stays with me is the Howe Beach, the sands. I think its an absolutely unique experience to go up there and climb those enormous sand dunes and stand on top of them and look back towards Gabo Island, Mallacoota and those areas, it's really something. (J, Business)

This node suggests that the participants are in awe of the power, strength and beauty of nature, which suggests the presence of intrinsic values and pro ecological views. The surf rider experience also suggests that a dependent attachment exists for the surf location, while an identity attachment has also formed from the memorable experience.

Distressing Encounters

This node represented memorable experiences that had a demoralising or worrying effect on the participant. The experiences include both fear of the power of nature and nature destruction, which has caused grief to the participants who witnessed this.

One participant who loved the ocean also expressed fear of its force. *"Walking along by the sea, but not swimming, I often imagine a tsunami."* (L, Business owner). This participant was previously part of a community, where tsunamis threats occurred regularly. This reaction may explain a cultural attachment, which was discussed in the literature. Cultural attachment can be embedded in the psyche, and carried throughout a person's life.

The extreme and unexpected forces of nature were expressed through an account of a hiking trip, where the hikers were trapped in a flooded gorge for three days (J, P. Conservation). The experience left them with a renewed respect for nature. Concern for injured wildlife due to human activities was also discussed concerning fishing on the lakes, *"There's nothing worse than seeing a pelican sitting there with a lure hanging out the side of its head"* (W, Business). Nature study is one of the appreciative activities undertaken in the park and for those who undertake this activity any nature destruction causes grief.

The Butterfly Orchid

> I have had some wonderful experiences of orchids in the rainforest at Double Creek, but the butterfly orchids in the spring are an exciting and delightful thing and there was one growing there that B… had picked up off the ground and replanted. It was on the track a few years ago, and gradually each year it grew and grew, and one year it had 15 flowers and I photographed it and I just loved it and was passionately connected with it. Then a few weeks later the news came back from the walking group that someone had carefully, surgically excised it from the tree. I still feel grief about that… it is probably sitting in someone's greenhouse as I speak and that really upsets me. (E, Community)

The following participants talked about a bushfire, which drove parrots to their property. Although the arrival of the birds was a positive experience for them, the destruction of the birds' native habitat has caused grief. They operate an accommodation business and feed and look after injured birds that find refuge in their open plan porch and lounge.

Bushfire and Birdlife

> Bushfires of course, are pretty traumatic. There is a good side to it too. After the last huge bushfire, 1984 I think it was, half of the park got burnt out, and you could walk and see a lot more than you could before, because the under story was gone. That was the time when all our parrots came here for food, anywhere from 80 percent of the park was burnt out, and they [the parrots] have remembered it ever since. (P&M, Business owners)

The grief over nature's destruction demonstrated a care for nature that may align with intrinsic value and pro-ecological views. The experiences are related to work or recreation and therefore may be associated with either a dependant or an identity attachment.

Showing Tourists Wildlife

This node represents participants whose memorable experiences were related to the reactions of visitors to wildlife. Many of the business owners were enthusiastic about providing a wildlife experience.

The Bower Birds Nest

> There is a satin bowerbird's bower near here, with all the little blue things in the bower, which are the courting ground and the mating area. We take people and show them that, and they love to take a photograph. They are very impressed that a bird can do that sort of thing. (L&I, Business owners)

The locals are also proud of their region and enjoy showing family and friends around when they visit.

First Time Dolphin Experience

> Americans from Texas were staying with us and they had never seen dolphins, so we went down to Bastion Point. An abalone boat was coming in and the dolphins were there. We though it was wonderful too, but for them it was probably one of the most wonderful things from the look on their faces (J, Conservation).

The wonder expressed by the tourist and relayed by the participants would suggest the presence of intrinsic values and pro-ecological views, however for the business owners there may also be dependant attachment as they rely on the location and wildlife for their business.

Discussion: Memorable Experiences

When the participants talked about their memorable experiences, they were also talking about their place attachment. Some participants had experiences of wild nature, which had remained in their memory and formed an identity attachment. The fascination over the interaction of wildlife, and the power and strength of nature suggests intrinsic values.

The majority of experiences were with the dolphins at Bastion Point. Other spectacular marine encounters, such as the stingray at the jetty and the seal tango, which is quoted at the start of this chapter, illustrated the intrinsic value of nature and pro-ecological views towards the natural world. Distressing encounters such as the destruction of habitat and orchids, suggest an emotional attachment, while the experience at the gorge, is a dependent attachment as the area is used for recreation. Both of these experiences show respect for nature, which is aligned with pro-ecological views.

Showing tourists' wildlife was a memorable experience for both the conservation group and the business group and a business owner. The business responses in this category were from the accommodation sector, which enjoyed showing their guests the wildlife. For the business owners this represents a dependent attachment as they rely on the wildlife for business purposes. The conservation group also gave an example of showing visitors wildlife; however, this indicates an identity attachment, through an emotional bond with the location. The business owners may also have identity attachment however from their responses dependent attachment was more evident.

Q3. Impact of Memorable Experience

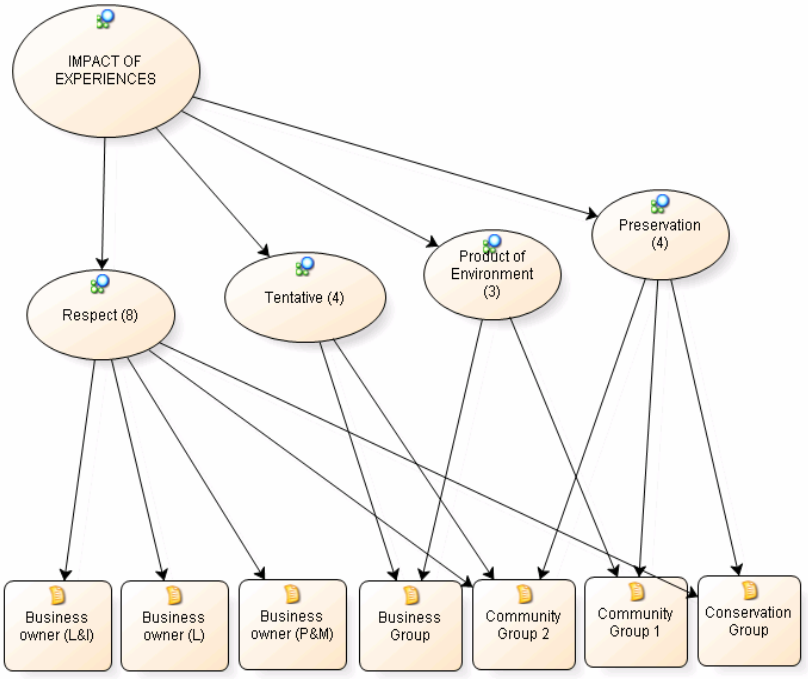
This question relates to the memorable experiences discussed in question two. The researcher wanted to discover if the memorable experiences, either good or bad, had influenced the participants' views towards nature. For instance, had the bad experience made the participant more reticent to go into natural settings, or had the good experiences changed the participant in anyway. The question is shown in Box 10.

Box 10: Focus group question 3

Theme	QUESTION 3
Influences on Attachment	In your opinion has your experiences influenced your view towards natural settings?

All of the participants that contributed to this question agreed that yes, their experience had influenced their view towards nature in some way. Some expressed a renewed respect for nature, whiles some said that their experience had made them more tentative. The responses have been summarised under the nodes called, product of environment, tentative, respect, and concern for nature as shown in Figure 25.

Figure 25: Q3 Impact of Memorable Experiences



Respect

Respect for nature received the most responses. One respondent describing the impact of nature experiences in the following way.

> Good and bad experiences both equal respect. You respect the environment when it is harsh on you and you respect it for being nice to you. I could tell you of some bad experiences, and from them you gain respect for the environment so that next time you're more prepared. (J.P. Conservation)

The participants expressed preparedness and *"wariness and respect for natural settings"* (Business, L), which included preparing visitors for potential nature encounters. The responses suggest respect for nature.

> We can always find one black snake in the garden somewhere. You can tell by the birds, we just warn the people we do not move them. You have to live with it. They are part of our environment as well... You hear black snakes are rather dangerous, but black snakes are rather docile. We really have not had any problems. (L&I, Business owners)

The responses suggested both dependent and identity attachments, intrinsic values and pro-ecological views.

Product of Environment

The product of our environment node represents participants who believe that reaction to the nature experience is complex and is related to influences in family or community. The responses represent a range of views and values and both identity and dependent attachment. The complexity of human-environment interaction is represented in the following dialogue.

Explaining Reactions to Experiences

> It's like any relationship, if it's a worthwhile relationship it's deepened by whatever relationship you have. The experiences are ongoing, they're daily, they're negative, they're positive, and they're just the blood going through your veins. You know as you know it, you know it better. You know where that flower is, where that snake is. It's not even good and bad, it's just what it is, and its deep and its complex. (L, Conservation)

A person's reaction to natural settings and experiences in natural settings is directly related to their upbringing was one view expressed. For instance if a person is brought up with nature experiences then they are likely to develop an appreciation of nature and visa versa.

Community Influence

> You are a product of your environment and just think that through. Mallacoota was looked on as a green town. People had grown up with Mallacoota in the park and a couple of rangers and most of the folks were orientated that way. I was at the other end of it at Cann River, which was a mill town, with six sawmills and 100 percent totally opposed to the park system. Those environments grow people that reflect those views. Cann River grew a lot of people that I would class as the most red neck people on the planet. Because just as those views are involved in the logging industry and the trucking industry and are good people, they came out of that environment which sticks in their minds, and this is the other end of it (P, Community 1).

Tentative towards Nature

Some respondents said that their experiences had made them more tentative in natural settings. The participants that contributed to this node are mostly from business and some from the community groups. The dialogue is in response to both recreational activities and the safety of tourist who make up the businesses clientele, which suggests a dependent attachment to the national park for these participants.

Tiger Snakes

> When we have floods or hot weather, the little islands over there have tiger snakes. What will happen is, there's lots of bird life over there so lots of food for them. During the warmer months, they can swim across and end up in the caravan park. We have had people pitching in the caravan park finding snakes in hoses, not that it happens a lot, but if it happens to you, it can be pretty off-putting especially if there's kids around (W, Business).

The community participants also had concerns relating to their safety, *"The Goanna at Wingan Inlet can cause concern"* (M, Community 2), and *"I came across a wild dog which caused concern, but generally I'm comfortable in the bush"* (N, Community 2). These responses show that experiences in natural settings that cause fear or concern may have a negative affect on place attachment and views towards nature. The business owners, who have a dependent attachment, recognise that safety concerns of visitors will ultimately impact on their businesses.

Preservation

Many participants voiced their concern for the preservation of nature, which is the theme represented in this node. The participants expressed concern over both government and individual action in preservation of natural areas. One of the community groups and the

conservation group were represented in this node, and concern expressed for nature may align with pro-ecological views and intrinsic values.

Individual Action

> My experience of grief over those orchids was one of a need to educate people and to push for preservation and education. I have become more determined to hang onto it and save it (E, Community 1).

Discussion: Impacts of Memorable Experiences

The responses to the impact of experiences theme mostly relate to positive reactions to negative experiences. Some participants suggested that responses to experiences would vary according to the influences in a person's life through family or community. A small number of participants were more tentative towards nature after their experience. Others were more resolved towards preservation such as in the case of the butterfly orchid, while the majority expressed a new respect for nature. Some experiences were during recreational activities, which suggest a dependent attachment. The negative experiences did not deter the participants and most suggested that they would be better prepared next time, while others suggested that educating visitors on safety around wildlife would help. Nonetheless, these experiences can adversely affect place attachment for some. The memorable experiences showed recognition of intrinsic value in nature and pro ecological views, and a resolve to preserve nature. There was no suggestion of interfering with wildlife but rather living with it.

Q4 and Q5 Nature Connections

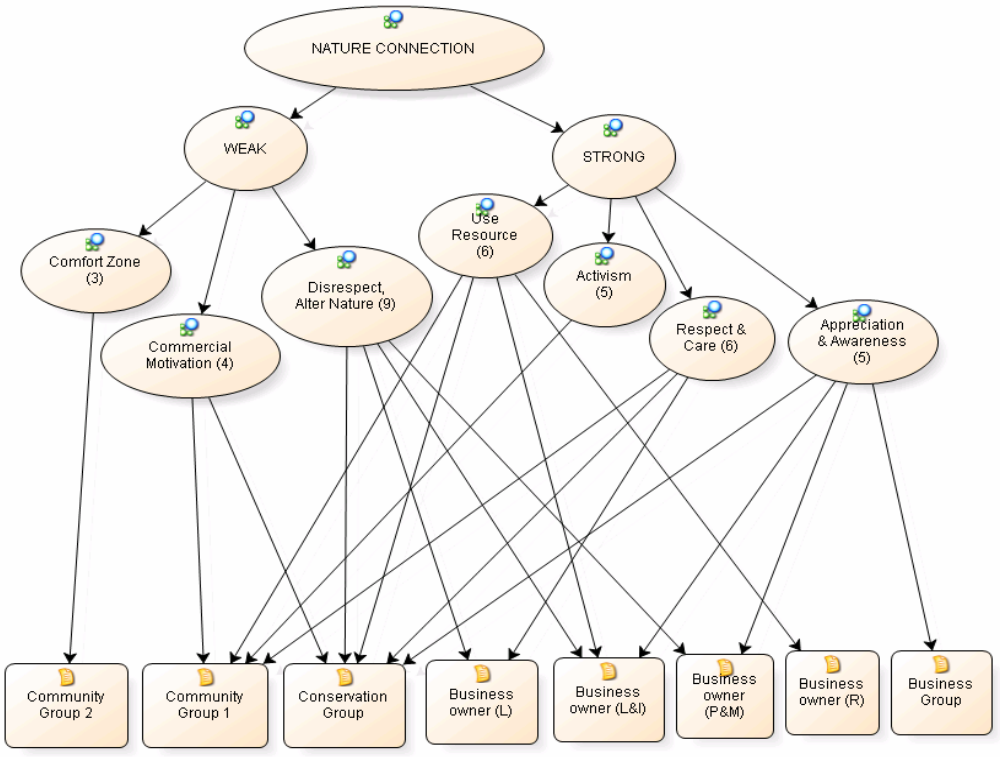
Perceptions of environmental behaviour, and whether this behaviour indicated a connection with nature was explored in this node. The participants were asked two questions about behaviours that would typify a strong and a weak connection to natural settings as shown in Box 11.

Box 11: Focus group question 4 and question 5

	Theme	**QUESTION 4 AND QUESTION 5**
Q4	Views and Values	What behaviours would typify someone with a strong connection to natural settings?
Q5	Views and Values	What behaviours would typify someone with a weak connection to natural settings?

The responses were summarised under two principal nodes; weak and strong connections, and six sub nodes; use resource, activism, respect and care, appreciate and aware, comfort zone, commercial motivation and disrespect and altering nature, which is shown in Figure 26.

Figure 26: Q4 and Q5 Nature Connection



Strong Connection

According to the participants, a strong connection with nature is represented through resource use, environmental activism, respect and care for nature and an appreciation and awareness of plants, animals and their habitats.

Use Resource

This node represented participants who saw a strong connection with nature through appropriate commercial use of the resource. The discussion portrayed a range of opinions.

Instrumental value

> Perhaps people that take wood out of the forest, that log it, can also be said to have a strong connection, but a different one and then you have to make a value judgment whether that connection is something that you agree with. Because what they are seeing, is timber, its strength, a resource. (L, Conservation)

> I don't necessarily think so. I know people that have taken timber out of the bush, you know small loggers… it's just the way they earn a living. You know it's not a greedy thing it's just, this is what I know, this is what I've been taught, this is how I make a living. (L, Conservation)

Appropriate Use

> You know the three people that I learnt most from in this area were all timber millers, timber cutters. I remember old K and D knew more about the bush than just about anyone else did I'd ever spoken to. The first half of the day, they spent preparing the bush so they could pull individual trees out of the gully, so that when the log was sniggled up it wouldn't bark another tree. I learnt a lot about operating in the bush from them. (B, Conservation)

Consensus was reached amongst the conservation participants that those that use the resource for commercial purposes, can care about the environment and can have a strong connection to the natural area. Connection through use for commercial purposes is aligned with a dependant attachment and a reliance on the resource for employment. Similarly, commercial use is also aligned with instrumental values, where nature is valued for what it can provide for humans.

Activism

This node represents environmental activism as an indication of a strong connection to nature. This can be as simple as "*picking up rubbish*" (Community 2), joining friends groups or a shift in commercial practices, such as in the fishing industry "*which has become more environmentally aware and considerate in the last fifteen to twenty years*" (Business owners, L&I).

Environmental Activism

> The town is full of fellow travelers, I am actually involved in interest groups, and I still have the interest of those groups at heart. We saw them at the Bastion Point rally, people that you would never have realised meant so much to them, and they did not want it changed. (R, Community 1)

Participants also talked about preserving aboriginal sites as well controlling development of high rises so that the beauty of the region is preserved for future generations.

Future Generations

> We have to think of the generations to come, and this is such a beautiful place and if its destroyed generations to come will never experience what we've all been talking about…We have aboriginal middens where were walking. To me it is the responsibility of saving this for generations to come.. There are few places where people are actually residing in such a beautiful place. There mostly beautiful places but they have high rises, boats. There are very few places in the world where you can go. We have a coast that's untouched. (J, Community 1)

Connection through environmental activism may align with pro-ecological views, dependant and identity attachment and non-use values associated with maintaining the environment for the future.

Respect and Care

Respect and care for the environment were indicators of a strong connection with nature according to the participants represented in this node. This participant summarised the concept as *'Treading lightly on the place, your lifestyle and the way you live"* (P, Community 1). The link between caring for the environment and more caring people was expressed by one participant as *"people who love nature are good people"* (Business owner, L). In contemplating the nature connection, one participant told a story about the native American Indians to illustrate the need to reconnect with nature for human wellbeing.

> Conservation Native American Indian elders had a meeting in the late 70s, where they all got together and talked about all the problems the community faced like alcoholism, drug abuse and they tried to sort it out. At the end of the week, they couldn't so they kept going and at the end of the month, they resolved that all of these problems could be solved by one thing and that is that humans have to get back in touch with nature. Following that, one of the elders set of to spread the message by running from village to village in the traditional way. And that began a thing every month, which continues now like 25 years later. Now they run around the world spreading that message that people need to get back in balance with nature. (P, Conservation)

Connection to nature through respect and care for the environment may align with pro-ecological views and identity attachment associated with respect for heritage and culture.

Appreciation and Awareness

This node represents responses that suggested appreciation and awareness of nature are predictors of a strong connection. Some of the responses suggested that appreciation of nature through appreciative activities such as bird watching (P&M, Business owner) and awareness of plants and animals (T, Conservation) are indicators of a strong nature connection. Connection through appreciation and awareness of environment may align

with pro-ecological views, intrinsic values and dependent attachment associated with business use.

Weak Connection

The perception that some participants had of a weak connection with nature included, people who do not want to move out of their comfort zone and explore nature, commercial motivation, disrespect and a lack of appreciation of nature.

Comfort Zone

Croajingolong National Park is situated in a remote location and is suited to nature walks and hiking. Some participants expressed their view of a weak nature connection as people that do not want to "*…get out of their comfort zones"* (M, Community 2) or, "*complain about not being able to drive"* (S, Community 2) to the locations, and were opposed to walking into the park.

Commercial Motivation

Some participants consider people that come to the location only for commercial purposes (M, Community 1), or *...see nature in commercial resource terms without regard for compassion for animals* (T, Conservation), to have a weak connection with nature.

Disrespect, Lack of Appreciation

Disrespect and lack of appreciation for nature was seen as representing a weak connection with nature as shown in this dialogue, *"I call it rape and pillage, that happens too you know"* (P&M, Business owners), and "*…weak connection is disregard for nature"* (J.M, Conservation).

Discussion: Nature Connection

The conservation and community groups expressed many views on strong and weak nature connections. The business group did not contribute to the discussion however; the individual business owners did contribute. Activism, respect and care, and appreciation and awareness

of nature all indicate a strong nature connection, which is aligned with pro ecological views, intrinsic values and identity attachment.

Commercial motivation was the topic of much debate; some considered it to indicate a strong nature connection and others a weak connection. The community group considered that use of the resource for commercial purposes indicated a strong nature connection, and the loggers they knew cared about the bush. The conservation group debated the topic and concluded that this was the way of earning a living for many in the community. Commercial resource use indicates a dependent attachment and instrumental values, where the business is reliant on nature for their livelihood and nature is valued for what it can provide for humans.

Some participants considered that not wanting to leave a comfort zone to explore nature and commercial motivation were indication of a weak nature connection. The business owners added to the discussion and agreed with the conservation and community groups that disrespect and altering nature was an indication of a weak nature connection. A weak nature connection may also align with a lack of place attachment, instrumental values and anti ecological views.

Q 6 Lifestyle Choice

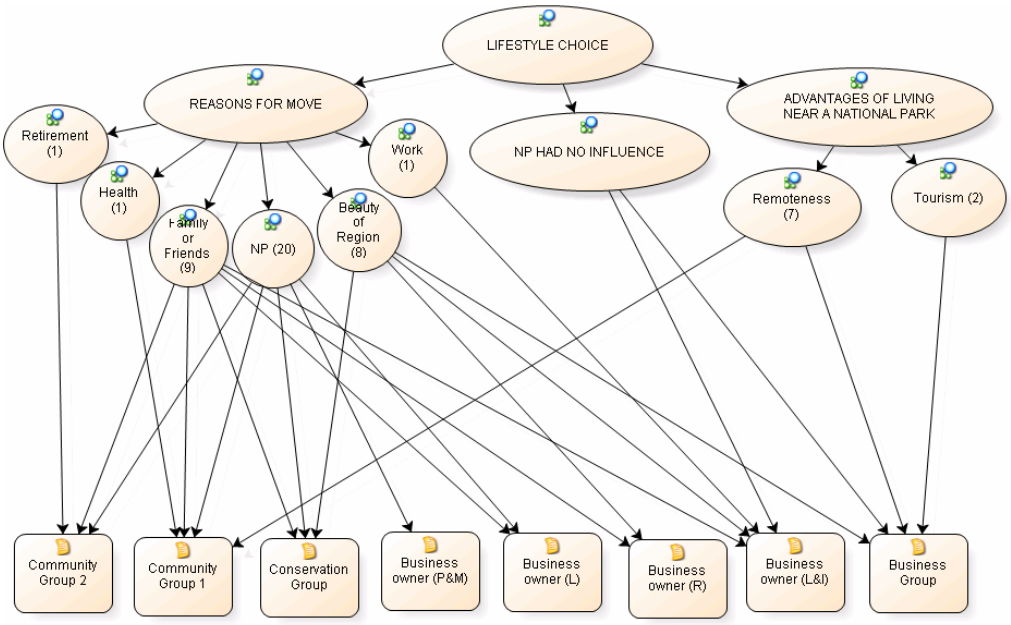
The communities of Mallacoota, Cann River, Bemm River, Genoa and Gipsy Point are situated on the boundaries of Croajingolong National Park. The national park forms the background to the towns and is a prominent feature in the landscape. The role of the national park in the decision to move to the region was examined to see if nature value influenced decisions to live near the national park. The participants were asked about their lifestyle choice as shown in Box 12.

Box 12: Focus group question 6

Theme	QUESTION 6
National Park Attachment	How you come to live in this region? Did the national park influence your choice? What does it means to you to live near a national park?

The responses were summarised under three main nodes; reasons for the move, advantages of living near a national park, and the national park had no influence, and their respective sub headings as shown in Figure 27.

Figure 27: Q6 Lifestyle Choice



Motives for Relocation

The participants moved to the region for a number of different reasons, some mentioned retirement, health and work. However, the largest responses were due to the national park, the beauty of the region, and because of family and friends.

National Park

This node represents a large number of the participants whose choice to live in the region was directly influenced by the national park. The national park and its effect on health, lifestyle, and the community, as well as the natural features of the park all influenced their move. When asked if the national park influenced their move, one community group was unanimous in their 'yes' response. Other participants simply expressed the importance of living near a national park with comments such as; *"We moved here because of the national park"* (G, Community 2), and *"We wanted to be amongst trees after a life*

surrounded by desert, and a town surrounded by national park was important to our move"(S, Community 2).

The national park features such as clean air, nature and a likeminded community, also influenced the choice to relocate to the region for health, lifestyle and the community. The likeminded community suggests an attachment to the 'national park community', which was examined through the quantitative data.

National Park Community

> I came first in 1970, … I was down at Captains Point, it was a day like this, this time of year (fine August day), and the climate impressed me as well as the bush and everything else. It was just a fantastic town…the town worked because of that remoteness, people become reliant on each other more, and it works better as a society. (B.P, Conservation)

Some of the participants considered that the national park classification would protect the town.

> What I came for would not exist if it were not for the national park. If it weren't for the national park in the beginning, Mallacoota wouldn't have existed like it did, because there would have been development even though it was very small and very hard to get to. If the park had not been here, there would have been an increase in holidaymakers, and holiday buildings. Marinas at Double Creek…who knows. But because the park was already in existence and then grew, and hopefully it will grow to East Gippsland National Park, wouldn't that be lovely. (P, Community 1)

The national park has influenced many of the participants to stay and work in the region. They site the national park wildlife and natural features as reasons for staying.

Bird Atlasing

> I came to work in Croajingolong National Park and the day after I brought a house here, that how much I thought of the place... I do a lot of bird atlasing for Birds of Australia and surveys and it's always a thrill to get in the park because I will do six different habitats in the area. You never know what's going to turn up in a place like this. You get a bit of a thrill…these rare birds you see migrating down the east coast. Once they get to Mallacoota and like these humans, they won't go any further, and stay here. So, they get on the list and all this is put into Birds Australia and I don't think there's anywhere else in Australia that you get the diversity of birds. (B.S, Conservation)

Some of the respondents alluded to spirituality when talking about the national park's influence on their decision to settle in the region.

> My aunt and uncle were visiting from Holland and I was apologising that we did not have a catholic mass here. My aunt turned to me and she said, 'Were in God's church, you live in God's church'. I thought that was really lovely to recognise that. (Ph, Conservation)

For the participants to value the national park to the extent that it influenced their move to the region would suggest an identity attachment, pro-ecological views and intrinsic values.

Beauty of Region

This node represents those that were influenced by the general beauty of the region, more than by the national park. Comments about the region's beauty were also focused on the remoteness, which the participants believed produced a "*supportive community and plenty of community activities"* (J, Conservation). Participants also used expressions such as *"You feel like you're coming home"* (J.M, Conservation).

Many of the participants did not differentiate between the national park and the surrounding region, which is summed up in this comment. *"I wouldn't know where the national park stops, but I came here because it's such a beautiful spot"* (L, Business). Other talked about the supportive community, *"It is a community, there are disagreements, but people do tend to help each other when there is a problem"* (J, Conservation).

.

This node represents participants who spoke of the beauty of the region as the catalyst for their lifestyle choice, which suggests both identity and dependence attachment.

Family and Friends

This node represents participants who moved to the region to be with family or friends such as expressed in this dialogue *"We first came here in 1953 on a fishing holiday. In 1980, we brought a holiday home, then retired here. We have an emotional attachment to Mallacoota as our home"* (M, Community 2). The node also represents those who holidayed in the region as children and had fond memories of the place. There is evidence in the place attachment literature that attachments are formed most strongly in childhood. Some of the participants came to the area as children with their families and returned to the region as adults to start businesses (L&I, Business owners). *"I was introduced to the region as a child, used to come here on holidays"* (R, Business owner).

Others were born in the region, and identity attachment is evident in their responses; "*I was brought up here, and I used to dream of Croajingolong NP when I was overseas* (N, Community 2), and "*I was thirteen years old when I moved here with my parents. Although I like to travel, I consider Mallacoota my home"* (T, Community).

This participant explained why her search for a location to settle and bring up her children ended where her childhood began, back in Mallacoota.

> My parents emigrated from London in 1966 and never left the place… My brother and my sister and I were born here and we made our lives here. I traveled overseas, and traveled around Australia with my partner in 1995 and we got to the west coast and looked at each other after four or five months and said, lets go home, because we couldn't find anywhere that we enjoyed being as much as Mallacoota. So it was then that we decided that this was where we'd bring our children up. That's what's really important, that they have the lifestyle that we enjoyed as kids here, because it's just so free and easy and beautiful and healthy. It's a university out there as well, the environment is so full of stuff you can feed your kids and teach your kids and you know you can't learn it at school it's a hands on experience and that what's so important about the national park and the environment here. (J, Conservation)

These activities align with both dependant and identity attachment. Many of the participants were introduced to the region while on holidays.

Retirement, Health and Work

This node represents participants who mentioned retirement, health or work reasons for moving to the area, as explained by this respondent "*Because of my health, I needed an unpolluted place… The freshness and the beauty and the health-giving environment were vital or we might have looked at somewhere else to live*" (J, Community 1). Mallacoota is a popular destination for retirees, and many have visited or taken holidays in the region prior to retirement. Those in the business community either have come to the region and then started businesses, or have purchased businesses, which have prompted their move.

National Park Advantages

Advantages that the national park offers in lifestyle choice influenced the decision to move to the region for some participants. Many referred to remoteness as an advantage of living near a national park, while a couple of business owners talked about the tourism advantages that the national park offers.

Remoteness

These participants moved to the region because of the remoteness, many believed that this would shield them from development of the area. Reflected in their responses is a real concern for development of Mallacoota, which is on the outskirts of the national park. Some of the participants consider that the remoteness of Mallacoota will protect them.

Buffer from Development

> I think something that the national park did was provide a barrier from suburbia. The coast is not going to be developed from Lakes Entrance to Mallacoota. It gives it that buffer and that is when national parks and reserves are a great thing. (M, Business)

Many in the community consider that the town will not grow too much due to finite resources such as water and freehold land (R, Community 1). Others suggest that there is a generous supply of crown land under government control, which can be developed (P, Community 1). There are many in the community that see development as a real threat, not only to the location but also to their lifestyle and to the natural resources. The concern for their town and community suggests a strong identity attachment.

Tourism

This node represented participants who considered that the park had tourism advantages, which also suggests a dependant attachment.

> I do think as far as tourism or whatever, the national park does mean something to people. If you say it's a world biosphere and that sort of stuff, you're encouraging these sorts of people to come, so you can use the national park to your advantage. You can say, you're surrounded by national park, so we can't get any bigger and we can't do this and we can't do that. This is what we are; we can take advantage of it. (W, Business)

No Influence

This node represents participants who believed that the national park had no influence in their lifestyle choice to live in the region. This view would suggest a lack of attachment to the national park. All of the participants in this node are from the business community. The majority of participants were influenced by the general area and not by the national park.

> The park to me wouldn't make any difference whether it was national park or freehold land, so no, being a park certainly didn't influence my decision (J, Business). I would agree. (M, Business)

Some considered that the highway had a greater influence than the national park, on the progress of Mallacoota (W, Business). The highway passes the turnoff to Mallacoota at Genoa, and continues to Eden in New South Wales and through to Sydney. Some of the businesses also expressed concern that their businesses were controlled by national park guidelines, which caused resentment towards park management (W, Business).

Discussion: Lifestyle Choice

Lifestyle choice represented some of the reasons that people moved to the area, and the influence or lack of influence that the national park had on that choice. The community consists mostly of retirees and residents that were born in the region. The responses suggest a strong community attachment, which is aligned with an emotional attachment to the region and the community. This attachment has developed through spending childhood in locations in and around the national park or through holidays in the area. The most prominent reason for living in the region was the national park, followed by the beauty of the region. Some of the residents moved to be close to family and friends, while a small number moved for health reasons, to start a business, or due to retirement. The remoteness of the region was considered an advantage of living near the national park, while one business owner spoke of the tourism advantages, which suggest a dependant attachment. Some participants thought that the remoteness of the region would protect the town from development; but there was also concern by others that it would be developed.

The business group stated that the national park had no influence on their decision to move to the region, which indicates a lack of attachment to the national park. On the other hand, the majority of individual business owners stated that the national park did influence their choice to live in the region. The responses from the business community, reveal a divided business community on lifestyle choice and the value of the national park to their businesses. Expressions of identity and dependent attachment and lack of attachment, instrumental and intrinsic values and pro ecological and anti ecological views, were all evident across the business community.

Q7 National Park Purpose

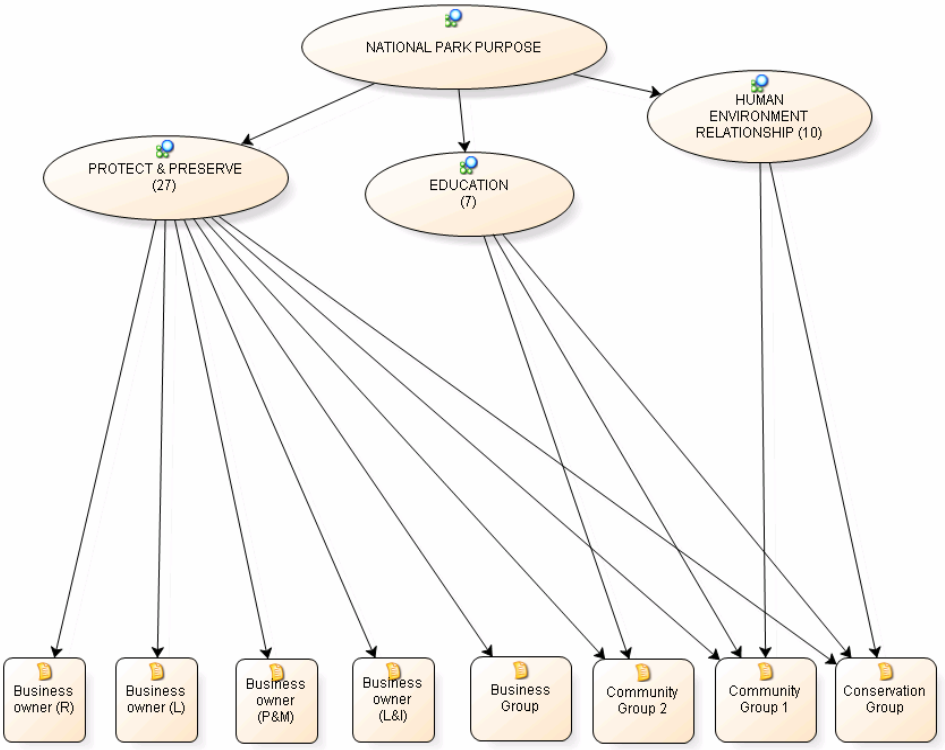
The purpose or role of a national park as perceived by the participants, may explain nature values and views. The participants were asked what they considered the purpose or role of a national park as shown in Box 13.

Box 13: Focus group question 7

Theme	QUESTION 7
National Park Purpose	What would you consider the most important purpose or role of a national park?

The responses were divided into three principal nodes. The largest response was to protect and preserve, followed by the human-environment interaction and nature education as shown in Figure 28.

Figure 28: Q7 National Park Purpose



Protect and Preserve

This node represents participants that considered the most important purpose of a national park was to protect and preserve the natural environment. There were some brief answers such as *"By having the national park status ensures protection"* (J, Conservation), "*To set aside an area that people don't destroy or abuse" (*L & I, business owners) and *"The national park has a number of roles, the most important is to preserve the natural environment, protect water catchments and soak up carbon"* (G, Community 2). Many participants gave responses that were more detailed. These responses may indicate a pro-ecological view and intrinsic, instrumental or non-use nature values. For instance pro-ecological views and intrinsic values are embedded in this response; *"It's very simple isn't it. It's to protect a part of this world, and make sure that other creatures apart from ourselves have a chance to live normal lives"* (P & M, business owners). Non-use values are also represented in this response "*For generations to come, we'll still be able to see what our world was like years ago and still is"* (J, Conservation). Other responses included the preservation of whole ecosystems (P, Community 1), the concern for the transition from wilderness to artificial landscapes (R, Community 1), the need for regeneration (P, Community 1) and issues concerning management of the national park.

Artificial Landscapes

> One of my favorite records is the Joni Mitchell song, "you don't know what you've got till it's gone". And another one called "Tar and Cement". It portrays voracious development, creeping up, creeping up, and the parks are the buffer zones against it all. (P, Community 1)

Regeneration

> One classic example is the Wallagaraugh River. A person that runs a major business in Melbourne, restoring wetlands for Melbourne City Council, has brought one particular block with river frontage. He's going to actually restore the whole property into natural wetlands. That has started; it will take him another ten years. (P, Community 1)

Issues for park management were discussed regarding protecting or preserving the environment as the role of national parks. There was also some discussion on the terms manage and protect. One participant associated the word manage, with a human centered focus, and protect with a nature focus (T, Conservation). Issues that concerned the participants were the unauthorised removal of wood and protection of sensitive vegetation from feral animals (B, Conservation). Some participants talked about the role of friends groups in protecting and preserving the park and the frustration of not being able to achieve

outcomes that are more positive, due to the size of the park and the small community (M, Conservation).

Human-Environment Relationship

This node represents participants who considered that the purpose of the national park was to support the human-environment relationship. The importance of interaction with nature is expressed by one participant, *"It's humanising to interact with the bush as well as with people and that is part of the lack in society, the failure of humans to interact with their land"* (B, Conservation). Many of the participants that contributed to the discussion considered that the role of humans should be as caretakers of nature and of our spiritual past (J, M & E, Community 1), and to afford humans the opportunity to reconnect with nature and their own spirituality. There was concern expressed for the lost lands of the aboriginal people, lands that evoked their spiritual past.

Indigenous Past

> …because they have lost their soul, all these people, the aboriginal people, their lands have been taken from them. (J, Community 1)
>
> I sometime feel that connection with people that have been here thousands of years ago when I'm walking, particularly when you see evidence of it. Nevertheless, even when I am not in those places, I think, you are on holy ground. (E, Community 1)

Spiritual Connection

> I feel as though I'm so much a part of the natural environment in my own soul and spirit, that if I loose that natural environment, I loose myself. If I think about people that live in the cities and built up areas and don't experience that, then they have lost their soul. They don't know they have and they can come here and they can find it. The more that humankind destroys the earth the more they destroy themselves. So, the park is foremost, it's like a lifeline for me. (P, Community 1)

The significance of an indigenous past and the talk of a spiritual connection would suggest a symbolic connection, referred to as identity attachment, and intrinsic values and pro-ecological views.

Education

This node represents participants that consider that the role of national parks is *"to educate people on natural systems"* (G, Community 2) as well as being *"a great study resource for just about any of the geological and natural sciences"* (P, Community 1). Concern for the park and the emphasis on gaining knowledge of nature may suggest that these views align

with an appreciation of nature, a pro-ecological view. The role of park management in education and educating through experiencing the park were discussed. One participant agreed that the national park should be divided into different areas, some wilderness areas and some that could be easily accessed, which in turn will lead to protection of the park.

> Protection allows a whole variety of ways of interacting with the park. Recreation is one thing. knowledge is another thing and I think it's terribly important that the managers of the park assist people to help develop their knowledge of how everything interacts. (L, Conservation)

Many of the participants discussed education through access, which must be a good experience for those visiting the park. This flowed through to comments about maintenance of tracks and other concerns (J, Conservation). Access and education were closely linked in the minds of the participants.

> We've got to allow people to have that sort of access, cause if we don't how are you ever going to educate, and tell people and try to get people to see the value of retaining the national park if you don't let them in and try to explain to them and actually show them what it is your saving. (P, Conservation)

Discussion: National Park Purpose

There was a unanimous response that the purpose of the national park is to protect and preserve the natural environment. The responses suggest attachment to the park, the belief in intrinsic and non-use values and pro ecological views. According to the participants, nature education through access was another important purpose of national parks. The conservation and community groups agreed that people must have access to natural areas, so that they can experience nature and learn from it, which suggests pro ecological views. Use of the park for education about the environment may also assist in developing either dependent or identity attachment. Finally, the relationship that people have with nature is expressed through the human-environment relationship node. Some participants determined the purpose of the national park was to encourage and sustain the human-environment relationship. They spoke about the spiritual connection with nature, the connection that indigenous communities have with the land and humans as caretaker of the natural world.

Q8 National Park Improvement

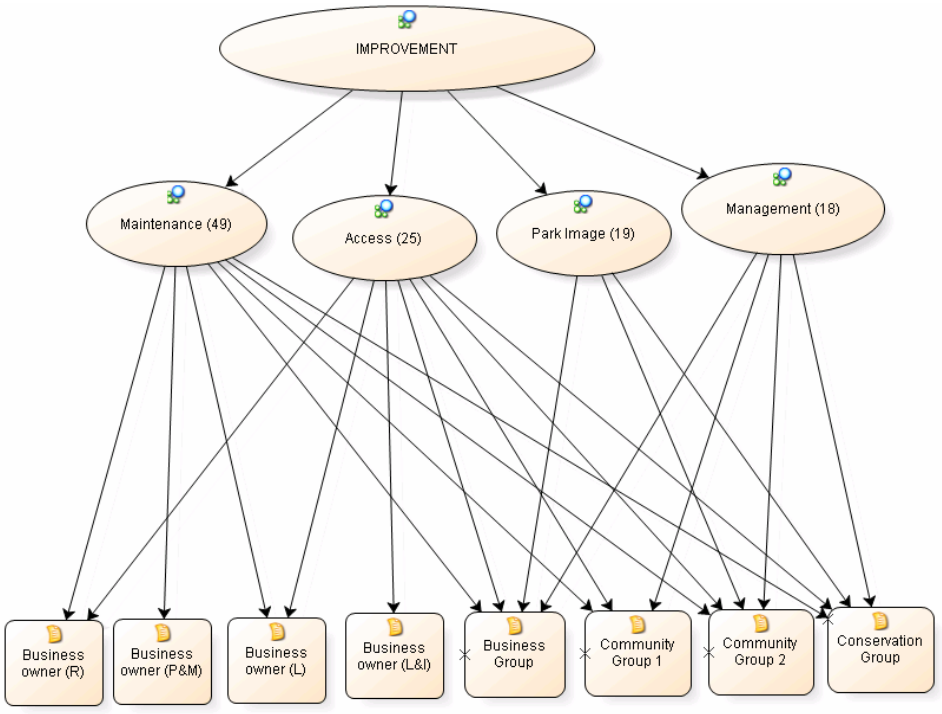
The participants were asked, when considering the purpose and role of the national park, what changes would they like to see, regarding facilities, use and protection. The question is shown in Box 14.

Box 14: Focus group question 8

Theme	QUESTION 8
National Park Changes	With this in mind, what changes would you like to see in [Croajingolong] National Park? (concerning human use, facilities, protection)

The responses were grouped into four main themes, maintenance, access, park image and management as shown in Figure 29.

Figure 29: Q8 National Park Improvement



The participants were passionate about the park and most were concerned for its maintenance and upkeep. Many were supportive of management and cited a lack of funds and resources

as reasons for lack of upkeep in some areas. Access to the park was also a concern, while park management and image, as perceived by the residents, was also discussed.

Maintenance

Maintenance of the park had the largest representation with forty nine responses. Issues such as site management, safety, lack of funds, staff, and weed, animal and fire control were discussed. There was a range of suggestions put forward on how to manage and maintain the park, *"I come from an earthmoving and logging background and a lot of the road maintenance is as simple as five minutes work with the shovel, you know to drain that little bit of water off"* (M, Business). Some of the suggestions included using the skills in the community.

Involve the Community

> They have to use the local community more. I mean the steps down at the end of the heath land walk have now been washed away and broken for months, ever since that storm… That is a job that could be done, could be subcontracted if you like from Parks or whoever's responsible, to somebody in the community. (J, Conservation)

Many of the participants believed that there was inadequate staffing (M, Community 1) and funding available to undertake the range of jobs needed for the upkeep of the park (W, Business). Some felt that there was insufficient funding to maintain sites (J, Conservation) and that maintenance funding should be built into the funding of new projects (J, Conservation). The participants understood that the rangers had to prioritise the funding that was allocated to them (P, Conservation).

> There's obviously money in new works but no money in maintaining it. Particularly in this sort of community, that is the sort of thing, that if there were money there, there are plenty of people that could fix those steps. (J, Conservation)

The lack of funds for maintenance also brought safety issues, *"There are burnt trees fallen over and bridges which are slippery. These are dangerous and can lead to public liability appeasement claims"* (K, Community 2). Some in the community felt that they *"had to be the watchers of things, and report them to the people in charge"* (M, Conservation).
Further examples were given of site management issues such as the signposting of walks (We, Business), road maintenance (P, Community 1) and limited parking at some of the beach locations (We, Business). Additionally, some participants were very concerned

about weed and feral animal control and fire management. Whilst the participants praised the work of the rangers, they acknowledge that the lack of funding for follow up programs is the problem (B, Conservation). There was criticism of the park service over the way fire is managed. The overwhelming concern about fire management put forward by the participants is captured in the following dialogue.

Fire

> I'm very passionate about fire. I think that we have been left so far behind the natural order of fire that we are now left in a rather dangerous situation. The whole area with the exception of a few gullies of residual areas, the canopy of the natural forest is totally gone… We have removed that canopy in the form of the logging industry. We must try to get back to managing fire in a more beneficial way, we must try to get the forest a bit more open, and its going to take years, you cannot do it over night. We should have kept the tractors and slashers working, just slashing trails, the old logging trails, the old fire trails. (P, Community 1)

Access

Comments about access to the park varied from no access and limited access to greater tourist access. The business group was most concerned about encouraging tourist access, while individual business owners suggested limited access, along with the conservation and community groups. The business group was very vocal about tourism access and information on the national park and felt that the park agency was not helpful in this respect (W, Business).

> They're [visitors] here, they want to see as much as they can, a two-night stop here is about their limit. We need to be able to get them in and access the best points. (M, Business)

> I get many international people of a weekend and a large percent go to Gabo [Island]. They go straight over to Gabo. They go to Gabo, have lunch then leave Mallacoota. (L, Business)

Access to the park, to park information and to the park office was also included in the comments. "*Parks office closed when needed, sometimes public holidays and in peak times, weekends, answer may lie in privatising office*" (W, Business). Some participants discussed the promotion of the coastal park in regard to access, "*They promote it as one of the world's most unique walks, which it is, and I think it should be able to be accessed. We've got a problem down there, the tracks are disappearing, there's no signage, it's just ridiculous"* (M, Business).

Access to Park Information

> We get a lot of international visitors…Most are disappointed not so much in the park but in the access to it. Not being able to access it and can't find things and we spent a lot of time with maps of lakes, maps of walking tracks, and anything we can't do we normally send them to the Parks office. But the Parks office isn't open if there's only one person there. (M, Business)

Limited Access

> There's a balance as far as access as to where people facilities are, are maintained in good condition. There's a balance as to how much you want access. (J.M, Conservation)

The range of views about access aligns with no-use, instrumental and intrinsic values and identity and dependant attachment.

Management

The participants talked about management issues that concerned them. They discussed pro-active management and community involvement; the need for more research; and their views on illegal camping, foxes, partnerships and indigenous involvement.

Some suggested that a pro-active management stance was needed, to stop wood chipping and expand the park (T, Community 2), and to curb inappropriate development that is purely economically driven (M, Community 1). Others wanted to see the involvement of the local community as sub contractors for maintenance and upkeep of the park (J.D, Conservation), and to take the pressure off volunteers. Additionally, the involvement of indigenous people in park jobs was welcomed (P, Community 1). Research and surveys were mentioned as an integral park of park management, whilst the control of feral animals and also illegal camping was discussed due to the damage these caused.

Surveys

> I would like to see more surveys, flora and fauna surveys and just general documentation of how they're valued. It's almost impossible to manage when you don't know what state it's in, or what species even are there. There's pretty much nil, it's only if a university student gets a grant to do a thesis then that project will be done, which means that Parks cannot do the surveys that they need done. (T, Conservation)

Park Management Image

Some of the responses talked about park management image as perceived by the local residents. The discussion included the culture of the parks service, staffing, the park office

and the participants' view of partnerships. Most of the responses were critical of the way the park is managed and suggested a change of philosophy in the department (W, Business).

Culture

> I think it's a culture issue within the department [Parks Vic]. I think they see their role right, as managing the environment and I think that's what's wrong. There role should be to manage it in such a way that people can access it and experience it. (W, Business)

The hierarchal style of management (M, Business), lack of staff (M, Business) and the fact that *"the power basis is all centralised at Traralgon and Sale"* (We, Business) was considered disadvantages to managing the park. The relationship between the community and the park staff was also considered inadequate and evoked the following dialogue.

> There's a mindset there. If you have a look at the office down here., first of all, they try to hide it so that you can't see it. If you go and knock on the door, they all run for cover. They are all to busy to talk to anybody. If you go to the desk, it's like (pause), if you go to the desk they'll find any reason why they can't attend to what you're talking about. "Oh that's nothing to do with us", if you've got an injured animal "no that's nothing to do with us", got a rabbit problem, "no that's nothing to do with us", everything nothing to do with them. They haven't got any money and can't do anything about it. That's about as far as you get. (J, Business)

The perception the community has of the park office and staff has flowed through to how business partnerships are viewed, *"New government word, partnerships, everyone's in partnerships. In most part, partnerships mean, we're going to shift the cost of it to private enterprise"* (W, Business). The participants suggest that the perception of management could be addressed through a more helpful attitude (W, Business), and more involvement with the local community.

> You need someone to be upfront as part of Parks that can represent the value of the national park, you don't see that around town that much. An upfront person spouting the good values that are available in the national park. Education nights, things like that would be one way. (M, Conservation)

> There was the chance to have the information centre at Mallacoota incorporated with the Parks office. This was being looked at during one stage, using their facilities. No, we didn't go down that path, so we had to create our own information centre in town. They're utilising it because it's no cost to them, so they put all their stuff across there. Prior to that happening, what they did was, they just put pamphlets out the front and said help yourself. That's the way they look at solving the problem. They had the chance to go there, a chance of becoming community and all working together. They don't want to do that, they want to go their own way. (W, Business)

Discussion: National Park Improvement

National park improvement was an important issue for the participants, and maintenance of the park received the most responses. While the participants recognised the lack of funding as a major issue, they also suggested using the community skills and budgeting for the upkeep of sites as a possible strategy. Access to the national park was also important as they considered that many tracks and access points had overgrown or been closed due to the lack of maintenance. Comments about the structure of the local park management were considered a disadvantage for the residents and visitors, as management direction came from outside the district. There was much discussion on the image of park management, from the perspective of the residents. When park image is considered together with management issues, these received the largest response after the maintenance node.

7.2.4 Focus Group Summary

The focus groups and semi structured interviews have allowed insight into the views, values and attachments of groups within the community, which will provide context to the quantitative results, discussed in Part Two. A summary of focus groups and interview responses is shown in Table 25.

Conservation Group

The conservation group displayed a deep appreciation of nature and considered that nature provided both inspiration and spiritual meaning. They also displayed concern for nature and a belief that education can help to stop nature abuse. Their experiences in natural settings were treasured events, and gave them a greater respect for nature, which they passed onto visitors, as well as a determination to protect and preserve plants and wildlife. This group also believed that people are a product of their environment and will respond according to their past experiences.

They recognised that people who have a strong relationship with nature use natural settings, are appreciative and aware of plants and animals, and are motivated to respect and care for them. Their view of a weak nature connection is disrespect and altering nature for human centered purposes, and the use of nature for commercial with disregard for nature.

Table 25: Focus Groups and Semi Structured Interview Summary

	SUMMARY Focus Groups and Semi structured Interviews	Focus Groups				Interviews			
		Conservation	Community 1	Community 2	Business	Business owner (P&M)	Business owner (L&I)	Business owner (L)	Business owner (R)
	Legend								
	Q1Human-Environment Perspective								
Node	Recreation								
Node	Inspirational, Spiritual								
Node	Nature Appreciation								
Node	Nature Abuse								
Node	Nature Education								
	Q2 Memorable Experience								
Node	Wild Nature								
Node	Magnificent Animal Encounters								
Node	Distressing Encounters								
Node	Showing Tourists Wildlife								
	Q3 Impacts of Experience								
Node	Tentative								
Node	Respect								
Node	Product of Environment								
Node	Preservation								
	Q4 and Q5 Nature Connection								
Node	Strong Indicator-Use the Resource								
Node	Strong Indicator-Activism								
Node	Strong Indicator-Respect and Care								
Node	Strong Indicator-Appreciate and Aware								
Node	Weak Indicator-Comfort Zone								
Node	Weak Indicator-Business Motivation								
Node	Weak Indicator-Disrespect and Alter								
	Q6 Lifestyle Choice								
Node	Retirement, Health, Work		**H**	**R**			**W**		
Node	National Park								
Node	Beauty of the Region								
Node	Family and Friends								
Node	No Influence								
Node	Advantages of National Park location- Remote								
Node	Advantages National Park location- Tourism								
	Q7 National Park Purpose								
Node	Protect and Preserve								
Node	Educate								
Node	Human-Environment Relationship								
	Q8 National Park Improvement								
Node	Maintenance								
Node	Access								
Node	Management								
Node	Park Image								

Participants from the conservation group moved to the region mostly because of the national park, the beauty of the region and to be with family and friends. The main purpose of the national park, according to the conservation group, is to preserve and protect natural areas, to educate people about nature and to support and encourage a reconnection with nature for human well being. Maintenance and improved access to the park were suggestions for improvement. Additionally, the way the park was managed and the image of management and staff were areas for improvement. The conservation group displayed identity attachment, intrinsic values and pro ecological views.

Community Groups 1 and 2

The community groups like the conservation group have an appreciation of nature, while some recognise the inspiration and spiritual meaning nature provides. The community expressed concern for nature abuse and some believed in nature education. Some in the community also considered nature for its recreational use. Their experiences in natural settings were special like those in the conservation group, however some in the community also experienced distressing encounters, which evoked mixed responses. Some had a greater respect for nature and a determination to protect and preserve, while others were tentativeness about going into natural areas. The participants believed that people react differently to situations, as they are a product of their environment.

A strong connection with nature was seen as someone that uses the resource, is respectful, and cares about the environment. The community talked about activism as an indicator of a strong nature connection. Similar to the conservation group, the community members considered that a person with a weak connection would display disrespect and want to alter the environment, or not want to leave their comfort zone to explore the park. The national park was a major influence on the community members' decision to live in the region. Other reasons were to be with family and friends, health reasons and retirement.

The responses from the community suggest the presence of identity and dependent attachment. Identity attachment came from living in the region, and dependent attachment from their recreational activities. Some also said that the remoteness of the location was an advantage of living in the region. Some in the community considered that the purpose of

the national park was to protect, preserve, and educate people on the environment. Some participants also recognised the value of natural setting to human health and wellbeing through reconnecting with nature.

Like the conservation group, maintenance and access, and management and image were areas for improvement. Some responses from the community group are similar to the conservation group, which suggest that some in the community share the same pro ecological views and intrinsic values as the conservation group. However, there are a mixture of views and values also displayed in the community. For instance, the groups were divided in respect, appreciation, awareness and preservation of nature, and those that were tentative about going back into natural areas from their experiences are likely not to recognise intrinsic value in nature, which suggest a belief in instrumental values for some in the community.

Business Focus Group and Interviews

The business focus group related the human-environment interaction to recreational activities and nature abuse. They experienced a range of memorable encounters with natural forces and wildlife as well as some distressing encounters, which left them with tentativeness towards nature. The business focus group did not contribute to the discussion on behaviour that would indicate a strong or a weak connection with nature. The main motivation to move to the region was the beauty or the region and to be with family and friends. They considered that the national park offered the advantages of remoteness and tourism potential.

The business focus group was adamant that the national park had no influence on their decision to move to the region, which suggests a lack of attachment to the park. However, dependent attachment was evident from the business focus group's dialogue about showing tourists wildlife, as part of their business activities. Although the conservation group also liked to show visitors wildlife, their motivation came from an emotional attachment to the region, which suggested an identity attachment. While the business group displayed mostly dependent attachment, some of the business owners that were interviewed, had strong

emotional and symbolic attachments developed from a childhood spent in the area, or through animal encounters that became treasured memories.

The business community displayed a mixture of views and values. Some were pro ecological and recognised intrinsic vale, while other displayed anti ecological views and instrumental values. Attachment to the national park was not evident in some responses, while for others it was the reason that the lived and worked in the region. The business group was divided in there views, values and attachments, and some displaying no attachment to the park.

7.2.5 Theoretical Constructs

The focus group responses drew attention to parallels between the qualitative data and the theory. A summary of suggested relationships between the environmental ethics and place attachment theoretical constructs, identified in the research instruments, and the findings from the focus groups and interviews, is presented in Table 26.

The table uses notations through a series of 'X's to indicate overlap between the theoretical constructs and the participant responses. In this table, three 'X's identify a high level of overlap, two 'X's a moderate level of overlap and one 'X' a minor level of overlap. No 'X's indicate that no overlap between the constructs was evident.

Place Identity

There was a strong association suggested between place identity and an appreciation, awareness and respect for nature, and inspirational and spiritual aspects. Place identity was strongly linked to concern and distress over nature abuse and a need to address nature abuse through education. Those with place identity had memorable encounters with wildlife and moved to the region because of the national park. Place identity was strongly linked to protection and preservation of nature, nature education and recognition of the human-environment bond. Place identity associations are summarised in Box 15.

Table 26: Theoretical Constructs Emerging from the Focus Group Discussions

		Attachment					Values			Views	
SUMMARY OF CONSTRUCTS **Legend:** xxx high level of overlap xx moderate level of overlap x minor level of overlap no overlap		Place Identity	Place Dependence	Place Commitment	Community Identity	Lack of Attachment	Intrinsic Value	Instrumental Value	Non-Use Value	Pro ecological: limits, nature balance, eco crisis	Anti ecological: domination, humans exempt
Q1 Human-Environment Perspective											
Node	Recreation	xx	xxx	xx	xx	x	xx	xx		xx	xx
Node	Inspirational, Spiritual	xxx		xxx	xxx		xxx		xx	xxx	
Node	Nature Appreciation	xxx	xx	xxx	xxx		xxx		xx	xxx	
Node	Nature Abuse							xxx			xxx
Node	Nature Education	xxx	x	xxx	xxx		xxx		xxx	xxx	
Q2 Memorable Experience											
Node	Wild Nature	xxx	x	xxx	xx		xxx		xx	xxx	
Node	Magnificent Animal Encounters	xxx	xx	xxx	xx		xxx		xx	xxx	
Node	Distressing Encounters	xxx	xxx			xx	xxx	xx		xxx	xx
Node	Showing Tourists Wildlife	x	xxx		xxx		xx	xx		xx	
Q3 Impacts of Experience											
Node	Tentative		xx			xx		xx			
Node	Respect	xxx	xx	xx			xxx		xxx	xxx	
Node	Product of Environment	xx	xx		xx	xx	xxx	xxx	xxx	xxx	xxx
Node	Preservation	xxx	xx	xxx	x		xxx	xxx	xxx	xxx	
Q4 and Q5 Nature Connection											
Node	Strong Indicator-Use the Resource		xxx								
Node	Strong Indicator-Activism	xxx	xx	xxx	xxx		xxx	xx		xxx	xx
Node	Strong Indicator-Respect and Care	xxx	xx	xxx	xx		xxx			xxx	
Node	Strong Indicator-Appreciate and Aware	xxx		xxx			xxx			xxx	
Node	Weak Indicator-Comfort Zone					xx					
Node	Weak Indicator-Commercial Motivation		x			xxx		xxx			xxx
Node	Weak Indicator-Disrespect, Alter					xxx		xxx			xxx
Q6 Lifestyle Choice											
Node	Retirement (R) , Health (H), Work (W)	xx	xxx		xx					xxx	
Node	National Park	xxx		xxx	xxx		xxx		xx	xxx	
Node	Beauty of the Region	xx	xxx		xx		xx			xx	
Node	Family and Friends	xx			xxx					x	
Node	No Influence		x			xxx		xxx			xx
Node	Advantages of NP location- Remote	xxx	xx		xxx					xx	
Node	Advantages of NP location- Tourism		xx			x		xxx			
Q7 National Park Purpose											
Node	Protect and Preserve	xxx	xx	xxx	xxx		xxx		xxx	xxx	
Node	Educate	xxx	x	xxx	xxx		xxx		xxx	xxx	
Node	Human-Environment Relationship	xxx	xx	xxx	xxx		xxx		xxx	xxx	
Q8 National Park Improvement											
Node	Maintenance	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx
Node	Access	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx
Node	Management	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx
Node	Park Image	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx

Box 15: Place Identity Associations

Place Identity
• appreciation, awareness, respect for nature • inspirational and spiritual aspects of nature • distress over nature abuse • nature education • national park motivated move to region • protect, preserve, educate and encourage bond with nature • Pro ecological views, intrinsic and non-use values

Place Dependence

The focus groups showed a strong suggested association between place dependence and recreational activities. Additionally, place dependence had a strong overlap with use of the resource, which represented a strong connection to nature. Use of the resource is generally linked to instrumental values and a weak connection with nature. However, in this discussion a strong nature connection were linked to the early loggers who removed timber from the forest with precision and care for the forest environment, despite the fact that the timber had instrumental value to them.

Place dependence also overlapped with moving to the region for retirement, health or work and because of the beauty of the region. There was a moderate overlap between businesses moving to the region, the tourism potential and showing tourist's wildlife. A summary of place dependence associations are shown in Box 16.

Box 16: Place Dependence Associations

Place Dependence
• recreational activities • tourism potential motivated move to region • tourism activities • instrumental value

Place Commitment

There was a strong suggested association between place commitment and appreciation, awareness, respect, spiritual and inspirational aspects of nature and memorable encounters.

Similarly, a high overlap existed between place commitment and activism, and protection, preservation and education on the environment. Place commitment was associated with moving to the region because of the national park and the remote location. A summary of place commitment associations are shown in Box 17.

Box 17: Place Commitment Associations

Place Commitment
- appreciation, awareness, respect for nature
- inspirational and spiritual aspects of nature
- nature education
- national park motivated move to region
- remote location
- protect, preserve, educate and encourage bond with nature
- pro ecological views, intrinsic and non-use values

Community Identity

The community surrounding Croajingolong National Park identified with the park and the remote location. A high overlap between community identity, the national park and the remoteness of the region was evident in the responses. Many people moved to the region because of the national park, and their identity as a community is intricately linked with the national park. Community identity had a high overlap with an appreciation of nature and a need to protect and preserve the park. A summary of community identity associations are shown in Box 18.

Box 18: Community Identity Associations

Community Identity
- national park identity
- region identity
- remote location

Lack of Attachment

A moderate association was suggested between a lack of attachment and distressing encounters, which caused a tentative towards natural settings. Lack of attachment and commercial motivation with disregard for nature, had a moderate overlap. Lack of

attachment was linked to the lack of influence of the park on decisions to move to the region, and disrespect and altering landscape. A summary of lack of attachment associations is shown in Box 19.

Box 19: Lack of Attachment Associations

Lack of Attachment
- negative past experiences
- tentativeness towards nature
- business
- park regulations (business)
- park had no influence to move
- disrespect and altering landscape
- commercial motivation with disregard for nature
- instrumental value

Pro Ecological Views and Intrinsic Value

Similar overlaps existed between pro ecological views and intrinsic values in the focus groups. There was a high level of overlap between pro ecological views and intrinsic values and appreciation, awareness and respect for nature, and the inspirational and spiritual aspects nature provides. The participants with pro ecological views and intrinsic values also had memorable encounters with wildlife and moved to the region because of the national park. The need to protect, preserve and education about the environment had a high level of overlap also. Similarly, environmental activism and an understanding of the bond between humans and nature were also strongly linked to those with pro ecological views and intrinsic values. A summary of pro ecological views and intrinsic value associations is shown in Box 20.

Box 20: Pro Ecological View and Intrinsic Value Associations

Pro Ecological Views and Intrinsic Value
- appreciation, awareness, respect for nature
- inspirational and spiritual aspects of nature
- nature education
- national park motivated move to region
- remote location
- protect, preserve, educate and encourage bond with nature
- non use values

Anti Ecological Views and Instrumental Value

Similar overlaps existed between anti ecological views and instrumental values in the focus groups. Anti ecological views and instrumental values had a high overlap with disrespect and altering the environment, nature abuse and commercial motivation. The tourism potential of the region and the lack of influence of the national park in moving to the region were also strongly linked to anti ecological views and instrumental values. There was a moderate overlap between anti ecological views, instrumental values and preservation of the environment, expressed as a need to preserve for future human use. A moderate link between anti ecological views, instrumental values and commercial activism was evident from those reliant on the resource for their livelihood. These participants were willing to take action if their livelihood is threatened. A summary of anti ecological views and instrumental values is shown in Box 21.

Box 21: Anti Ecological View and Instrumental Value Associations

Anti Ecological Views and Instrumental Value

- tentativeness towards nature
- park had no influence to move
- nature abuse, disrespect and altering landscape
- commercial motivation with disregard for nature
- businesses
- commercial activism

Non-Use Values

Non-use values were strongly aligned with protection, preservation, environmental education, appreciation, awareness and respect for nature. The focus group responses suggested that non-use values were aligned with both intrinsic and instrumental values. Those with instrumental values were interested in non-use to preserve for humans in the future, while those with intrinsic values were interested in non-use to preserve biotic communities for their own sake. A summary of non-use associations are shown in Box 22.

Box 22: Non-Use Value Associations

Non-Use Values

- appreciation, awareness, respect for nature
- inspirational and spiritual aspects of nature
- Protection, preservation, environmental education
- nature education
- national park motivated move to region
- protect, preserve, educate and encourage bond with nature
- pro ecological views
- intrinsic values
- instrumental value

Product of Environment

A person's views and values, and their physical environment were strongly aligned, and were established through growing up in the environment. For instance, those from logging towns, who are reliant on the industry for their livelihood, have instrumental values and may have anti ecological views. Alternatively, those living in coastal and park areas have an appreciation of nature and recognise the intrinsic value of nature. This comes from interacting with nature throughout their life.

Park Management

Views, values and attachments were irrelevant in discussions about park management. In discussions on national park improvement and upkeep, similar views were expressed across the groups about the way the park was managed. However, those with anti ecological views and instrumental values were more critical and harsher in expressing their view than other participants.

Summary of Theoretical Constructs

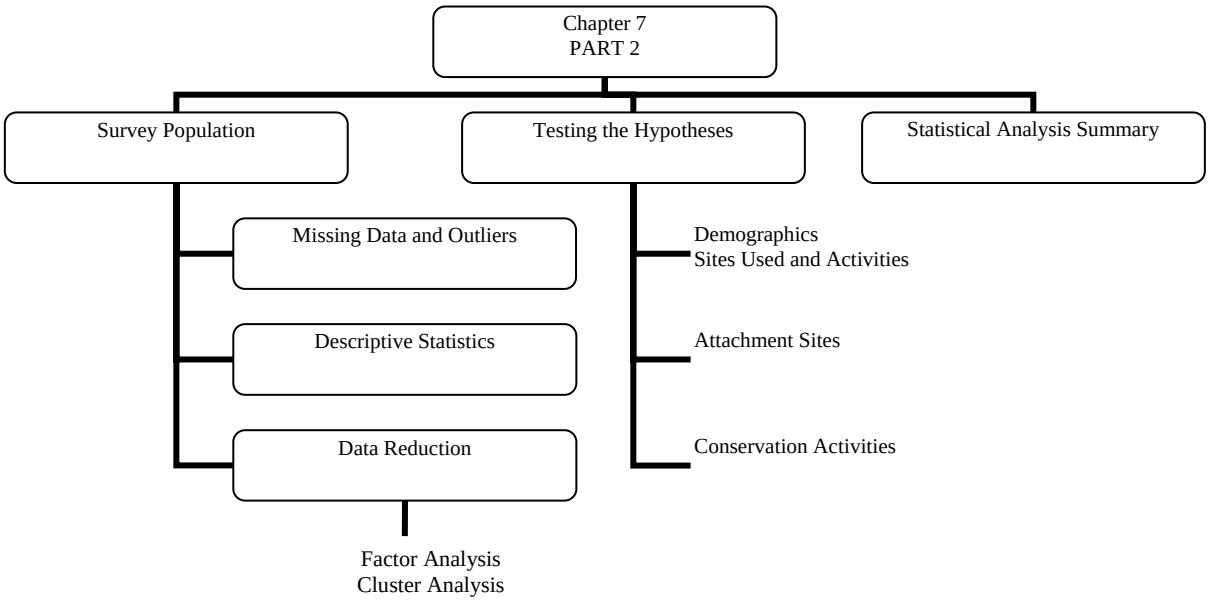
There was evidence of associations between the focus groups and interviews and the instrument constructs. The results suggested that pro ecological views and intrinsic values were associated with non-use values, an emotional attachment and commitment to the park and an appreciation and respect for nature. Anti ecological views and instrumental views were associated with a lack of attachment to the park and business and commercial activities.

The lack of attachment to the park was associated with past negative experiences, tentativeness towards nature, business and commercial activities and park regulations.

The community's identity was strongly associated with the national park and the remote location. Views and values were also associated with past experiences and to the participants' physical environment. However, views, values and attachments were not relevant in discussions about management of the national park.

7.3 PART 2: QUANTITATIVE ANALYSIS

Figure 30: Chapter 7, Part 2



Introduction

The statistical analysis discussed in Part 2 is shown in Figure 30. The statistical analysis determined differences in ecological orientation and nature values of the community through a combination of tests performed in SPSS version 15 software. Descriptive statistics were used to provide an overview of the demographics of the survey population, which included age, gender, education and location. Data reduction through factor analysis reduced the 47 items in the environmental ethics and place attachment instruments, while cluster analysis divided the survey population into groups based on their environmental ethics and national park attachment. The groups were profiled through a series of hypothesis tests, which examined their demographics, the sites used in and around the park and their activities. Additionally, attachment to park sites and conservation activities were also examined. The analysis provided a profile of respondents most likely to be involved in conservation and management of the national park.

Sampling Frame

The population was examined to generate a sample of people living around Croajingolong National Park. The sampling frame of the survey region consisted of 800 people over the age of 18 years. The survey was delivered by post to all residents in the region of Croajingolong National Park, which included the towns of Mallacoota, Cann River, Genoa, Gipsy Point and Bemm River. The survey was also delivered to popular locations within the towns such as the local supermarket, post office and community centre. Prior to delivering the survey, the study was advertised through the local media over a period of four weeks, and notices about the study were left on community notice boards. There was a response rate of 23.6%, with 189 participants completing the survey. The low response rate may be explained by the aging population in the region. For instance, within the survey frame 240 residents were over the age of 75 years, and a further 150 were between 65 and 75 years. A large percentage of these residents are less inclined to visit the post office to pick up their mail or to fill out a survey due to fragility of age.

Descriptive statistics that were gathered through the survey included the respondents' age, education, gender and location. When the demographic data from the study was examined against the 2006 census data, the results found that the study represented a snapshot of the demographic profile of the region in regard to age, gender and education. Location was included to ensure that there was representation from the key localities in the study region. Surveys that were returned from outside the study region were considered ineligible to partake in the study and these surveys were not included. The surveys were identified by postcode and location in the study.

7.3.1 MISSING DATA AND OUTLIERS

The data was examined for both missing data and for outliers. Outliers were identified and examined through multivariate assessment across a set of variables. The outliers were found to represent valid segments in the survey population and were retained based on Hair, Black, Babin, Anderson and Tatham (2006). The study contained censored data within its design, which can also be seen as missing data. Censored data is data that is not applicable to the whole sample population and therefore is missing in some cases (Hair et al., 2006). In this study, the censored data related to place attachment sites, use sites and

activities. The participants were asked to complete this part of the survey if they visited or used specific sites. If they did not visit or use the site, they were not required to complete that section.

Missing data was also attributed to respondents who choose not to complete questions in the non-censored data. To identify the pattern of missing data, the variables for national park attachment, ecological orientation, nature value, demographic and conservation activities, were examined and sorted on missing patterns, using univariate statistics and descriptives as shown in Table 27.

Table 27: Tabulated Missing Data Patterns

Demographic and Conservation Variables								
Number of Cases	Missing Data Patterns(a)							
	Age	Gender	Education	Volunteer member	NP Donation	Adapt lifestyle	NP volunteer	Complete if ...(b)
163								163
5			X					168
2					X			165
5							X	168
2						X	X	172
2						X		165

National Park, Ecological Orientation, Nature Value Variables					
Number of Cases	Missing Patterns (a)				
	NAV05	NAV15	NAV06	NAV03	Complete if ...(b)
144					144
3	X				147
3				X	147
2		X			146

a Variables are sorted on missing patterns.
b Number of complete cases if variables missing in that pattern (marked with X) are not used

Because the patterns occurred infrequently and only represented a small number of cases, this data was not removed from the analysis. According to Hair et al. (2006), when patterns in the data occur at a low frequency and with a small number of cases then this does not suggest an underlying missing data process and removal would not improve the generalisability of the results.

7.3.2 DESCRIPTIVE STATISTICS

Demographic Profile

The age of the survey sample showed that 78.4% were over 45 years. The three largest groups were between 55-64 years, then 45-54 years, followed by those over the age of 65 years. This confirmed that the study area consisted of mostly an older population. The gender of the survey respondents were closely distributed with females representing 50.8% and males 49.2%. This equates to only three more females than males that contributed to the study. The education level of respondents showed that most of the survey respondents were either secondary school educated or had university degrees. There was just under a quarter of the survey population educated in a trade.

The location of respondents confirmed that residents from the towns of Mallacoota, Cann River, Bemm River, Genoa and Gipsy Point were represented in the study. The largest town in the region is Mallacoota, which represented 61.6% of responses. Both Mallacoota and the smaller town of Cann River, which represented 15.7% of responses, are entry points to Croajingolong National Park. The localities of Genoa and Gipsy Point are small localities close to Mallacoota and account for 6.5% of responses, while Bemm River at the south west end of the park, represented 4.3% of responses. The remaining 11.9% represented residents from other small localities in the study region.

The descriptive statistics show that the study sample represented a mostly older population, both genders were almost equally represented, and education was mostly divided between those with secondary school and those with university education. The demographic profile of the sample frame matched the profile of the region from the 2006 Census (Australian Bureau of Statistics, 2007). The census confirmed the population, age and education of the study region. The main locations in the survey region all had some representation in the study. A summary of the demographic profile of participants is shown in Table 28.

Table 28: Demographic profile of participants

Demographic Profile of Participants		Number	Percent
Age	18-24 years	3	1.6
	25-34 years	11	5.8
	35-44 years	25	13.2
	45-54 years	48	25.4
	55-64 years	57	30.2
	65 years and over	43	22.8
Gender	Female	95	50.3
	Male	92	48.7
Education Level	Secondary School	74	39.2
	Trade Qualification	41	21.7
	University Degree	67	35.4
Location	Bemm River	8	4.2
	Cann River	29	15.3
	Genoa, Gipsy Point	12	6.3
	Mallacoota	114	60.3
	Elsewhere in region	22	11.8

7.3.3 DATA REDUCTION

The focus for the study was to establish the community's relationship to the national park, and therefore the survey population was segmented by their environmental ethics and national park attachment. The national park attachment instrument contained 17 variables, while the nature values and ecological orientation instruments both contained 15 variables, a total of 47 items.

The three instruments were factor analysed separately to reduce the variables and establishing the interrelationship amongst the variables using R-type Factor Analysis. The sample size of 189 participants was adequate for factor analysis, and the ratio of observations to variables meet the range of ten-to-one considered acceptable by Hair et al., (2006). The study has an eleven-to-one ratio of observations to place attachment variables, and a thirteen-to-one ratio of observations for both the ecological and nature value variables.

The most commonly used techniques to determine the cut off point for factors is the latent root criterion or eigenvalues. This technique is used when the number of variables is between 20 and 50 (Hair et al., 2006). However, this criterion did not apply to this study as each of the instruments contained less than 20 variables. The instruments also contained established dimensions, as shown in Table 29.

Table 29: Instruments and Dimensions

	INSTRUMENTS		
	Place Attachment Scale (Williams et al., 1995)	***New Ecological Paradigm Scale*** (Dunlap & Van Liere, 1978)	*Natural Area Value Scale* (Winter & Lockwood, 2004)
	NP Place Attachment ***17 items***	**Ecological Orientation** ***15 items***	**Nature Value** ***15 items***
Dimensions	Place identity (6 items) *Emotional/symbolic attachment*	Limits to growth (3 items) *Limited resources*	Intrinsic value (5 items) *Nature valued for itself*
	Place dependence (6 items) *functional attachment*	Balance of nature (3 items) *Fragility of nature*	Instrumental value (5 items) *Nature valued for human use*
	Lack of attachment (3 items) *No attachment to the NP*	Ecological crisis (3 items) *Likely eco crisis*	Non-use value (5 items) *Nature valued for future*
	Community identity (I item) *Identify with community*	Human domination (3 items) *Rights of humans over nature*	
	Place commitment (1 item) *Committed to the NP*	Anti exemptionalism (3 items) *humans exempt from natural laws*	

In an attempt to duplicate the dimensions, a priori criterion approach was used as suggested by Hair et al. (2006), where the researcher determines the number of factors to extract from each of the three instruments. A total of fourteen factors were extracted using principal component analysis and rotated using varimax orthogonal method of rotation, which was used to 'determine the independence of the factors to other factors' (p. 90). The items in each factor were examined for content validity to ensure that the items corresponded with the concept represented in the factor (Hair, Anderson, Tatham and Black, 1998).

Significance of the factor loadings

As previously stated, the eigenvalues approach for factor extraction was not considered, as it requires a minimum of 20 variables, which were not present in each of the three instruments. To establish the significance of the factor loadings, the percentage of variance criterion of 60 percent or more was used, which is considered acceptable in the social sciences (Hair et al., 1998). Additionally, significant factor loadings were used based on sample size guidelines by Hair et al. (1998), which indicates that the larger the sample size the smaller the loadings as shown in Box 23.

Box 23: Factor Loadings and Sample Size

Factor Loading	Sample Size Needed for Significance
.30	350
.35	250
.40	200
.45	150
.50	120
.55	100
.60	85
.65	70
.70	60
.75	50

There were 189 surveys returned, a response rate of 23.6%. When the missing values were taken into account, a factor loading of .46 or higher were considered to be significant. Confirmatory factor analysis tested the generalisability, reliability and stability of the factor model and validated the dimensions in the factors, which Hair et al. (1998) suggests is useful for measuring specific constructs, such as the dimensions in the three instruments. Although reliability was tested through confirmatory factor analysis, Cronbach's Alpha Reliability Test was also used. The lower level of the reliability score considered acceptable by Hair et al. (2006) is .70 for confirmatory research and .60 for exploratory research.

Place Attachment

The seventeen items from the place attachment scale were reduced to five factors, using a priori criteria to try to duplicate the original dimensions. Three of the five dimensions were replicated in the study, place identity, place dependence and no attachment. These dimensions are used frequently in other studies. The dimensions of community identity and place commitment made up Factor 5, and a no attachment item, which represented no attachment through site indifference, made up Factor 4 in this study. The five factors cumulative variance explained 76.84% with significant factor loadings of .46 or higher as shown in Table 30.

Table 30: National Park Attachment Factors

Factor Name	**Dimensions**	**Place Attachment Variable**	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
Place Identity	Identity	This NATIONAL PARK is very special to me.	**0.77**	0.28	-0.30	0.08	0.07
	Identity	I identify strongly with this NATIONAL PARK.	**0.76**	0.32	-0.23	0.10	0.13
	Identity	I am very attached to this NATIONAL PARK.	**0.76**	0.24	-0.26	0.27	0.20
	Identity	This NATIONAL PARK means a lot to me.	**0.75**	0.18	-0.21	0.24	0.16
	Identity	I feel like CROAJINGOLONG NATIONAL PARK is a part of me.	**0.67**	0.46	-0.31	-0.05	-0.03
Place Dependence	Dependence	Doing what I do in this NATIONAL PARK is more important to me than doing it in any other place	0.22	**0.82**	-0.08	0.29	0.19
	Dependence	I get more satisfaction out of visiting this NATIONAL PARK than from visiting any other place.	0.27	**0.79**	-0.10	0.24	0.15
	Dependence	I wouldn't substitute any other area for doing the types of things I do in this NATIONAL PARK.	0.21	**0.79**	-0.04	0.24	0.02
	Dependence	No other place can compare to this NATIONAL PARK.	0.27	**0.75**	-0.13	0.02	0.15
	Dependence	This NATIONAL PARK is the best place for what I like to do.	0.55	**0.57**	-0.18	-0.11	0.14
	Place Identity	Visiting this NATIONAL PARK says a lot about who I am.	0.48	**0.48**	0.08	0.35	0.30
No Attachment	No attachment	I do not really feel that I relate at all to this NATIONAL PARK.	-0.26	-0.08	**0.86**	-0.08	-0.14
	No attachment	I feel no commitment to this NATIONAL PARK.	-0.35	-0.05	**0.77**	-0.14	-0.18
	No attachment	The time I spent here could just as easily be spent somewhere else.	-0.25	-0.31	**0.55**	-0.54	-0.06
Site dependent	Site dependent	The things I do at this NATIONAL PARK I would enjoy just as much at another site.	-0.14	-0.27	0.16	**-0.84**	0.04
Community Identity, Place Commitment	Community Identity	I identify with the lifestyle and values of the people who live here (or come to) this NATIONAL PARK.	0.12	0.17	-0.19	-0.05	**0.89**
	Place Commitment	I have (or am willing to) invest(ed) my heart and soul into this NATIONAL PARK.	0.50	0.33	-0.23	0.15	**0.55**

Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.
Rotation converged in 7 iterations.

The factors were named to represent their central dimension; place identity, place dependence, no attachment, site indifference and community identity and commitment. The five place attachment factors make up factors 1 to 5 of the fourteen factors extracted from the three instruments.

Factor 1: Place Identity This factor represents an identity attachment, which can develop from emotional or symbolic experiences or memories. This factor has the highest factor loading which indicates its importance to the study.

Factor 2: *Dependence Attachment* This factor represents a dependent attachment, which indicates the use of the park for sport or recreational activities. The variable, place identity, has loaded sixth on Factor 2, which suggests that an emotional or symbolic attachment is also present, and may have developed through a dependence on the park for activities.

Factor 3: No Attachment This factor represents a lack of attachment or commitment to the national park.

Factor 4: Site Dependent This factor indicates a level of dependence on the location for activities. This item has a no attachment dimension and suggests that indifference to the park infers no attachment to the park.

Factor 5: *Community Identity and Place Commitment* This factor signifies lifestyle and values represented in a commitment to the location. This factor is important to the study as it measures commitment to the national park.

There were some high cross loadings between the place attachment factors.

- I feel like Croajingolong National Park is a part of me loads heavily on Factor 1 (0.67) and with some magnitude on Factor 2 (0.46). This National Park is the best place for what I like to do loads heavily on Factor 2 (0.57) and also on Factor 1 (0.55).
- Visiting this National Park say a lot about who I am loads heavily on Factor 1 (0.48) and Factor 2 (0.48).

The cross loadings between the factors is consistent with the theory that people can have both an identity (emotional) and dependent (functional) attachment to locations.

- I have invested my heart and soul into this National Park loads heavily on factor 1 (0.50) and Factor 5 (0.55).

The cross loadings between these factors is consistent with the theory that people with identity (emotional) attachment, are more likely to be committed to preserve a location

where they have an emotional attachment. Questions of a complex nature, such as used in these instruments can sometimes lead to cross loadings on the factors, which are "artistic" rather than "scientific" in interpretation.

The dimensions represented in the place attachment factors in Table 30 confirmed that the factors had content validity, and represented distinct concepts of place attachment. Each factor was tested for reliability using Cronbach's Alpha test, and the results are shown in Table 31.

Table 31: NP Attachment Reliability Test

NP Attachment Factor Name	**Factor**	**Cronbach's Alpha Score**
Place Identity	Factor 1	.91
Place Dependence and Identity	Factor 2	.89
No Attachment	Factor 3	.81
Site dependent	Factor 4	One item only
Community identity and commitment	Factor 5	.64

The lower limit of the Cronbach's alpha score is between .60 and .70 (Hair et al., 2006), and the first three factors, identity, dependence and no attachment showed very good reliability scores. The fourth factor consisting of one item, which was retained in the analysis as it measured a dependence on the park for activities. The two items in Factor 5 were important although their Cronbach score was in the lower range. The items measured identification with the national park and commitment to it. Hair et al. (2006) explains that the reliability score is increases with the number of items in the factor, which may explain the lower score for Factor 5, which only contained two items.

Natural Area Values

The 15 items from the Natural Area Value Scale were analysed using a priori criteria and were first reduced to three factors in an attempt to replicate the three dimensions', instrumental value, intrinsic value and non-use values. The three factors explained 62% of cumulative variance. The analysis was run again to extract four factors in an attempt to increase the variance. The four factors explained 68.05% of cumulative variance as shown in Table 32.

Table 32: Natural Area Values Factors

Factor Name	Dimension	Nature Values	Factor 6	Factor 7	Factor 8	Factor 9
Intrinsic Value	intrinsic-reverse	The only value that a natural place has is what humans can make from it.	**0.86**	-0.11	0.11	0.08
Cynic	intrinsic-reverse	The value of an ecosystem only depends on what it does for humans.	**0.84**	-0.18	0.14	-0.13
	intrinsic-reverse	Ugliness in nature indicates that an area has no value	**0.82**	-0.15	0.14	-0.12
	intrinsic-reverse	Only humans have intrinsic value - that is, value for their own sake.	**0.70**	0.03	0.21	-0.14
	intrinsic-reverse	The value of nature exists only in the human mind. Without people, nature has no value.	**0.69**	-0.20	0.25	0.22
Non-Use Value	non-use	I need to know that untouched, natural places exist.	-0.15	**0.89**	-0.08	0.03
	non-use	Natural areas are valuable to keep for future generations of humans	-0.11	**0.86**	-0.12	0.06
	non-use	I'm seeing natural areas the next generation [of children] may not see, and that concerns me.	-0.15	**0.79**	-0.27	0.12
	non-use	We have to protect the environment for humans in the future, even if it means reducing our standard of living today.	-0.08	**0.56**	-0.43	0.42
Instrumental Value	instrumental	It is better to test new drugs on animals than on humans.	0.05	-0.16	**0.80**	0.12
	instrumental	To say that natural areas have value just for themselves is a nice idea but we just cannot afford to think that way the welfare of people has to come first.	0.26	-0.05	**0.75**	-0.22
	instrumental	All plants and animal's lives are precious and worth preserving but human needs are more important than all other beings.	0.29	-0.10	**0.71**	-0.09
	instrumental	Forests are valuable because they produce wood products, jobs and income for people.	0.11	-0.27	**0.55**	-0.19
	instrumental	Our children will be better off if we spend money on industry rather than on the natural environment.	0.30	-0.36	**0.50**	-0.28
Non-Use enjoyment	Non-Use enjoyment	Even if I don't go to natural areas, I can enjoy them by looking at books or seeing films.	-0.02	0.16	-0.17	**0.87**

Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization. Rotation converged in 5 iterations.

The factors were named to represent the central dimensions, intrinsic value, instrumental value, non-use value and non-use enjoyment. The four nature value factors make up factors 6 to 9 of the fourteen factors extracted from the three instruments.

Factor 6: Intrinsic Value Skeptic This factor measures the concept that plants and animals do not have intrinsic value, which is value in their own right outside human use.

Factor 7: Non-Use Value This factor measures the concept that natural areas and natural resources should be protected through non-use. Non-use value is commonly attributed to preserving areas for the benefit of humans in the future.

Factor 8: Instrumental Value This factor measures the concept that nature is valuable for what it can provide for humans.

Factor 9: Non-Use Enjoyment This factor measures the concept that areas should be put aside for non-use, but it also represents a view that these areas can still be enjoyed through books and films.

There were high cross loadings between the nature value factors.

- We have to protect the environment for humans in the future, even if it means reducing our standard of living today loads heavily on Factor 7 (0.56) and Factor 9 (0.42).

The cross loadings between the factors is consistent with the theory and both relate to non use values. General non use is represented in Factor 7 and non use through enjoyment of an area through books and films is represented in Factor 9.

The dimensions represented in the natural area value factors shown previously in Table 32 confirmed that the factors had content validity and represented distinct concepts in natural area values. Each factor was tested for reliability using Cronbach's Alpha test and the results are shown in Table 33.

Table 33: Nature Value Reliability Test

Nature Value Factor Dimensions	**Factor**	**Cronbach's Alpha Score**
Intrinsic value skeptic	Factor 6	.86
Non-Use	Factor 7	.85
Instrumental value	Factor 8	.78
Non-Use enjoyment	Factor 9	One item only

The first three factors, Factors 6 to 8, which represented intrinsic value, non-use value and instrumental value showed good reliability scores. The fourth factor in the analysis, Factor 9, consisted of one item. The factor was retained as it represented the non-use concept that natural areas can still be enjoyed through books and films.

Ecological Orientation

The fifteen items from the New Ecological Paradigm Scale that explored ecological orientation were reduced to five factors, using a priori criteria to try to duplicate the original dimensions. The study did not replicate any of the dimensions completely, but showed that some dimensions loaded on other dimensions, and thus illustrated the complexity of human views about the environment. The five factors explained 65.63% of cumulative variance and are shown in Table 34.

Table 34: Ecological Orientation Factors

Factor Name	**Dimension**	**Ecological Orientation**	Factor 10	Factor 11	Factor 12	Factor 13	Factor 14
Anti ecological humans exempt	Humans exempt	Human ingenuity will insure that we do NOT make the earth unlivable.	**0.75**	0.04	-0.20	-0.27	0.06
	Humans exempt	Humans will eventually learn enough about how nature works to be able to control it.	**0.69**	-0.12	-0.14	0.15	-0.27
	No limits to growth	The earth has plenty of natural resources if we just learn how to develop them.	**0.64**	-0.14	0.05	-0.32	-0.15
	No ecological crisis	The so-called "ecological crisis" facing human kind has been greatly exaggerated	**0.53**	-0.43	-0.26	-0.28	-0.19
	Human domination	The balance of nature is strong enough to cope with the impacts of modern industrialised nations	**0.48**	-0.42	-0.35	0.04	0.27
Pro ecological nature balance	Balance of nature	The balance of nature is very delicate and easily upset.	-0.04	**0.79**	0.23	0.14	0.05
	Balance of nature	When humans interfere with nature, it often produces disastrous consequences.	-0.13	**0.77**	0.06	0.21	0.07
	Ecological crisis	Humans are severely abusing the environment.	-0.17	**0.65**	0.14	0.36	0.18
Pro ecological against domination	Anti domination	Humans were meant to rule over the rest of nature.	0.14	-0.04	**-0.75**	-0.17	-0.20
	Balance of nature	Plants and animals have as much right as humans to exist.	-0.07	0.21	**0.75**	0.13	0.14
	Anti domination	Humans have a right to modify the natural environment to suit their needs.	0.40	-0.34	**-0.49**	0.03	0.20
	Ecological crisis	If things continue on their present course, we will soon experience a major ecological catastrophe.	-0.45	0.32	**0.46**	0.24	0.05
Limits to growth	Limits to growth	We are approaching the limit of the number of people that earth can support.	-0.06	0.23	0.19	**0.81**	-0.04
	Limits to growth	The earth is like a spaceship with very limited room and resources.	-0.26	0.30	0.12	**0.75**	0.05
Humans not exempt	Humans not exempt	Despite our special abilities, humans are still subject to the laws of nature.	-0.18	0.16	0.25	0.02	**0.84**

Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.
Rotation converged in 12 iterations.

Factor 12 had both positive and negative loadings within the same factor. The scores in the negative items were reversed as suggested by Hair et al. (1998), so that the factor maintained positive associations. Factors 10 to 14 were named to represent the central dimensions of anti

ecological-humans exempt, pro ecological-nature balance, pro ecological-against domination, limits to growth and humans not exempt. The five ecological orientation factors make up the last of the 14 factors.

Factor 10: Anti ecological-humans exempt The predominant concept for this factor is an anti ecological view that encompass the concept that humans are exempt from natural laws, and were meant to dominate nature, there is no ecological crisis and there is no need for limits to growth.

Factor 11: Pro ecological-nature balance This factor measures pro ecological views expressed through a belief in the fragility of nature and the need for consideration of nature balance, which can be easily upset and can lead to an ecological crisis.

Factor 12: Pro ecological-against domination This factor measures pro ecological views that are strongly against the domination of nature. This factor also has some similarities to Factor 11, in the belief in the fragility of nature and the need for consideration of nature balance, which can be easily upset and can lead to an ecological crisis.

Factor 13: Limits to growth This factor measures a belief that there should be limits to growth, which is a pro ecological view.

Factor 14: Humans not exempt This factor measures a pro ecological view that humans are not exempt from the laws of nature, and are governed by natural laws like the rest of the natural world.

The dimensions represented in the ecological orientation factors in Table 34 confirmed that the factors had content validity and embodied distinct concepts of ecological orientation in this study. The factors consisted of a range of dimensions, which illustrated the complexity of human views toward the natural world. Each factor was tested for reliability using Cronbach's Alpha test and the results are shown in Table 35.

Table 35: Ecological Orientation Reliability Test

Ecological Orientation Dimensions	Factor	Cronbach's Alpha Score
Anti ecological-humans exempt	Factor 10	.75
Pro ecological-nature balance	Factor 11	.75
Pro ecological-against domination	Factor 12	.71
Limits to growth	Factor 13	.71
Humans not exempt	Factor 14	One item only

The first four factors, Factors 10 to 13, showed acceptable reliability scores. The fourth factor in the analysis, Factor 14, consisted of one item. The factor was retained as it represented the view that humans were not exempt from natural laws.

The Fourteen Factors

Fourteen factors emerged from the three instruments, Factors 1 to 5 represented place attachment, Factors 6 to 9 represented nature values and Factors 10 to 14 represented ecological orientation. The factors have been collated and are shown in Table 36.

Table 36: Factor Names

FACTOR NAMES		
Factor	**Name**	**Factor Attributes**
Factor 1	Place Identity	Place Identity
Factor 2	Place Dependence	Place Dependence and identity
Factor 3	No Attachment	No Attachment
Factor 4	Site dependent	Site indifference indicates no attachment
Factor 5	Community identity and commitment	Place Identity
Factor 6	Intrinsic value cynic	Reject intrinsic value
Factor 7	Non-Use	Non-Use for future
Factor 8	Instrumental value	Instrumental
Factor 9	Non-Use-enjoyment	Non-Use - enjoy through books
Factor 10	Anti ecological-humans exempt	Humans exempt, no limits, no eco crisis, domination
Factor 11	Pro ecological-nature balance	Nature balance, eco crisis
Factor 12	Pro ecological-against domination	Against domination, for nature balance and eco crisis
Factor 13	Limits to growth	Limits to growth
Factor 14	Humans not exempt	Humans not exempt

While factor analysis reduced the 47 variables to 14 factors and establishing the interrelationship amongst the variables, cluster analysis was used to segment the survey population into homogeneous groups.

Cluster Analysis

Cluster analysis was used to establish groups in the community with similar environmental worldview, nature values and national park attachment. Conceptual and theoretical considerations were central to selecting the variables for analysis, as recommended by Hair et al. (2006). Subsequently, the raw scores of the original 47 items in the environmental ethics and place attachment instruments were used. The nonhierarchical clustering procedure referred to as K-means clustering assigned individuals by their environmental ethics and park attachment into cluster groups. According to Hair et al. (1998, p. 498), an advantage of non-hierarchal methods is that they can be "less susceptible to outliers in the data". The theoretical and conceptual constructs of the three instruments suggested that a three or four cluster solution would account for the range of views, values and attachments. Three cluster groups were formed with memberships of 38, 22 and 84.

Multivariate Tests

From this initial analysis, the three clusters were examined more closely through analysis of variance techniques, MANOVA and ANOVA. These techniques were used to confirm the differences between the groups, and to validate the results through repetition. The techniques also confirmed the relationship between the 47 items and the group membership, as shown in Table 37.

Table 37: Multivariate test on the 47 scale items

Effect		Value	F	Hypothesis df	Error df	Sig.
Intercept	Pillai's Trace	.997	692.997(a)	47.000	95.000	.000
	Wilks' Lambda	.003	692.997(a)	47.000	95.000	.000
	Hotelling's Trace	342.851	692.997(a)	47.000	95.000	.000
	Roy's Largest Root	342.851	692.997(a)	47.000	95.000	.000
QCL_1	Pillai's Trace	1.358	4.318	94.000	192.000	.000
	Wilks' Lambda	.092	4.658(a)	94.000	190.000	.000
	Hotelling's Trace	5.013	5.013	94.000	188.000	.000
	Roy's Largest Root	3.680	7.516(b)	47.000	96.000	.000

a Exact statistic
b The statistic is an upper bound on F that yields a lower bound on the significance level
c Design: Intercept+QCL_1

Cluster Summary

The factor scores were examined within each cluster group using descriptive statistics, to identify each group's environmental ethics and national park attachment. The mean and standard deviation confirmed homogeneity within the cluster membership and heterogeneity between the groups. Each cluster was named according to their environmental worldview identified through their most dominant ecological orientation and nature values. Cluster 1 was named *Anthropocentric*, Cluster 2 *Weak Anthropocentric* and Cluster 3 *Ecocentric*. The term Weak Anthropocentric was used to describe the cluster with mixed ecological orientation and instrumental values. A brief review of the cluster groups is provided based on an examination of the factor scores using the sample benchmark of a mean of 0 and a standard deviation of 1, as shown in Table 38. The relationship between the instrument dimensions and the factors, and the factors and the three cluster groups is shown by a series of connecting lines in Figure 31.

Cluster 1: Anthropocentric

The Anthropocentric Group represented 26.4% of the survey sample and displayed strong beliefs in domination of nature and that humans are exempt from natural laws. They do not believe there is a need to limit growth to protect the fragility of nature, nor do they believe in the possibility of an ecological crisis. This group values nature for its instrumental use, but they are cynical about attributing intrinsic value to nature and do not support non-use value.

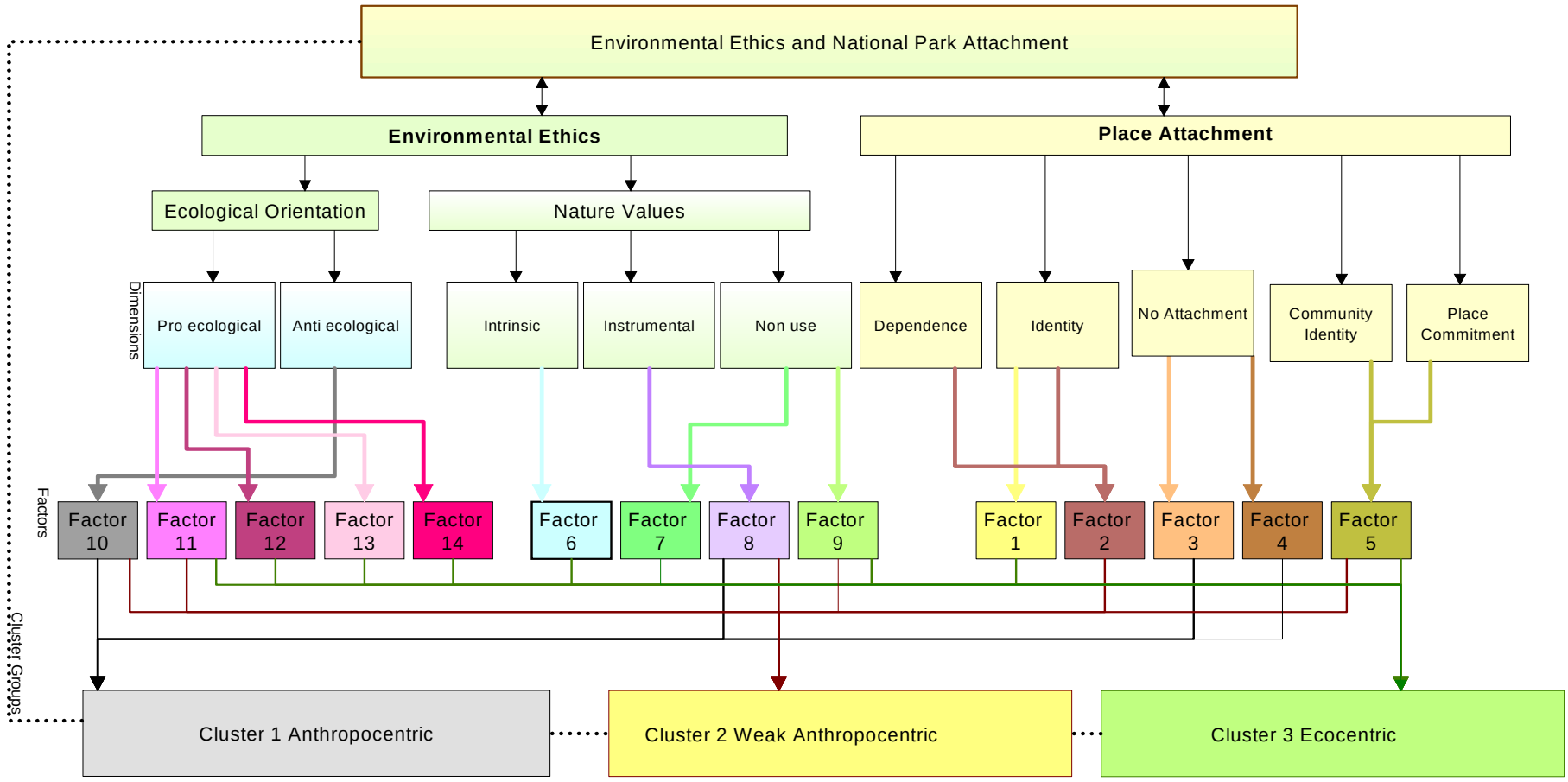
The group had a high mean score of 0.51 for no attachment to the national park, and relatively low scores for all the other place attachment factors, which shows a lack of attachment or interest in the national park or the park community. They are not dependent on the site for their activities, and could substitute the park with other locations. Some participants in the business focus group and some in the community groups discussed in Part 1 of this chapter displayed attributes identified in the Anthropocentric Group.

Table 38: Cluster Analysis

Report		Factor 1 Identity attachment PA	Factor 2 Dependent attachment PA	Factor 3 No attachment PA	Factor 4 Site dependent PA	Factor 5 Community Identity & Place Commitment NAV	Factor 6 Intrinsic value cynic NAV	Factor 7 Non-Use NAV	Factor 8 Instrumental NAV	Factor 9 Non-Use enjoyment NEP	Factor 10 Humans exempt NEP	Factor 11 Nature balance NEP	Factor 12 Against domination NEP	Factor 13 Limits to growth NEP	Factor 14 Humans not exempt NEP
Cluster 1 n=38	Mean	-0.840	-0.435	0.508	-0.372	-0.317	0.449	-0.788	0.495	-0.423	0.647	-0.713	-0.593	-0.536	-0.277
	Std. Deviation	1.150	0.783	1.180	0.878	1.188	0.851	1.082	0.980	1.103	1.037	1.131	1.302	1.111	1.031
Cluster 2 n=22	Mean	0.403	1.038	0.175	-0.089	0.279	0.793	-0.003	0.338	0.076	0.643	0.441	0.019	0.084	-0.074
	Std. Deviation	0.569	0.812	1.018	1.245	0.798	1.660	1.337	1.140	1.154	0.825	0.738	0.764	1.087	1.492
Cluster 3 n=84	Mean	0.269	-0.088	-0.327	0.174	0.186	-0.417	0.387	-0.318	0.191	-0.358	0.260	0.304	0.202	0.093
	Std. Deviation	0.757	0.968	0.675	0.987	0.967	0.496	0.622	0.865	0.899	0.806	0.773	0.815	0.859	0.850
Total n=144	Mean	-0.003	-0.008	-0.030	-0.010	0.068	-0.004	0.017	-0.003	0.012	0.060	0.031	0.024	-0.011	-0.030
	Std. Deviation	0.988	1.010	0.955	1.024	1.027	0.994	1.021	1.008	1.024	1.001	0.981	1.028	1.011	1.023

PA Place Attachment (Williams et al., 1995)
NAV Natural Area Value Scale (Winter and Lockwood, 2004)
NEP New Ecological Paradigm Scale (Dunlap and Van Liere, 1978)

Figure 31: Instrument Dimensions and Factors



Clusters 2: Weak Anthropocentric

The Weak Anthropocentric Group represented 15.3% of the study sample. This group had a high mean score of .65 for the belief that humans were exempt from natural laws, which is anti ecological dimension. However, they also had a high mean score of 0.44 for agreement that nature was fragile and needed protecting and a mean of 0.08 for the limits to growth dimension. The latter views align with a pro ecological orientation, which suggests that this group has mixed views. The group has strong instrumental values, and like the Anthropocentric Group, was cynical about attributing intrinsic value to nature. However, the group had a mean score of .08 for enjoyment of non-use areas that they experienced through books and films. The group displayed both identity and dependant attachment to the park, with the dependent attachment mean score of 1.04 most noticeable. They also had a strong mean score for factor 5, which represented community identity and commitment. Further examination of the dimensions in factor 5 through crosstabulation showed that 'park identity' was not relative for this group, but park commitment was, with an adjusted residual of 2.9. This indicates that they do not identify strongly with the park community, but they are committed to the upkeep of the park.

The group displayed mixed ecological views, instrumental and non-use value and mostly a dependent park attachment. The presence of mixed views and instrumental values align with some participants from the community focus groups discussed in the Part 1 of this chapter.

Cluster 3: Ecocentric

The Ecocentric Group represented 58.3% of the study sample, the largest representation in the study. This group displayed pro ecological orientation related to their strong stance against domination with a mean score of 0.30, and the view that humans are not exempt from natural laws. Similarly, they had moderately strong mean scores of 0.26 for their belief in the fragility of nature and that nature needed protection, and there should be limits to growth. The group had a relatively strong negative mean score of -0.42 for the factor representing cynicism about intrinsic value, which confirms that this group has a strong belief in intrinsic value attributed to nature. This is confirmed by their strong rejection of nature having just instrumental value. They also had high mean scores for factors representing non-use values.

The group displayed a strong identity attachment to the national park, which represents an emotional or symbolic attachment. They also identified with the national park community and were committed to the park. This group was the only group that was site dependent, and could not substitute the park for another location for their activities. Attributes displayed by the Ecocentric group were present in the conservation group and the majority of the community and individual businesses that took part in the focus groups discussed in Part 1 of this chapter.

Summary

The demographic profile of participants has been determined through descriptive statistics and when compared to the 2006 census data has shown that the survey frame represents the population in the region in regard to age, gender, education level and location. Fourteen factors were extracted and three cluster groups were formed from the raw data. The clusters groups displayed distinct differences in environmental ethics and place attachment.

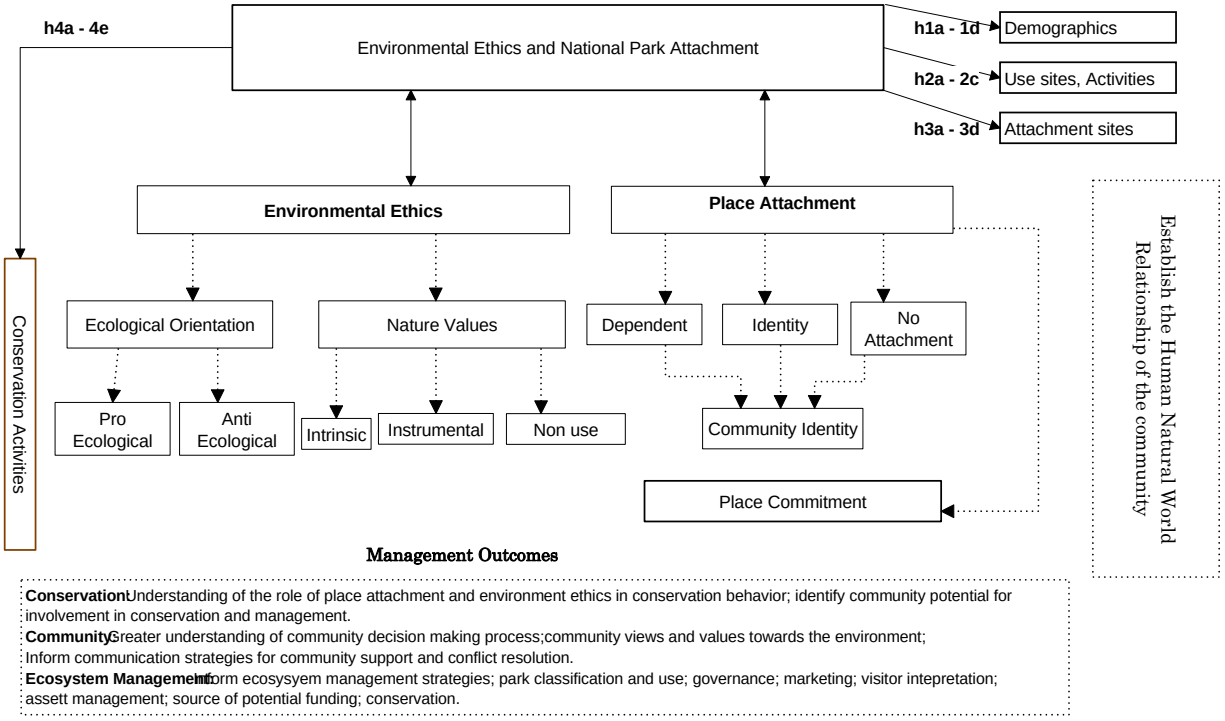
The following section outlines a series of hypotheses tests that were conducted to develop a profile of the demographics, site attachments, activities and conservation behaviour of each cluster group. Chi-Square crosstabulation tables were used to establish differences if differences existed between the groups. The tabulation tables used the X^2 statistic, the degree of freedom (*df*) and the statistical significance of less than 0.05 to establish differences in the groups. The adjusted residual measurement of 2 was also used to ascertain where the differences were between the groups.

TESTING THE HYPOTHESES

Introduction

Each of the three cluster groups has distinctly different environmental ethics and place attachment towards the national park. A profile of each cluster group was developed through a series of comparative hypotheses tests. The tests examined demographics, site attachments, activities and conservation behaviour as shown again in the Hypothesised Model in Figure 32.

Figure 32: Hypothesised Model



Tests of Comparison A series of comparative tests using Pearson's Chi Square crosstabulations were conducted on non-metric variables to identify instances of significant differences across the groups. As well, the adjusted residual was used to identify which group actually accounted for these significant differences.

The variables that were used in the hypotheses tests for comparison were,

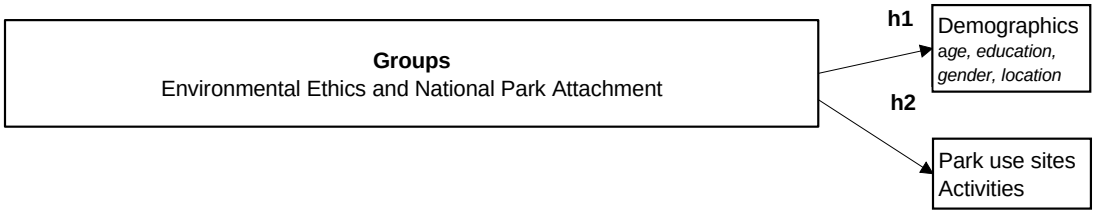
- h1 - Demographics such as age, education, gender, location and postcode

- h2 - Significant sites used within the park
- h2 – Activities undertaken
- h3 - Attachment to the community, Mallacoota Inlet and to sites within the park
- h4 - Conservation activities, such as volunteering, donations and adapting lifestyle to establish the group most suited to contribute the conservation and management of the national park

7.3.3.1 Demographics, Sites and Activities

This section examines demographics, sites visited and activities undertaken as shown in Figure 33, which form part of the Hypothesised Model.

Figure 33: Hypothesised Model, demographics, use sites and activities



Demographics

The demographics of each cluster group were examined to establish if the three groups exhibited particular demographic characteristics. The demographics included age, education, gender, and location.

The question for hypothesis 1 was:

> *Are there significant relationships between the demographic variables within each group?*

Age

Hypothesis 1a *There are differences between the groups' age.*

The values used to record age were 18-24, 25-34, 35-44, 45-54, 55-64 and 65+ age groups. The chi-square result, $X^2 = 8.677$, df = 10, Sig = .563, clearly indicated that the three groups were not significantly different in terms of age distribution as shown in Table 39.

Table 39: Age

Hypothesis 1a			Cluster Number of Case 1 Anthropocentric	2 Weak Anthropocentric	3 Ecocentric	Total 1
Age	18-24	Count	1	0	1	2
		Adjusted Residual	.8	-.6	-.2	
	25-34	Count	1	1	9	11
		Adjusted Residual	-1.4	-.6	1.6	
	35-44	Count	9	3	9	21
		Adjusted Residual	1.9	-.1	-1.6	
	45-54	Count	9	9	24	42
		Adjusted Residual	-.9	1.3	-.2	
	55-64	Count	10	6	21	37
		Adjusted Residual	.1	.2	-.2	
	65+	Count	8	3	20	31
		Adjusted Residual	-.1	-1.0	.8	
Total		Count	38	22	84	144

Age was not statistically significant. Hypothesis 1a was rejected.

Education

Hypothesis 1b *There are differences between the groups' education level.*

The distribution of education levels was represented through secondary school, trade and university. The chi-square result $X^2 = 12.518$, df = 4, Sig = .014, clearly indicated that the three groups were significantly different in terms of education level. The adjusted residual measurement is shown in Table 40.

Table 40: Education

Hypothesis 1b			Cluster Number of Case 1 Anthropocentric	2 Weak Anthropocentric	3 Ecocentric	Total 1
Education level	secondary school	Count	20	11	31	62
		Adjusted Residual	1.6	.8	-2.1	
	trade	Count	11	6	16	33
		Adjusted Residual	1.2	.6	-1.5	
	university	Count	5	4	37	46
		Adjusted Residual	-2.8	-1.4	3.5	
Total		Count	36	21	84	141

The differences were characterised by the Anthropocentric Group being under represented in university education and the Ecocentric Group being over represented. The test concluded that education was statistically significant. Hypothesis 1b was accepted.

Gender

Hypothesis 1c *There are differences between the groups' gender distribution.*

The chi-square result $X^2 = 13.463$, df = 2, Sig = .001, clearly indicated that the three groups were significantly different in terms of gender distribution. The adjusted residual measurement is shown in Table 41.

Table 41: Gender

			Cluster Number of Case			Total
Hypothesis 1c			1 Anthropocentric	2 Weak Anthropocentric	3 Ecocentric	1
Gender	female	Count	9	10	50	69
		Adjusted Residual	-3.5	-.1	3.2	
	male	Count	29	11	34	74
		Adjusted Residual	3.5	.1	-3.2	
Total		Count	38	21	84	143

These differences were characterised by the Anthropocentric Group's over representation of males and under representation of females. Alternatively, females in the Ecocentric Group, were over represented, while males were under represented. The test concluded that gender was statistically significant. Hypothesis 1c was accepted.

Location

Hypothesis 1d *There are differences between the groups' location.*

Locations in the community were examined to see if there were differences between the three groups. The main locations are Mallacoota and Cann River, and the smaller localities of Bemm River, Genoa and Gipsy Point. Both Cann River and Mallacoota are entry points to Croajingolong National Park. The chi-square result $X^2 = 37.969$, df = 42, Sig = .649, clearly

indicated that the three groups were not significantly different in terms of location, and the adjusted residual measurement is shown in Table 42.

Table 42: Location

Hypothesis 1d			Cluster Number of Case 1 Anthropocentric	2 Weak Anthropocentric	3 Ecocentric	Total 1
Location	Bemm River	Count	2	2	2	6
		Adjusted Residual	.4	1.3	-1.3	
	Cann River	Count	6	5	7	18
		Adjusted Residual	.7	1.6	-1.8	
	Genoa	Count	2	1	1	4
		Adjusted Residual	1.1	.5	-1.4	
	Gipsy Point	Count	0	0	1	1
		Adjusted Residual	-.6	-.4	.8	
	Mallacoota	Count	23	12	58	93
		Adjusted Residual	-.6	-1.1	1.3	
	Other	Count	4	2	16	22
Total		Count	38	22	84	144

The test concluded that location was not statistically significant. Hypothesis 1d was rejected.

Demographics Summary

Examining the demographics of the groups' established that there were differences in the groups in terms of their education and gender.

The results showed that

- Males were over represented in the Anthropocentric Group.
- Females and university education were both over represented in the Ecocentric Group.

Park Use Sites and Activities

Sites visited and activities undertaken in the region were examined to establish locations used by each group and to establish each groups' recreational or business activities.

The question for hypothesis 2 was:

> *Are there significant relationships between sites visited or activities undertaken within each group?*

Sites Visited

Hypothesis 2a *There are differences between the groups' in the sites visited in the region.*

There were 26 visitation sites examined in and around the national park, which are shown in Table 43. The respondents were asked to answer yes or no to the sites they visited. When Pearsons Chi Square Test was applied to the 26 locations, the results showed that the three groups were not significantly different, however the analysis did identify the sites that were used most by the sample population.

Table 43: Sites Visited

SITES VISITED *Hypothesis 2a*				
Locations used by percentage of groups in the study sample	1 Anthropocentric %	2 Weak Anthropocentric %	3 Ecocentric %	**Total percentage of use by study sample %**
Cann River	50	59	39	45.1
Swan Lake	11	14	5	7.6
Furnell Landing	30	27	13	19.4
Tamboon Inlet	42	40	25	31.9
Peachtree Creek	18	22	12	15.3
Point Hicks Lighthouse Res.	29	59	45	43.1
Point Hicks Marine NP	18	32	10	16
Thurra Inlet	24	36	31	29.9
Muller Inlet	21	32	20	22.2
Elusive Lake	5	18	17	13.9
Rame Head	13	23	23	20.1
The Skerries	16	23	14	16
Wingan Inlet	50	68	52	54.2
Mallacoota	95	91	93	93.1
Mallacoota Inlet	87	82	88	86.8
Gabo Is. Lighthouse Reserve	32	50	44	41.7
Genoa	66	55	60	60.4
Gipsy Point	63	64	74	69.4
Seal Rocks	21	50	36	32.6
Genoa Peak	55	68	70	66
Lake Barracoota	24	32	42	35.4
Lake Wau Wauka	13	23	18	17.4
Tullaberga Island	16	9	11	11.8
Shipwreck Creek	53	55	59	62.5
Cape Howe Marine NP	21	18	14	16.7
Bemm River	26	41	19	24.3

There was a high level of use across the groups' for the locations of Mallacoota, Mallacoota Inlet, Wingan Inlet, Shipwreck Creek, Genoa and Gipsy Point. More than 50% of the Anthropocentric Group used Cann River and Wingan Inlet for camping. Similarly, the Weak Anthropocentric Group used Wingan Inlet, Point Hicks and Gabo Island Lighthouse Reserve, Genoa Peak, Shipwreck Creek and Seal Rocks for surfing. A majority of the Ecocentric Group used Gipsy Point and Genoa Peak, locations close to Mallacoota. The test concluded that visitation to the sites was no significant. Hypothesis 2a was rejected.

Other Sites Visited

Hypothesis 2b *There are differences between the groups' in other sites visited, but not identified in the survey.*

The survey asked the participants to list sites visited that were not included in the survey. There were 11 responses and these sites are shown in Table 44.

Table 44: Other Sites Visited

OTHER SITES VISITED *Hypothesis 2b*	
Group 1 Anthropocentric n = 2	Maramingo Creek, Wallagaraugh River
Group 2 Weak Anthropocentric n = 0	
Group 3 Ecocentric n = 9	Maramingo Creek, Wallagaraugh River, Bastion Point, Beach from Bastion Point to Telegraph Point, Betka River, Double Creek, Sandy Point, Beehive Falls, Chandlers Creek, Sou-west Arm, The Narrows, Miners Track, Benedore River, Genoa Gorge, Nadgee Reserve, Howe Range, Howe Flat.

The Pearsons Chi Square Test for the 11 responses showed that the three groups were not significantly different. The Weak Anthropocentric Group did not list any sites. Sites listed by the Anthropocentric Group and the Ecocentric Group included Maramingo Creek and Wallagaraugh River, which are located near Gipsy Point and Genoa. The Ecocentric Group also listed Bastion Point amongst a number of other sites, which has been a topic of discussion by the community throughout the study. Most of the sites are located near

Mallacoota, Genoa or Gipsy Point. The test concluded that these other sites were not statistically significant. Hypothesis 2b was rejected.

Activities

Hypothesis 2c *There are differences between the groups' in activities undertaken.*

The study examined 37 recreation and work activities undertaken by each group. When the Pearsons Chi Square Test was applied to the 37 activities, the chi-square results clearly indicated that the three groups were significantly different in terms of 10 of the 37 activities as shown in Table 45.

Table 45: Activities Chi-square Results

ACTIVITIES *Hypothesis 2c*	
Activity	Chi-square Result
Sightsee	X^2 = 6.480, df = 2, Sig = .039
Picnic	X^2 = 6.480, df = 2, Sig = .039
Nature Study	X^2 = 14.263, df = 2, Sig = .001
Bird Watching	X^2 = 13.107, df = 2, Sig = .001
Nature Walks	X^2 = 6.680, df = 2, Sig = .035
Hiking	X^2 = 6.005, df = 2, Sig = .050
Surf	X^2 = 10.288, df = 2, Sig = .006
Power Boat	X^2 = 6.377, df = 2, Sig = .041
Beach Fishing	X^2 = 10.830, df = 2, Sig = .004
Collection, oysters, mussels	X^2 = 6.813, df = 2, Sig = .033

The differences in the groups' activities are illustrated by the adjusted residual score for the activities shown in Table 46. These differences were characterised by over representation in the Anthropocentric Group of consumptive and mechanised activities such as powerboat and beach fishing. The Weak Anthropocentric Group was over represented for appreciative activities like surfing, and mechanised activities like waterskiing. The Ecocentric Group was over represented in appreciative activities such as bird watching and nature walks. The Ecocentric Group was significantly under represented in the activity of collecting oysters and mussels.

Table 46: Activities

ACTIVITIES *Hypothesis 2c*					
1 Anthropocentric		2 Weak Anthropocentric		3 Ecocentric	
n=38		n=22		n=84	
Adj Residual	Activity	Adj Residual	Activity	Adj Residual	Activity
2.1	Powerboat	2.7	Surfing	2.5	Sightsee
2.5	Beach Fishing	2.1	Water ski	2.5	Picnic
				3.7	Nature study
				3.3	Bird watching
				2.1	Nature walks
				2.1	Hiking
				-2.5	Collecting oysters, mussels etc
Activity Type					
consumptive mechanised		appreciative mechanised		appreciative	

Consumptive activities refer to activities that involve taking something from the location, while appreciative activities refer to observing nature and leaving the location untouched. Mechanised activities are those that require a motorised vehicle.

Surfing

In examining the data, surfing was an activity common to the three groups but undertaken by a noticeably higher percentage of members in the Weak Anthropocentric Group. When the study was announced, members of the Surf Riders Association contacted the researcher and were keen to participate, however, many were under 18 years of age and therefore unable to contribute. Nonetheless, the surf riders did represent 34% of the survey participants. They were concerned over a planned development that would affect Bastion Point and Seal Creek where the natural coastal features, according to the surf riders, make it one of the best surfing locations on the coast. The case of Bastion Point is discussed in the Part 3 of this chapter.

Fishing

Both Mallacoota and Bemm River are recreational fishing destinations, and cater for both ocean and beach fishing, which were significant activities for the Anthropocentric Group. During the focus group meetings, there was robust discussion by the recreational fishing

operators about the restrictions placed on their businesses due to the national park status. Views expressed by these participants in the focus groups suggested anthropocentric views, which have been confirmed through this analysis.

Additional Business Activities

Cann River is situated on a junction to one of the main entrances to the national park and is supported mostly by industries such as farming and logging. Retail and tourism operations are also activities important to the region. When the focus groups were held, they involved members of the business community from retail and tourism businesses. These businesses together with farming were not statistically significant, however further investigation was conducted using crosstabulation to establish which clusters these businesses belonged to and the results are shown in Table 47.

Table 47: Business Activities

Business Activities percentage in groups	1 Anthropocentric %	2 Weak Anthropocentric %	3 Ecocentric %	Total percentage of study sample %
Farming	13	9	7	9
Logging	5			1
Tour Operations	18		11	11
Retail	8		8	6

Farming and Logging

Farmers represented 9% of the study sample and loggers 5%. The loggers, as well as the largest percentage of farmers, were located in the Anthropocentric Group.

Tourism and Retail

Mallacoota is a holiday destination and the business community consists of mainly retail stores and tourism businesses, which includes the accommodation and recreational fishing sector. While recreational fishing was significant to the Anthropocentric Group as discussed previously, further analysis using crosstabulation showed that tour operators and retail stores were represented in both the Anthropocentric Group and the Ecocentric Group. The focus group discussions held previously, suggested that the business community was

divided in their views towards the national park. Some businesses displayed ecocentric views while others displayed anthropocentric views, which have been supported in this analysis.

The test concluded that there were major differences in the activities discussed in hypothesis 2c. The activities were powerboat and beach fishing for the Anthropocentric Group; surfing and water skiing for the Weak Anthropocentric Group; and sightseeing, picnics, nature study, bird watching, hiking and nature walks for the Ecocentric Group. Hypothesis 2c was accepted.

Sites Visited and Activities Undertaken Summary

The park sites used by the community were not significant; however, relationships existed between activities and the groups' environmental ethics and park attachment.

- Consumptive and mechanised activities, such as powerboat and beach fishing were over represented in the Anthropocentric Group.
- Appreciative and mechanised activities such as surfing and waterskiing were over represented in the Weak Anthropocentric Group.
- Appreciative activities such as sightseeing, picnics, nature walks, bird watching, nature study and hiking were over represented in the Ecocentric Group. This group was under represented in the activity of collection oysters and mussels.

Consumptive industries such as fishing, which was evident in the Anthropocentric Group, are associated with anthropocentric views, which confirm the findings in the literature. Alternatively, appreciative activities evident in the Ecocentric Group align with ecocentric views. The Weak Anthropocentric Group displayed a mixture of appreciative and mechanised activities, which may align with mixed views.

The tourism and retailers showed a clear division between those with ecocentric views and those with anthropocentric views. These businesses were located in both the Anthropocentric Group and the Ecocentric Group, which supports the findings in the focus groups where the

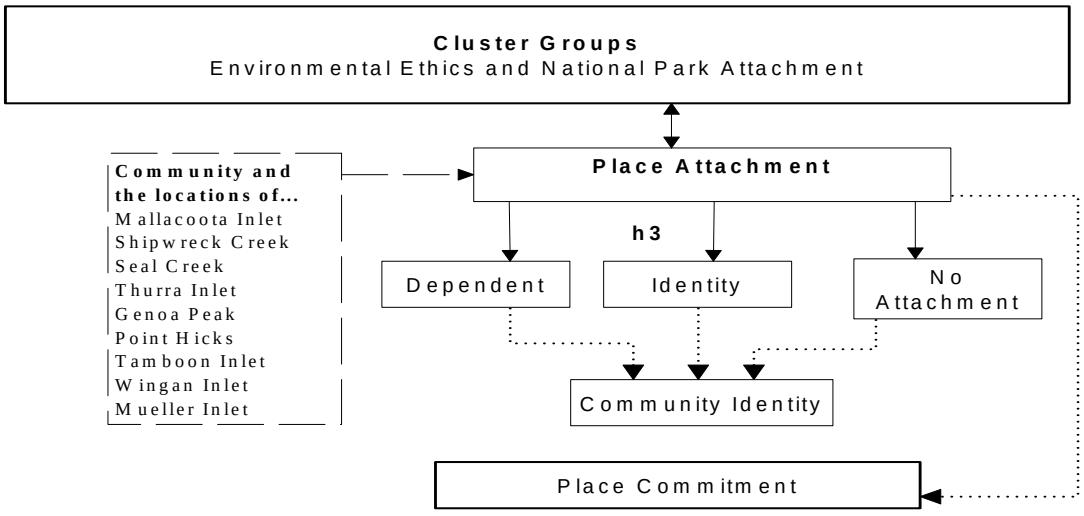
division was evident. Understanding the sites, the community use and activities may assist management to prioritise sites for upkeep and maintenance, which were issues discussed in the focus groups.

7.3.3.2 Attachment Sites

Community attachment and attachment to sites in and around the national park are examined in this section to establish if differences existed in the groups. While national park attachment for the three cluster groups was established through factor and cluster analysis earlier in this chapter, this section will explore local community attachment and attachment to the locations of Mallacoota Inlet, Shipwreck Creek, Seal Creek, Thurra Inlet, Genoa Peak, Point Hicks, Tamboon Inlet, Wingan Inlet and Mueller Inlet. The relationship between these attachments and the groups' environmental ethics and park attachment form part of the Hypothesised Model as shown in Figure 34.

When Pearsons Chi Square Test was applied to the 17 place attachment items shown in Box 24 to measure attachment to the community and to nine sites in the region, there were significant differences between the groups.

Figure 34: Hypothesised Model, attachment to park locations



Box 24: Place Attachment Items

Place Attachment Items	
Item	Corresponding Statement
1	I feel like this [place] is a part of me.
2	This [place] is the best place for what I like to do.
3	This [place] is very special to me.
4	No other place can compare to this [place].
5	I identify strongly with this [place].
6	I get more satisfaction out of visiting this [place] than from visiting any other place.
7	I am very attached to this [place].
8	Doing what I do in this [place] is more important to me than doing it in any other place
9	Visiting this [place] says a lot about who I am.
10	The things I do at this [place] I would enjoy just as much at another site.
11	This [place] means a lot to me.
12	I wouldn't substitute any other area for doing the types of things I do in this [place].
13	I feel no commitment to this [place].
14	The time I spent here could just as easily be spent somewhere else.
15	I do not really feel that I relate at all to this [place].
16	I identify with the lifestyle and values of the people who live here (or come to) this [place]
17	I have (or am willing to) invest(ed) my heart and soul into this [place].

The question for hypothesis 3 was:

Are there significant relationships between community attachment or attachment to a range of sites for each group?

Community Attachment

Hypothesis 3a *There are differences between community attachment for each group.*

Attachment to the community was examined to establish if people were attached to their community. When the Pearsons Chi Square Test was applied to the 17 community attachment items, the chi-square result for nine of the items clearly indicated that the groups were significantly different as shown in Table 48.

Table 48: Community Attachment Chi Square Test

COMMMUNITY ATTACHMENT *Hypothesis 3a*	
PA Item	Chi-square Result
3	X^2=18.860, df =8, sig =.016
4	X^2=21.361, df =8, sig =.006
5	X^2=26.055, df=8, sig =.001
6	X^2=24.092, df=8, sig =.002
7	X^2=20.041, df=8, sig =.010
8	X^2=17.710, df=8, sig =.024
9	X^2=25.733, df=8, sig =.001
10	X^2=21.559, df=8, sig =.006
12	X^2=32.113, df=8, sig =.000
Note: PA - place attachment item shown in Box 24	

The community in this study came from the towns of Mallacoota, Cann River, Bemm River, Genoa and Gipsy Point. The community was positioned into the three groups in hypothesis 1d, when the locations were examined for significance. These locations are shown again, as well as the adjusted residual score for the relevant community attachment items in Table 49.

Table 49: Community Attachment

COMMMUNITY ATTACHMENT *Hypothesis 3a*						
Adjusted Residual for Community Attachment to …	1 Anthropocentric		2 Weak Anthropocentric		3 Ecocentric	
	n=38		n=22		n=83	
	Mallacoota, Cann River, Bemm River, Genoa		Mallacoota, Cann River, Bemm River, Genoa		Mallacoota, Cann River, Bemm River, Gipsy Point	
	Adj Residual	PA Item and no	Adj Residual	PA Item and no	Adj Residual	PA Item and no
Community Attachment	2.3	No Attachment [10]	2.0 2.5 2.4 2.3 2.3 2.1 2.9 2.5	Identity [3] Dependence [4] Identity [5] Dependence [6] Identity [7] Dependence [8] Identity [9] Dependence [12]		
Note: The numbers that appear in parenthesis [ ] correspond with place attachment (PA) items shown in.						

These differences between the groups were characterised by an over representation of no attachment to the community in the Anthropocentric Group and an over representation of

identity and dependent community attachment in the Weak Anthropocentric Group. Community attachment for the Ecocentric Group was not represented in the results. The test concluded that there were statistically significant differences in each group, in regard to community attachment. Hypothesis 3a was accepted.

Community Attachment Summary

Relationships exist between environmental ethics and park attachment and community attachment. The results have shown that

- The Anthropocentric Group were over represented for having no community attachment.
- The Weak Anthropocentric Group was over represented in their dependent and identity attachment to the community in which they lived.

The focus group discussions reported a range of mixed feelings about the community, which is supported in these findings.

Mallacoota Inlet

Hypothesis 3b *There are differences between attachment to Mallacoota Inlet for each group.*

Mallacoota is a main entry point to Croajingolong National Park. The town is located on Mallacoota Inlet, which forms a backdrop to the town and is an entry point to the Gippsland lakes. Mallacoota Inlet, like the other locations listed in this section is a popular area for recreational activities. When Pearsons Chi Square Test was applied to the 17 Mallacoota Inlet attachment items, the results for 12 of the 17 items clearly indicated that the three groups were significantly different as shown in Table 50.

Table 50: Mallacoota Inlet Attachment Chi Square Result

MALLACOOTA INLET ATTACHMENT *Hypothesis 3b*	
PA item	Chi-square Result
1	X^2=22.966, df=8, sig =.003
4	X^2=28.716, df=8, sig =.000
6	X^2=21.916, df=8, sig =.005
7	X^2=32.832, df=8, sig =.000
8	X^2=18.348, df=8, sig =.019
9	X^2=18982, df=8, sig =.015
10	X^2=32.421, df=8, sig =.000
12	X^2=27.775, df=8, sig =.001
17	X^2=22.264, df=8, sig =.004
Note: PA - place attachment item shown in Box 24	

The differences in the groups were characterised in the Anthropocentric Group by an over representation of no attachment and under representation of identity and dependent attachment and commitment. The Weak Anthropocentric Group was over represented for dependent attachment, which suggests that they use Mallacoota Inlet for recreation.

Some also have an identity attachment to the site. No Attachment to Mallacoota Inlet was also evident in this group, which suggests that some in this group may not use Mallacoota Inlet for recreation or work and may live in Cann River, Bemm River or Genoa. The Ecocentric Group has the largest representation of Mallacoota residents in the survey. The group was over represented for identity attachment and commitment to Mallacoota Inlet, and under represented for no attachment. The adjusted residual scores for the relevant items are shown in Table 51.

Table 51: Attachment to Mallacoota Inlet

MALLACOOTA INLET *Hypothesis 3b*						
Adjusted Residual for attachment to Mallacoota Inlet	1 Anthropocentric		2 Weak Anthropocentric		3 Ecocentric	
	n=29		n=18		n=72	
	Adj Residual	PA Item and no	Adj Residual	PA Item and no	Adj Residual	PA Item and no
Mallacoota Inlet Attachment	-2.7 2.5 -2.1	Identity [9] No Attachment [10] Dependence [12]	2.1 2.1 2.0 2.7 2.3 2.5	Dependence [4] Dependence [6] Dependence [8] Identity [9] No Attachment [10] Dependence [12]	2.0 2.9 -3.9	Identity [1] Identity [7] No Attachment [10]
Mallacoota Inlet Commitment	-2.9	Commitment [17]			2.4	Commitment [17]
Note: The numbers that appear in parenthesis [ ] correspond with place attachment (PA) items shown in Box 24.						

During the focus group discussions, examples were given of memorable experiences at Mallacoota Inlet, on the lakes with wildlife and observing nature. Experiences like these can contribute to forming both dependent and identity attachment to Mallacoota Inlet.

The test concluded that attachment to Mallacoota Inlet was statistically significant. Hypothesis 4b was accepted.

Mallacoota Inlet Summary

Relationships exist between environmental ethics and park attachment and attachment to Mallacoota Inlet. The results have shown that

- The Anthropocentric Group had no attachment or commitment to Mallacoota Inlet
- The Weak Anthropocentric Group had mostly a dependent attachment to Mallacoota Inlet. Some had no attachment, which may account for those residents who do not live near the site.
- The Ecocentric Group had an identity attachment and commitment to Mallacoota Inlet.

Place Attachment Sites

Hypothesis 3c *There are differences between the groups' in their attachment to eight locations in the park region.*

Representatives from the park management agency, Parks Victoria, and community members identified a number of sites they considered important in and around the national park. The sites included Shipwreck Creek, Seal Creek, Thurra Inlet, Genoa Peak, Point Hicks, Tamboon Inlet, Wingan Inlet and Mueller Inlet. Not all of the survey participants visited these sites, so the participants were asked to complete the place attachment questions relevant to the areas they had visited. When Pearsons Chi Square Test was applied to the 17 attachment items for each site, the results clearly indicated that the groups were significantly different in their attachment to the five sites shown in Table 52. The adjusted residual scores for the sites are shown in Table 53.

Table 52: Place Attachment Sites Chi-square Results

PLACE ATTACHMENT SITES *Hypothesis 3c*		
Site	PA item	Chi-square Result
Shipwreck Creek	1	X^2=16.549, df =8, sig =.035
	3	X^2=25.545, df =8, sig =.001
	8	X^2=17.034, df =8, sig =.030
	10	X^2=19.036, df =8, sig =.015
	12	X^2=23.781, df =8, sig =.002
Seal Creek	9	X^2=15.782, df =8, sig =.046
Thurra Inlet	14	X^2=18.905, df =8, sig =.013
Genoa Peak	1	X^2=23.945, df =8, sig =.002
	10	X^2=16.485, df =8, sig =.036
Wingan Inlet	6	X^2=29.637, df =8, sig =.000
	7	X^2=24.446, df =8, sig =.002
	8	X^2=23.801, df =8, sig =.002
	12	X^2=24.228, df =8, sig =.002
	17	X^2=17.168, df =8, sig =.028
Note: PA - place attachment item shown in Box 24		

Referring to Table 53, the differences in the groups' were characterised by a lack of attachment in the Anthropocentric Group to the sites of Shipwreck Creek, Thurra Inlet and Genoa Peak. Although this group showed moderate use of the sites, they had no attachment to the sites.

Table 53: Place Attachment Sites

PLACE ATTACHMENT SITES *Hypothesis 3c*						
Place Attachment Sites	Group 1 Anthropocentric		Group 2 Weak Anthropocentric		Group 3 Ecocentric	
	Adj Res	PA Item and number	Adj Res	PA Item and number	Adj Res	PA Item and number
Shipwreck Creek	n=16		n=13		n=51	
	2.7	No Attachment [10]	2.8	Dependence [8]	2.2 3.0 -3.6 2.1	Identity [1] Identity [3] No Attachment [10] Dependence [12]
Seal Creek	n=8		n=9		n=32	
			2.1	Identity [9]	2.6	Identity [3]
Thurra Inlet	n=17		n=10		n=30	
	3.0	No Attachment [14]				
Genoa Peak	n=11		n=14		n=53	
	2.9	No Attachment [10]	2.0	Identity [1]	2.5	Identity [1]
Wingan Inlet	n=15		n=13		n=42	
			2.1 4.3 3.2 3.1 2.9 2.0	Dependence [2] Dependence [6] Identity [7] Dependence [8] Dependence [12] Commitment [17]		
Note: The numbers that appear in parenthesis [ ] correspond with place attachment items shown in Box 24.						

The Weak Anthropocentric Group was over represented in their identity attachment to Seal Creek and Genoa Peak. This group was over represented in a dependent attachment to Thurra Inlet, a popular camping location. They were also over represented in their dependent and identity attachment and commitment to Wingan Inlet. Most of these sites offer either nature based experiences or the opportunity for bushwalking and limited camping.

The Ecocentric Group was over represented in their identity attachment to Seal Creek, Shipwreck Creek and Genoa Peak. The group was also under represented in no attachment to Shipwreck Creek and Seal Creek. A dependent attachment to Shipwreck Creek suggests that some in this group also use the locations for recreation or work related activities. Shipwreck Creek is accessed from Mallacoota and is popular for bush walks.

The test concluded that there were differences in each group in regard to five of the eight sites listed in the study. Hypothesis 3c was accepted.

Place Attachment Sites Summary

Relationships exist between environmental ethics and park attachment and the community's attachment to the sites listed in Table 53. The results have shown that

- The Anthropocentric Group have no attachment to Shipwreck Creek, Thurra Inlet, Genoa Peak and Point Hicks.
- The Weak Anthropocentric Group has an identity attachment to Seal Creek, and Genoa Peak, and an identity and dependent attachment, community identity and commitment to Wingan Inlet.
- The Ecocentric Group has an identity attachment to Shipwreck Creek, Seal Creek, Genoa Peak and Point Hicks, as well as dependent attachment to Shipwreck Creek and Point Hicks.

Other Place Attachment Sites

Hypothesis 3d There are differences between the groups' in their attachments to other sites not specified in the survey

Apart from the sites listed in the survey, the participants were asked to list other sites that were important to them and to complete the place attachment questions in relation to their particular site. There were 34 responses and the main sites identified by the participants are shown Table 54.

Table 54: Other Place Attachment Sites

OTHER PLACE ATTACHMENT SITES *Hypothesis 3d*		
1 Anthropocentric	2 Weak Anthropocentric	3 Ecocentric
n=7	n=4	n=23
Gabo Island Betka River Genoa Falls Lake Barracoota	Gabo Island Bastion Paint Bemm River	Gabo Island Bastion Point Bemm River Lake Barracoota Howe Range Benedore River Wilderness Areas

Gabo Island was mentioned by the three groups, while the Weak Anthropocentric Group and the Anthropocentric Group also mentioned Bastion Point and Bemm River. Similarly, the Ecocentric Group and the Anthropocentric Group mentioned Lake Barracoota. These sites were discussed in the community and conservation focus groups as important sites to the community. The test concluded that there were no significant differences in the three groups in regard place attachment to these sites. Hypothesis 3d was rejected.

There were many similarities between the place attachment sites discussed here, and the sites mentioned in the focus groups discussions, which generally supported this analysis.

7.3.2.3 Conservation Activities

This section examines conservation activities and their relationship to the groups' environmental ethics and park attachment, which forms part of the Hypothesised Model as shown in Figure 35.

Figure 35: Hypothesised Model, conservation activities

The relevance of conservation activities to the groups' environmental ethics and park attachment was examined to identify those most willing to be involved in park conservation and management. The conservation activities included volunteer membership, national park volunteer, national park donation, willingness to volunteer to manage sections of the national park and willingness to adapting lifestyle for the environment.

The research question for hypotheses 4 was:

> *Are there significant relationships between the conservation variables and the groups' environmental ethics and park attachment?*

To understand the participants' volunteer and conservation activities they were asked to answer yes or no to the questions listed in Box 25.

Box 25: Conservation Questions

Conservation Questions
Q1. Are you a member of Lions, Rotary or other volunteer organisation?
Q2. Do you participate in any national park voluntary activities?
Q3. Do you donate money to national park organisations?
Q4. Would you be willing to be involved in volunteer activities to maintain or manage sections of the national park?
Q5. Would you be willing to adapt your lifestyle to support the natural environment?

Volunteer Membership

Hypothesis 4a *There are differences between the groups' and their membership with volunteer organisations'.*

Participants were asked if they were a member of a volunteer organisation. When Pearsons Chi Square Test was applied, the result X^2=2.095, df =2, sig =.351, clearly indicated that the three groups were not significantly different. However, the results did establish that 40.3% of the survey participants were members of volunteer organisations, and the majority was located in the Ecocentric Group as shown in Table 55.

Table 55: Volunteer Member

Hypothesis 4a			Cluster Number of Case 1 Anthropocentric	2 Weak Anthropocentric	3 Ecocentric	Total
Member of Lions, Rotary or other volunteer organisation	yes	Count	13	7	38	58
		% within Cluster	34.2%	31.8%	45.2%	40.3%
		Adjusted Residual	-.9	-.9	1.4	
	no	Count	25	15	46	86
		% within Cluster	65.8%	68.2%	54.8%	59.7%
		Adjusted Residual	.9	.9	-1.4	
Total		Count	38	22	84	144
		% within Cluster	100.0%	100.0%	100.0%	100.0%

The test concluded that in this study, membership of volunteer organisations was not statistically significant across the groups. Hypothesis 4a was rejected.

National Park Volunteer

Hypothesis 4b *There are differences between the groups' and their national park volunteer status.*

Participants were asked if they took part in national park (NP) volunteer activities. When Pearsons Chi Square Test was applied, the result X^2=2.561, df =2, sig =.278, clearly indicated that the three groups were not significantly different. However, the results did establish that 21.1% of the survey participants were involved in national park volunteer activities, as shown in Table 56.

Table 56: National Park Volunteer

Hypothesis 4b			Cluster Number of Case 1 Anthropocentric	2 Weak Anthropocentric	3 Ecocentric	Total
Do you participate in NP volunteer activities	yes	Count	7	2	21	30
		% within Cluster	18.9%	9.5%	25.0%	21.1%
		Adjusted Residual	-.4	-1.4	1.4	
	no	Count	30	19	63	112
		% within Cluster	81.1%	90.5%	75.0%	78.9%
		Adjusted Residual	.4	1.4	-1.4	
Total		Count	37	21	84	142
		% within Cluster	100.0%	100.0%	100.0%	100.0%

The majority of the volunteers were located in the Ecocentric Group The previous focus group discussions suggested that the small community cannot support the volunteer quota needed for such a large park. The test concluded that in this study, national park volunteer activities were not statistically significant across the groups.

Hypothesis 4b was rejected.

NP Donation

Hypothesis 4c *There are differences between the groups' in terms of their tendency to donate to the national park.*

The participants were asked if they donated to national park organisations. When Pearsons Chi Square Test was applied, the result X^2=5.706, df =2, sig =.058, clearly indicated that the three groups were not significantly different. However, the result did establish that 21.4% of participants donated to the national park and most were located in the Ecocentric Group as shown in Table 57.

Table 57: Park Donations

Hypothesis 4c			Cluster Number of Case 1 Anthropocentric	2 Weak Anthropocentric	3 Ecocentric	Total
Donate money to NP organisations	yes	Count	3	5	22	30
		% within Cluster	7.9%	25.0%	26.8%	21.4%
		Adjusted Residual	-2.4	.4	1.9	
	no	Count	35	15	60	110
		% within Cluster	92.1%	75.0%	73.2%	78.6%
		Adjusted Residual	2.4	-.4	-1.9	
Total		Count	38	20	82	140
		% within Cluster	100.0%	100.0%	100.0%	100.0%

The test concluded that in this study, donating money to national park organisations was not statistically significant across the groups. Hypothesis 4c was rejected.

Willingness to Volunteer for the NP

Hypothesis 4d *There are differences between the groups' in regard to their willingness to volunteer for the national park.*

The participants were asked if they would be willing to volunteer to maintain or manage sections of the national park. When Pearsons Chi Square Test was applied, the result X^2=14.781, df =2, sig =.001, clearly indicated that the three groups were significantly different in their willingness to volunteer to maintain and manage the national park. The adjusted residual score is shown in Table 58.

Table 58: Willingness to Volunteer

Hypothesis 4d			Cluster Number of Case			Total
			1 Anthropocentric	2 Weak Anthropocentric	3 Ecocentric	
Willing to volunteer to maintain or manage sections of NP	yes	Count	11	10	54	75
		% within Cluster	29.7%	50.0%	67.5%	54.7%
		Adjusted Residual	-3.6	-.5	3.6	
	no	Count	26	10	26	62
		% within Cluster	70.3%	50.0%	32.5%	45.3%
		Adjusted Residual	3.6	.5	-3.6	
Total		Count	37	20	80	137
		% within Cluster	100.0%	100.0%	100.0%	100.0%

The differences in the groups were characterised by over representation in the Ecocentric Group, and an under representation in the Anthropocentric Group. The results showed that 54.7% of the survey sample was willing to volunteer to maintain or manage sections of the national park. Discussion from the focus groups suggested that people were willing to volunteer to maintain the park, which supports this analysis. The test concluded that in this study willingness to volunteer to manage sections of the national park was statistically significant across the groups. Hypothesis 4d was accepted.

Willingness to adapt lifestyle for environment

Hypothesis 4e *There are differences between the groups' in regard to their willingness to adapt their lifestyle for the environment.*

Willingness to adapt lifestyle for the environment received a positive response across the three groups. When Pearsons Chi Square Test was applied, the result X2=28.324, df =2, sig =.001, clearly indicated that the three groups were significantly different. The adjusted residual score is shown in Table 59.

Table 59: Willing to adapt lifestyle

Hypothesis 4e			Cluster Number of Case 1 Anthropocentric	2 Weak Anthropocentric	3 Ecocentric	Total
Willing to adapt lifestyle for environment	yes	Count	23	19	83	125
		% within Cluster	65.7%	90.5%	98.8%	89.3%
		Adjusted Residual	-5.2	.2	4.5	
	no	Count	12	2	1	15
		% within Cluster	34.3%	9.5%	1.2%	10.7%
		Adjusted Residual	5.2	-.2	-4.5	
Total		Count	35	21	84	140
		% within Cluster	100.0%	100.0%	100.0%	100.0%

The differences in the groups were characterised by over representation in a willingness to adapt lifestyle in the Ecocentric Group and an under representation in the Anthropocentric Group.

The results showed that 98.8% of the Ecocentric Group and 89.3% of the overall survey participants were willing to adapt their lifestyle for the environment. With the challenge of climate change, this result support the human-environment literature and historic events discussed in Chapter Two, which suggest that when human life is threatened people will act regardless of their environmental orientation. Similarly, Homburg and Stolberg (2006) deem that when environmental stresses threaten individuals, then a shift towards pro environmental behaviour is experienced. The motivation behind positive actions will vary. Some people will adapt lifestyle for self-interest, while other will change their behaviour for altruistic reasons. The test concluded that in this study willingness to adapt lifestyle was statistically significant across the groups. Hypothesis 4e was accepted

Conservation Activities Summary

Relationships exist between environmental ethics and park attachment and conservation activities. The results have shown that

- The Ecocentric Group is generally more likely to volunteer to maintain or manage sections of the national park and to adapt their lifestyle for the environment.

Hypotheses Summary

The community was segmented by their views, values and park attachment. The Ecocentric Group displayed pro ecological views, intrinsic values, identity attachment and park commitment. The Weak Anthropocentric Group displayed mixed ecological views, instrumental values, dependent attachment and park commitment. The Anthropocentric Group displayed anti ecological views, instrumental values and no attachment to the park.

Hypotheses regarding demographics, site locations and activities, place attachment sites and conservation activities were examined to establish if there were differences between the groups. The study found that age, place of residence and sites used by participants were not significant to the views and values of the community. A study by Furman (1998), also found that age was not an influencing factor on environmental concern.

University education was strongly related to pro ecological views, intrinsic values and identity attachment, while those will lower levels of education had anti ecological views and no attachment. A New Zealand study also found a lack of education contributed to lack of involvement in conservation (James, 2001).

The influence of gender was significant. The study established that the group with a majority of females had pro ecological views, intrinsic values and identity attachments, while the group with the majority of males displayed anti ecological views, instrumental values and no attachment. The result supports a study by Tarrant, Cordell and Green (2003) who found that environment protection was more pronounced in women. However, a study of farmers in Nebraska, by Schneider and Francis (2006) suggest that demographic variables may not be the best predictor of environmental ethics.

The types of activities that the community engaged in were related to their views, values and park attachment. Consumptive activities were strongly aligned with anti ecological views, instrumental values and a lack of park attachment. Appreciative activities were linked to pro ecological views, intrinsic values and identity attachment and appreciative and mechanised activities in the Weak Anthropocentric Group. The results support previous finding by Jackson (in Schuett & Ostergren, 2003), who found that those engaged in appreciative activities were more ecologically focused than those in other categories were.

Ewert (1999) also found that consumptive and mechanised behaviour users prefer to be involved in planning processes as a way of protecting their recreation activity, and therefore are likely to join voluntary associations where the membership is represented in resource planning. Conservation activities such as national park volunteer, membership of a volunteer organisation and donations to the national park were not associated with views, values and park attachment in this study.

Conservation activities such as a willingness to volunteer to maintain or manage sections of the national park, and a willingness to adapt lifestyle for the environment were strongly related to pro ecological views, intrinsic values and park attachment. The results supported a study by Uzzell (2004) who noticed a general change in public sentiment through a willingness to change lifestyles for the environment (Uzzell, 2004) The results also confirmed that environmental views and values are linked to conservation behaviour (Mayer & Frantz, 2004) and environmental ethics shapes a person's perceptions and responses to environmental issues (Benson, 2000). The results of the hypotheses tests are shown in Table 60.

Table 60: Results of Comparative Hypotheses Tests

Hypotheses		Concept	Result	Implications
Demographics	H1a	Age	rejected	Age plays no role in group membership.
	H1b	Education	accepted	The university educated are over represented in the Ecocentric Group and under represented in the Anthropocentric Group.
	H1c	Gender	accepted	Females were over represented in the Ecocentric Group and males were over represented in the Anthropocentric Group.
	H1d	Location	rejected	Residential location played no role in group membership.
Park Use Park Activities	H2a	Use sites	rejected	Other locations used in the region played no role in group membership.
	H2b	Other use sites	rejected	Other sited used, but not listed in the survey, played no role in group membership.
	H2c	Activities	accepted	Appreciative activities were over represented in the Ecocentric Group, consumptive activities in the Anthropocentric group and appreciative and mechanised activities in the Weak Anthropocentric Group.
Place Attachment	H3a	Community Attachment	accepted	Dependent and identity attachment to the community was over represented in the Weak Anthropocentric Group, while no community attachment was over represented in the Anthropocentric Group.
	H3b	Mallacoota Inlet Attachment	accepted	Identity attachment to Mallacoota Inlet was over represented in the Ecocentric group. No attachment or commitment to Mallacoota Inlet was over represented in the Anthropocentric Group, while dependent attachment and no attachment were both over represented in the Weak Anthropocentric Group.
	H3c	Place Attachment Sites	accepted	No attachment was over represented in the Anthropocentric Group to Shipwreck Creek, Thurra Inlet, Genoa Peak and Pt. Hicks. Identity attachment was over represented in the Weak Anthropocentric Group to Seal Creek, and Genoa Peak, and identity and dependent attachment, community identity and commitment to Wingan Inlet. Identity attachment was over represented in the Ecocentric Group to Shipwreck Creek, Seal Creek, Genoa Peak and Pt. Hicks, as well as dependent attachment to Shipwreck Creek and Pt. Hicks.
	H3d	Other Place Attachment Sites	rejected	There were no differences between the three groups for the other place attachment sites.
Conservation Activities	H4a	Membership	rejected	Having membership in a volunteer organisation played no role in group membership.
	H4b	NP volunteer	rejected	Being a national park volunteer played no role in group membership.
	H4c	NP Donation	rejected	National park donations played no role in group membership.
	H4d	Willingness to volunteer in national park	accepted	Willingness to volunteer to maintain or manage sections of the national park was over represented in the Ecocentric Group and under represented in the Anthropocentric Group.
	H4e	Willingness to adapt lifestyle for environment	accepted	Willingness to adapt lifestyle for the environment was over represented in the Ecocentric Group and under represented in the Anthropocentric Group.

7.3.2.4 Statistical Analysis Conclusion

The results from the statistical analysis reveal that the majority of the community around Croajingolong National Park adhere to an ecocentric worldview a belief in the intrinsic and non-use values and are willing to volunteer in the national park for conservation management and adapt their lifestyle for the environment. The results support previous findings that those with ecocentric worldviews are more likely to support the natural environment (Barr, 2003) and approaches to environmental issues reflect worldviews (Benson, 2000). Approximately a quarter of the population, have anthropocentric views and no attachment, while a small number have mixed views, instrumental values and dependent attachment to the national park. The region has a divided business community; some adhere to an anthropocentric view, while others to an ecocentric view.

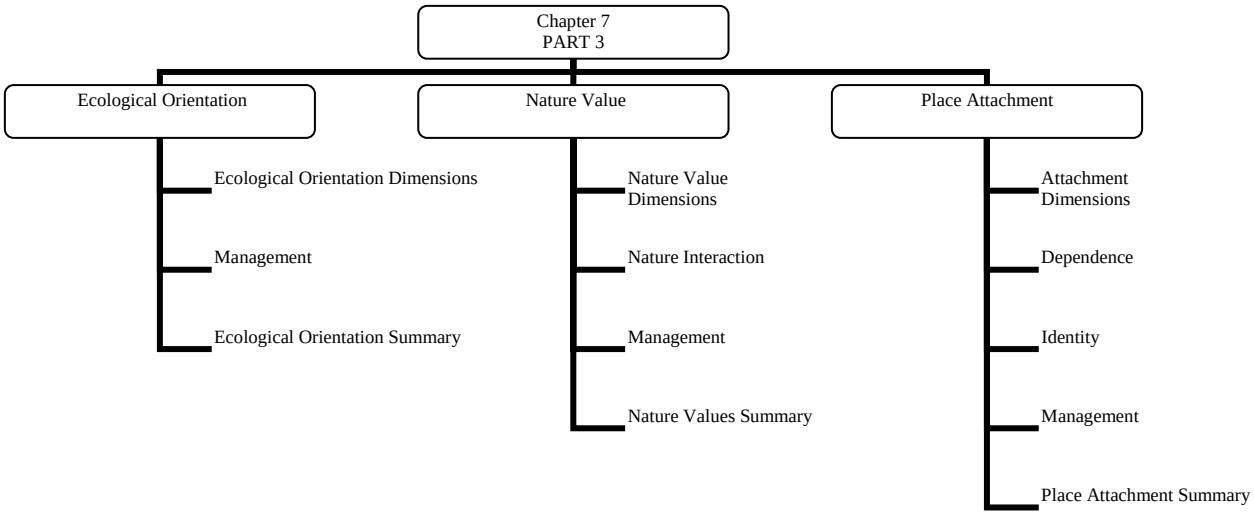
The hypothesis tests have shown that the community's environmental ethics and park attachment were influenced by education, gender, activities and attachments. University education, the female gender, appreciative activities, identity attachment and conservation activities were all associated with an Ecocentric worldview and identity attachment. An Anthropocentric worldview was represented by the male gender, consumptive activities and lack of attachment to the national park. The Weak Anthropocentric Group was represented by appreciative and mechanised activities and dependent attachment.

The age of the respondents and locations of residence as well as national park volunteerism, park donations and volunteer membership were not related to the community's environmental ethics and park attachment in this study.

The statistical analysis was supported by three open ended questions placed at the end of each instrument in the survey. The questions allowed the participants to explain other views they had concerning environmental ethics and place attachment, which are presented in Part 3 of this chapter.

7.4 PART 3: OPEN ENDED QUESTIONS

Figure 36: Chapter 7, Part 3



Introduction

A range of views have already been discussed in the focus groups and the semi structured interviews, which provided context to the statistical data presented in Part 2. Open ended questions were placed after each of the instruments that measured ecological orientation, nature value and place attachment in the survey to ensure that the respondents had the opportunity to express all views. The responses help in understanding the community's views and attachments and provide further insight into the quantitative results. The topics discussed by the participants in Part 3 of this chapter are shown in Figure 36 and the open-ended questions used in the survey are shown in Box 26.

Box 26: Open Ended Questions

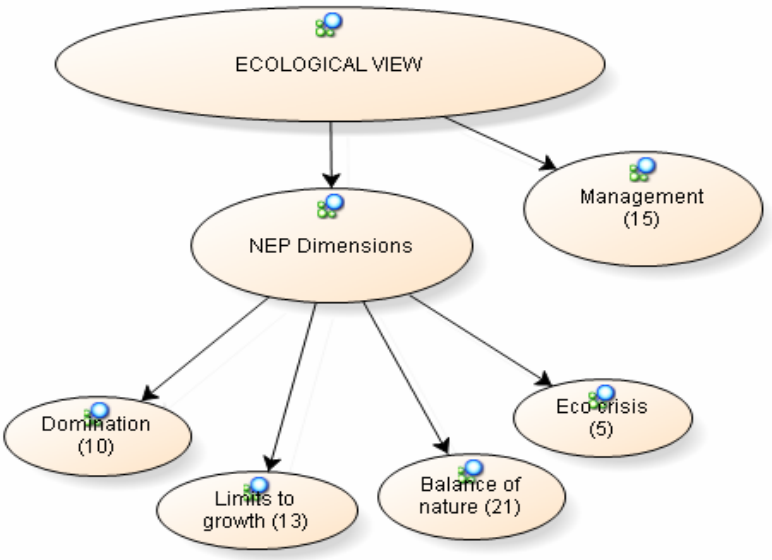
Open Ended Questions in Survey	
Ecological Orientation	Please explain any other views you have about the natural environment that you consider important.
Nature Value	Please explain any other views you have about the value of plants, animals and nature that you consider important.
Place Attachment	Please tell us about other places within the park that are of special significance to you and why.

Approximately 75 percent of the respondents completed the additional comments regarding views about ecological orientation, nature value and place attachment. The comments were analysed in NVivo 7, and arranged into nodes to represent the emerging themes.

7.4.1 ECOLOGICAL ORIENTATION

The survey participants were asked to explain additional views they had concerning the natural environment that they considered important. The responses were divided into the two principal nodes, management and the New Ecological Paradigm (NEP) and the sub categories of domination, balance of nature, limits to growth and ecological crisis as shown in Figure 37. The number of responses in each node is shown in brackets under the category name.

Figure 37: Ecological Orientation



NEP Dimensions

A number of responses were recorded that related to dimensions in the New Ecological Paradigm Scale (NEP) that measures ecological orientation. The dimensions of the NEP scale were represented in the comments, with the exception of the anti exemptionalism dimension. The dimensions represented in the responses were domination, limits to growth, balance of nature and ecological crisis. Comments were made concerning the structure of

some of the NEP statements for domination, limits to growth and ecological crisis, which will be discussed at the end of each section. The comments that relate to the dimensions may assist with future scale development.

Domination

This node characterised the domination of nature, which was strongly represented in the Anthropocentric Group, and marginally represented in the Weak Anthropocentric Group. The responses reflected both a strong and a tempered view towards domination, as well as comments on the structure of the NEP statement.

NEP Statement: Humans were meant to rule over the rest of nature.

> "Meant" is a very loaded word here, too teleological. Only to the extent that they are willing to protect natural processes and systems and species for their own sake and to acknowledge that we depend on them. (Respondent 157)

The respondents accept that humans do modify their environment, but should not destroy nature in the process.

NEP Statement: Humans have a right-to modify the natural environment to suit their needs.

> Within certain limits and bearing in mind that natural processes and systems must be protected. (Respondent 157)

Some respondents saw domination in the role of caretaker for the environment. Human domination is an anti-ecological view and against nature, but when considered in a caretaker role of caring for the environment would also reveal pro-ecological views.

> Plants and animals are an integral part of the earth but humans were given domination over them, to care for them. (Respondent 143)

Many of the respondents represented in the Ecocentric Group were strongly against domination, which is a pro ecological view.

Anti Domination

> I believe that there can be harmony between our modern society needs and the needs of nature. The needs of nature should dominate the other. (Respondent 20)

Domination Discussion

Domination of nature was over represented in the Anthropocentric Group and the Weak Anthropocentric Group. Dialogue about domination revealed an acceptance that humans modify their environment, and dominate nature. The responses reflected a mixed ecological view in the Weak Anthropocentric Group where domination appeared misplaced with nature balance. The domination view was softened when considered from the perspective of humans as caretakers of the environment with a will to preserve nature. Mixed views were also noted in some groups in a study by Kaltenborn and Bjerke (2002b). The role of humans as dominators or stewards for the natural world has been the topic of debate between White and Passmore since the 60s (Attfield, 2003). In this study agreement with the two domination statements 'Humans have a right-to modify the natural environment to suit their needs', and 'Humans were meant to rule over the rest of nature', may not accurately reflect anti ecological views, and a review of these concepts is suggested.

Limits to Growth

The Ecocentric Group was over represented for limits to growth and all of the respondents stated that the earth had already reached the limit of the number of people it could support, with references to over population and starvation.

NEP statement: We are approaching the limit of the number of people the earth can support.

> The continuing survival of the earth and all species including humans is related to this statement. In fact the statement should read, 'We have approached or surpassed the limit of the number of people that the earth can support' (Respondent 62).
>
> We have people dying of starvation so we have already passed the number of people the earth can support. Therefore, I should strongly disagree (Respondent 156).

Development that comes with population density was discussed and the respondents expressed concern for natural areas and resources that they believed were threatened by economic decisions.

Development

> I think that the natural environment should be protected as much as possible, and that those areas are still contained in National Parks and Marine Parks, which should be treasured and extended if possible, and that nothing should be done to impinge on the few areas on the coast, which are still intact. (Respondent 10)

Many respondents were concerned about the use of resources and supported alternative clean energies. Comments were made concerning the need for more research in this area. From the responses, the support for renewable clean technologies was evident in the study.

Renewable Resources

> We need to learn about sustainable use. We need timber, water, food and power. We cannot expect to be able to import all our needs. We must acquire them where we live, but we must use sustainable regimes to produce our needs. We must develop fire, soil, water and air regimes, which produce our needs and those of our people 2,000 years from now. (Respondent 92)

Resource Use

> It is obvious that populations will have to be stabilised to a nil increase. Australia has a sunny, mild climate very suitable for Solar Energy. Solar energy should be incorporated in housing and commercial buildings as well as retrieving rainwater through filtered systems to tanks. Too many natural areas are being spoilt by housing developments being allowed in scenic, coastal or hilly ridge ways. (Respondent 68)

Limits to Growth Discussion

The limits to growth concept represented a pro ecological view. The Ecocentric Group strongly supported the statement, while the Weak Anthropocentric Group showed moderate support. The Anthropocentric Group did not agree with limits to growth in the statistical results. Concern about development that comes with population density and resource use driven by economic decisions caused disquiet in the community, while alternative clean energies and respect for the environment was strongly supported.

Responses to the NEP limits to growth statement, 'We are approaching the limit of the number of people the earth can support', did not accurately reflect community views in this study. Many of the respondents believed that the earth had already reached or surpassed the limit of the number of people it could support. This view was confirmed in the literature where reasons such as population growth (Burney, 2003) and excessive consumption (Waggoner & Ausubel, 1995) were acknowledged as major contributors to the limits to growth problem.

Balance of Nature

Responses to the balance of nature dimension, which is aligned with pro ecological views, were represented in the Ecocentric and the Weak Anthropocentric Group. The balance between nature and human use was evident through a concern for resource use and a respect for natural systems.

Balance

> Nature will probably maintain homeostasis but it may not include us. (Respondent 29)

> The natural environment is the foundation for life and thus future existence on this globe. Diversity of life is protected by the integrity of the natural environment. (Respondent 155)

Some respondents talked about the interconnection between people and the natural environment.

Interconnection and Respect

> Everything on this earth is connected, by harming the earth we harm ourselves and vice versa. (Respondent 7)

The topic of education about the environment was also important in achieving a balance between nature and human use. Some respondents stated that education on the environment was necessary, as well as an understanding of the complete earth community.

Education

> Unfortunately, our education system has and continues to fail us. By not emphasising our role as a member of the total earth community of all living things. (Respondent 154)

Balance of Nature Discussion

There were a large number of responses to the balance of nature dimension, which aligned with pro ecological views shown in the Ecocentric Group, while the Anthropocentric Group were against nature balance. The Weak Anthropocentric Group agreed with nature balance, however this dimension was over shadowed by the anti ecological views of human exemption and domination. The mixed views displayed in the Weak Anthropocentric Group were also evident in a study by Corral-Verdugo and Armendariz (2000). The study found that the two positions of nature balance and control of nature (domination) were not mutually exclusive, and that there was no conflict in holding both positions (p. 26).

The balance of nature responses centered on the connection between humans and the natural environment, which was discussed in the literature review and evident in many works including the work of Theodore Roszak who talked about the connection between personal and planetary wellbeing in his books, 'Person Planet' (Roszak, 1979) and 'Voice of the Earth' (Roszak, 1992). The need for balance to maintain homeostasis and support all life on the planet was reflective of Lovelock's (1969) GAIA Hypothesis. The study revealed that nature balance was important to the community.

Ecological Crisis

The Ecocentric Group displayed a strong belief in an ecological crisis, which is a pro ecological view. Concern for the planet as well as a belief that an ecological catastrophe is already here were comments made by respondents when discussing their views towards nature.

NEP statement: If things continue on their present course, we will soon experience a major ecological catastrophe.

> This is already happening, 100 years ago and accelerating. (Respondent 104).
>
> Soon means 50 yrs plus. (Respondent 137)

Many of the respondents talked about damage caused to the environment through human actions, which really concerned them.

> Often the affects of human actions are not known, understood or felt until many years after the action, if at all. For example changes to geomorphology resulting from stone walls, boat ramps, grains altering water and sand movements. (Respondent 109)

An alternative opinion by one respondent was that ecological catastrophes would happen regardless of human endeavors.

> Major ecological catastrophes have a habit of erupting, regardless of human endeavors: earthquakes, volcanoes, tsunamis, hailstorms, droughts. Consider Krakatoua, Mt St Helens, earthquakes in Chile, Turkey and Washington. (Respondent 107)

Ecological Crisis Discussion

Damage to the environment through human actions disturbed the community. The Ecocentric Group was most concerned about an ecological crisis, which is a pro ecological

view. With a global focus on the environment and shortage of natural resources such as water, many of the respondents believed that the earth had already experienced an ecological crisis. The literature review showed that humans were facing a crisis (Stern, 2006) and have faced similar crisis throughout human history, which has forced societies to adapt to change (Wall, 1994). Increased population and scarcity of resources (Curran & De Sherbinin, 2004) have preempted many changes in societal structures. Contemporary societies face a similar crisis in climate change. The responses to the ecological crisis statement, 'If things continue on their present course, we will soon experience a major ecological catastrophe', would benefit from a review of the wording, to reflect current community views.

Management and Ecological Orientation

When considering views towards nature, some respondents took the opportunity to direct their responses to the management of the national park. The Anthropocentric Group, the Weak Anthropocentric Group and the Ecocentric Group all contributed to this topic. The community were willing to volunteer, but were limited by a small and aging population. The focus group participants also commented that the volunteers were overwhelmed by the amount of work required, and their small community could not meet the volunteer numbers needed for the upkeep of the park.

Volunteer

> Mallacoota, in common with many other remote communities depends on volunteerism to provide services in many different areas, often making up for the shortfall in governmental or municipal responsibilities. The volunteerism load becomes carried by fewer and fewer "old stalwarts", the usual suspects. Adding to the present volunteerism expectations is problematic. (Respondent 16)

Many of the respondents were hopeful that the national park service, Parks Victoria, would address their concerns regarding legislation, environmental protection and road access for emergencies and fire management.

Legislation to Protect Environment

> Need for strong supervision of local government legislation, which protects the environment, to counter the unscrupulous wealth developers. National parks; littering is a major problem in the area; lack of rubbish collection spots; inappropriate use of bush… and inappropriate activities There is a need to try to achieve a balance of preservation and protection of the environment with development. (Respondent 63)

The respondents expressed concern for the national park and protection from development and inappropriate activities that will affect the natural features of the region.

Nature Preservation

> There seems to be a view held by the state government that Croajingolong National Park is part of a "comprehensive, adequate and representative reserve system", which therefore allows any amount of environmental damage elsewhere. The continued loss of hollow bearing trees during logging is driving species including the powerful owl, sooty owl, masked owl, greater glider and yellow bellied glider to extinction. (Respondent 163)

Road access to open the forest and for bushfire management were topics of concern.

Roads

> Not enough roads in the park to get to bushfires. Animals that belong in bush are going to farms and open areas. The bush is too dense, it is not open as it was 100 years ago, the parks are mismanaged. (Respondent 65)

Management Discussion

Topics of concern to the community included volunteers, legislation to protect natural areas and nature preservation, which align with pro ecological views displayed in the Ecocentric Group. Suggestions on ways to preserve the ecological features included limiting development and logging; weed and animal control; and better control over park use. The responses highlighted community concern about the national park and region. Many of the comments were also reflected in the focus group discussions. The study has highlighted community concern about the national park and locations in the regions that are important to the residents and visitors.

Ecological Orientation Summary

Responses both supported views expressed in the focus groups and provided more detail to the ecological orientation dimensions in the statistical results. Comments directed to management of the national park expressed concern in the community for the preservation and management of the park. The comments that related to the ecological orientation dimensions such as domination, limits to growth, balance of nature and ecological crisis assisted with understanding contemporary views on these topics and the accuracy of the NEP statements. The comments regarding the accuracy of some of the NEP statements are summarised in Table 61.

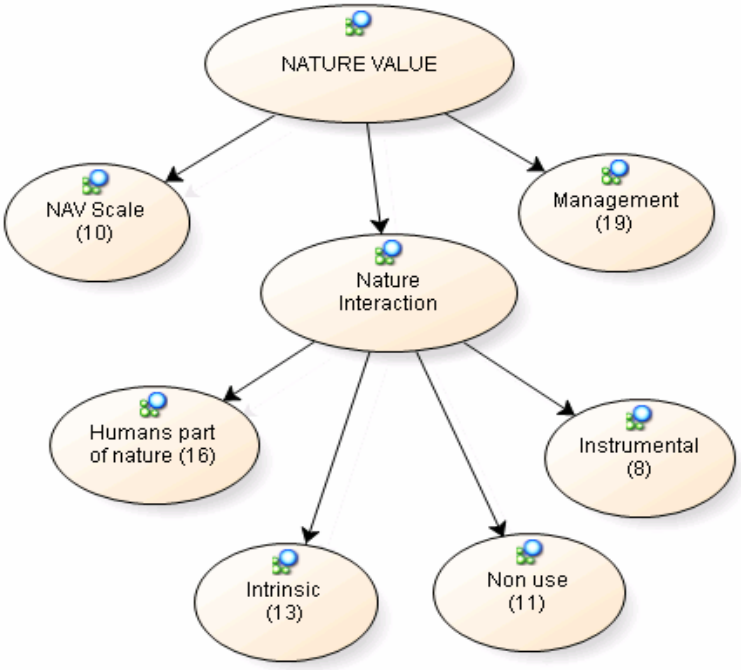
Table 61: NEP Dimensions

NEP Dimension	New Ecological Paradigm Scale (NEP)
Domination	NEP statement: participants expressed frustration at the limitations of the statements, therefore the two statements cited may not accurately reflect anti ecological views in this study.
Limits to Growth	NEP statement: participants believe the earth has already surpassed its limits, therefore, this statement may not accurately reflect a pro ecological view in this study.
Ecological Crisis	NEP statement: participants believe that an eco crisis has already happened, therefore this statement may not accurately reflect a pro ecological view in this study.

7.4.2 NATURE VALUE

Respondents were asked to explain any other views they held about the value of nature that was important to them. The nature value responses were divided into three main themes: management; Natural Area Value Scale (NAVS) and nature interaction and the sub themes of intrinsic, instrumental and non-use values, humans' as part of nature and human greed as shown in Figure 38. The instrumental, intrinsic and non-use values form the dimensions to the natural area value scale.

Figure 38: Nature Value



Natural Area Value Scale

The natural area value scale (NAVS) was used to examine the respondents' nature values. When responding to the questions some comments were made about general statement structure and some were directed to specific statements.

NAVS: Statement Structure

> I cannot answer some questions as they represent incomplete thought or are too simplistic (Respondent 44).
>
> Some questions have grey areas. If I say it is better to test drugs on animals than on humans, it means I condone that action or vice versa. I believe we should use natural resources to some extent. Some plants can become pests destroying other vegetation. Poor questions. (Respondent 36)
>
> You have not asked the question or made the point that ensuring the forest and environment are well maintained, is looking after humans. Your questions imply one or the other. (Respondent 43)

NAVS: Instrumental Value. Is it better to test new drugs on animals than on humans.

> What does drug taking have to do with the rest of the survey? (Respondent 139)
>
> This question has an inbuilt bias. (Respondent 84)

NAVS: Instrumental Value. Forests are valuable because they produce wood products, jobs and income for people.

> Yes, that is part of their value certainly, but not the whole story by any means. (Respondent 157)
>
> This is an ambiguous question. (Respondent 84)
>
> Forests are of value because they produce wood, no dispute, but they have other values. (Respondent 156)

NAVS: Intrinsic Value. Ugliness in nature indicates that an area has no value

> Ugliness is a human value, and is irrelevant when applied to nature. (Respondent 136)

NAVS Discussion

The comments suggested that the respondents wanted to contribute more detail, or wanted the wording changed in some statements. There was some objection to the statement, 'Ugliness in nature indicates that an area has no value'. This statement is reverse coded so that agreement with the statement indicated intrinsic values. The word ugliness, used in association with nature caused offence to some respondents and rewording of the statement may proffer a more positive response. Opposition to the wording in the statement did not affect the results concerning intrinsic value.

It would seem from the comments, that some respondents in this study value nature for both its intrinsic and instrumental values, and wanted the opportunity to express both values. According to Lockwood (2005, p. 11) "none of the value categories are mutually exclusive" and people often have a combination of values. While combined values are part of the complex human state, one value is likely to be more dominant in directing the way a person lives their life (Axelrod, 1994). Caution is advised in altering the statements as this may negate the scales ability to distinguish between instrumental, intrinsic and non-use values.

Nature Interaction

In this category, the respondents expressed views that reflected their interaction with nature. Experiences and expressions of human interaction with nature took many forms. Some discussed human greed as a negative and destructive relationship with nature, while others expressed the interaction as humans connected to nature and a spiritual connection. Others expressed views that implied a belief in intrinsic, instrumental or non-use values.

Humans Part of Nature

Humans are part of the earth community and deeply connected with nature was a view expressed by these respondents. The responses were aligned with pro ecological views and intrinsic values evident in the Ecocentric Group.

Part of Nature

> Humans are part of nature. Old growth forests have higher value than anything humans can produce or pass on. (Respondent 163)
>
> We need to "tread lightly" and find ways to coexist. That is we need to understand that humans are part of nature. (Respondent 57)

Interconnected

> Without nature and all its diversity, we could not exist. It is essential for both our physical and spiritual wellbeing. The national parks system, which contains representative collections of Australia's diversity, is vital in not only protecting plants, animals and natural features, but also allowing humans to gain inspiration from them. (Respondent 47)
>
> People need to understand the incredible balance in nature and its part in the circle of life keeping the balance. (Respondent 80)

Further comments included reliance on nature for survival and the value of nature for human spiritual wellbeing.

Spiritual

> Experiencing nature is also a deeply spiritual experience - "Seeing the face of God". (Respondent 146)
>
> To experience the wonder, the intricacies, the beauty of nature enriches our lives and can replenish the spirit. (Respondent 164)

The negative side of the human nature connection was human greed. Some of the respondents expressed anguish at the abuse of nature generated through human selfishness, which they believed resulted in nature abuse and the devaluing of nature.

Human Greed

> We are such a greedy, single minded, closed-minded species in general that the earth would be better off without us. (Respondent 4)
>
> It is all about balance. There is too much greed in the human race, if they can't make money out of it, it is of no use. We have to learn to regard all things on this planet as important and work out how to co-habitat successfully, not plunder anything. (Respondent 123)

Humans Part of Nature Discussion

The theme that humans are part of nature and not separated from it was discussed in the literature review under environmental theorists and philosophers. The theme was evident in Bioregionalism (Berg & Dasmann, 1972) and Wilson's Biophilia Hypothesis (Wilson, 1984) and others. Humans as part of nature may align with identity attachment, developed from experiences that evoke an emotional or symbolic attachment to nature. Some respondents talked about nature as a spiritual place and necessary for human wellbeing, which are views reflected in Deep Ecology (Naess, 1972). The comments about human greed have undertones of Hardin's 'Tragedy of the Commons', which he declared would eventually lead to the collapse of the common resource base (Hardin, 1968). The responses have shown that in this community, these views form part of contemporary thought about nature.

Intrinsic Value

Nature valued for its own sake outside human use was aligned with intrinsic value evident in the Ecocentric Group. People express their views about nature's value in many ways,

from valuing an individual entity to valuing whole ecosystems, but underlying each of the responses was a concern and respect for nature in its own right.

> Plants and animals have untold value. We know very little about the complexity of the natural world and must respect it, because it sustains all cycles on earth. (Respondent 179)

> Even animals look out for their own. (Respondent 143)

Ecosystems

> Plants and animals are very important to the ecosystem of the planet and it would be foolish to think any other way. Just try to make a blade of grass and see how far a scientist gets. (Respondent 187)

> Experience has shown that even removing a so called "pest" can disturb the balance of the ecosystem, each element has its place. (Respondent 106)

Intrinsic Value Discussion

When nature is valued for itself, outside human use, it is considered to have intrinsic value. Intrinsic values and pro ecological views were evident in the Ecocentric Group recognised through a concern for biotic communities and ecosystems. This study supported the findings by Tarrant, Cordell and Green (2003), which highlighted the non economic value of forests to an urban community. Intrinsic value in nature was integral to the Deep Ecology movement of the 70s and highlighted in Singer's book on animal rights (Singer, 1975). Throughout human history, a belief in intrinsic value of nature has been reflected through vegetarian practices, ancient philosophies and eastern religions (Wall, 1994).

Instrumental Value

Nature valued for what it can provide for humans is referred to as instrumental value and was apparent in the Anthropocentric and the Weak Anthropocentric groups. Respondents discussed nature value in the context of tourism, air, water and forestry. Underlying each of the responses is a view that nature is valued in the first place for what it can provide to humans.

Tourism

> Mallacoota has an abundance of walking tracks, beaches, lakes system, ocean, it can become a sustainable tourism asset if well thought out systems are put in place to protect the natural environment and provide education. (Respondent 35)

Forests

> Forests are definitely valuable for ecological reasons but also for contribution to local economies through tourism. (Respondent 109)

Anti-ecological views were evident in the Anthropocentric Group and in some responses, as well as criticism that most urban dwellers are out to save the planet (Respondent 6).

Anthropocentrism

> "The greatest thing on earth is man, and the greatest thing in man is mind", a quote worth remembering. No other animal nor plant can reach the intellectual standards (nor fall from them) as mankind can. (Respondent 107)

> Nature was created for human beings, but that does not make it valueless. (Respondent 143)

Alternatively, responses that have been moderated through a concern for nature, such as in the Weak Anthropocentric Group were also included.

> The welfare of people comes first, but that does not mean we have to destroy nature. Nature is destroyed for wants not needs. It is better to study the vast natural, medicinal possibilities that nature provides, rather than inventing drugs. (Respondent 143)

Instrumental Value Discussion

Humans rely on nature to provide a range of products that support human life such as housing, energy and water. Instrumental value is often associated with those reliant on the resource for their livelihood, a view supported in a number of studies (Schneider & Francis, 2006; Winter, Lockwood and Morrison, 2003). The Anthropocentric and Weak Anthropocentric Group both displayed instrumental values. The historic review of the literature by Niragu (2004) has also shown that when instrumental value dominates societies, it often signals a disconnection with nature, which has the potential to lead to ecological crisis.

Some respondents recognised the need to use nature to support human existence, but were very concerned about human impact. This represented a more moderate version of instrumental value where the dominant value is still instrumental, but is diminished somewhat through concern for nature, such as in the Weak Anthropocentric Group.

Comments were also made regarding the value statements; 'Is it better to test new drugs on animals than on humans', and 'Forests are valuable because they produce wood products, jobs and income for people'. While the respondents questioned the former statement's usefulness to the survey, the latter statement prompted the most insightful responses. Many of the responses displayed mixed values, which supported the results of studies by Kaltenborn and Bjerke (2002b) and Manning, Valliere and Minteer (1999).

Forests were valued for supporting humans but were also valued for other reasons associated with recognition of intrinsic value. A challenge for scale development lies in the ability to represent participants who acknowledge that humans use nature for survival but also consider that nature has intrinsic value.

Non-Use Value

When nature is valued for the future, it is considered to have non-use value.

> Croajingolong National Park has Biosphere Reserve status and its natural ecosystems and biodiversity along with these wilderness values should not be compromised in any way as it can serve as a special reference into the future. (Respondent 68)

Some of the respondents expressed non-use values associated with human use in the future, which was evident in the Weak Anthropocentric Group.

Non-Use Value-Instrumental

> We are very lucky to have these few parks in Victoria, which is such a small state. We must keep what we have got for our kids and their kids. It is just so lovely the bush and flora where the loggers haven't been. (Respondent 166)

Others expressed non-use values for nature's sake, which was evident in the Ecocentric Group.

Non-Use Value-Intrinsic

> I just love and need to know that wilderness exists for its own sake regardless of whether I can go and see it or not. (Respondent 137)

> It is important to maintain natural areas of our environment, and preserve them for conservation sake. (Respondent 128)

Non-Use Value Discussion

When an area is preserved for the future, it is considered to have non-use value. The responses in this study suggested that non-use values were aligned with instrumental value as shown in the Weak Anthropocentric Group and intrinsic value shown in the Ecocentric Group. Three of the five non-use value statements in the Natural Area Value Scale discussed the non-use for humans in the future, a concept aligned with instrument value. Future scale development may benefit from inclusion of intrinsic non-use value statements that represented respondents that valued nature for the future outside human use. This approach would require a review of the stance that all non-use values emanate from instrumental values.

Management and Values

Values attributed to natural areas brought forward concerns about the management and access to the national park. The zealous responses gave an insight into the value of nature to the participants. Management issues of concern to the respondents were staff and funding, research, park access, management of fire, and weed and animal control.

Staff & Funding

> We need many more park rangers who communicate with the public out in the field and elsewhere and help them appreciate it. Voluntary work should only be the icing on the cake. (Respondent 25)

Research

> Vastly more funding and personnel and the best possible sciences are required to give us a chance of succeeding. (Respondent 16)

Park Access

> There seems to be a misconception with a vocal section of our community that if you declare an area a "wilderness area", you lock it up and do nothing to manage the region. Failure to manage means giving all feral animals and plants a free go. People appreciate nature when you can see it. Controlled access to feature points in a wilderness area emphasises the value of an area more than words or pictures. (Respondent 154)

Fire, Weed, Animal Control

> Preserving the park indefinitely from the inclusion of weed species, wildfire and feral animals seems to be more than the severely limited resources of government departments can hope to accomplish. (Respondent 16)

Comments about the value of integrating indigenous skills, concern about inappropriate activities, unsuitable development and devaluing of nature were made.

Indigenous Communities

> The Thawa, Bidawal, Ganai and Monero [aboriginal] people lived within discrete language regions of Croajingolong National Park for over 40,000 years without invading each other's lands or destroying the natural environment. They changed the environment but never allowed a continuous destructive cycle to begin. Australians can learn from this… by analysing the scientific and social skills of the most successful and sustained civilisation on earth. (Respondent 92)

Development

> Coastal development is already reaching crisis point; planning laws need to reflect this. (Respondent 115)

Nature Devalued

> The bush is no longer natural as it was 150 years ago. The early settlers came through Gippsland with bullock wagons, and today it is impossible to walk through the unmanaged disgrace they call a national park. (Respondent 96)

> Lose one [plant/animal], lost ten, lost ten; lose 100, where do we stop. (Respondent 103)

Management Discussion

The passionate responses in this category indicated the presence of intrinsic and non-use values. Some concerns included insufficient staffing, funding and research, access and fire, weed and animal control. The respondents talked about the utilisation of indigenous skills, they wanted action taken on inappropriate park use and unsuitable development, and preservation of the natural features in the region. The comments suggested that the respondents perceived a lack of action by the authorities as a devaluing of nature and a dismissal of their needs.

Nature Value Summary

The nature values examined in this study were intrinsic, instrumental and non-use values. The complexity of human-environment interaction was such that most people related to a combination of values. The responses to the open-ended questions provided more detail to the statistical data about nature values in the community. Some comments included the view that humans are connected to nature, while other comments were directed to the management of the national park. The natural area values dimensions, which included intrinsic, instrumental and non-use values, were captured in the responses. There were also some comments concerning two of the statements, which are summarised in Table 62.

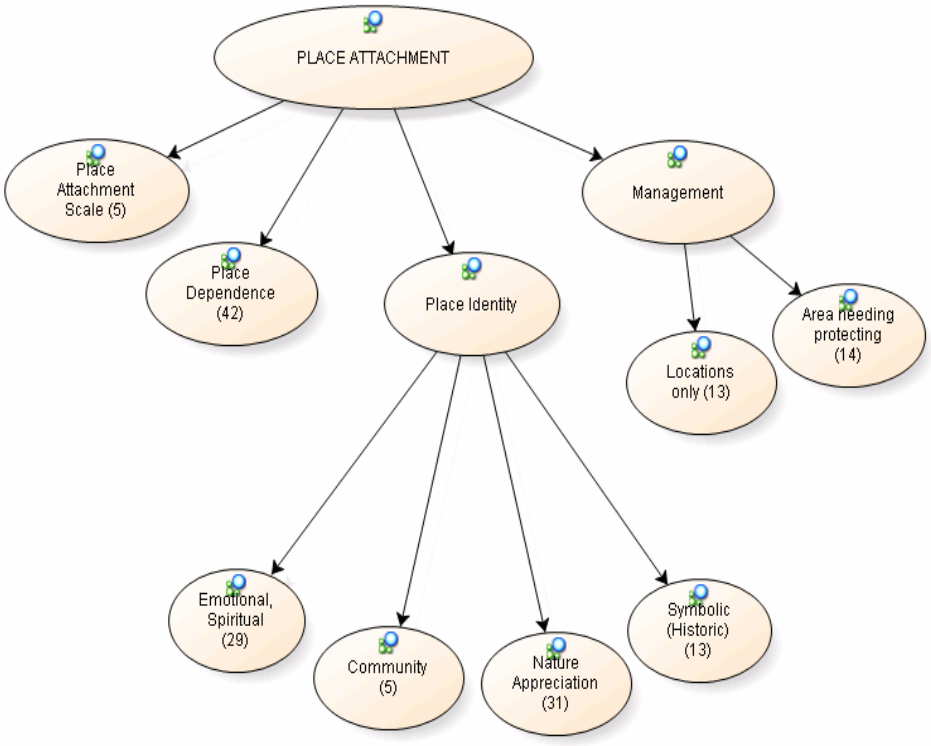
Table 62: Natural Area Value Scale

NAV Dimension	Natural Area Value Scale (NAV)
Intrinsic	NAV statement: participants objected strongly to the term ugliness in nature, which they considered a human concept. This view has not affected the results of the study.
Instrumental	NAV statement: participants considered that forests had more value than described in the statement. While the statement accurately reflects instrumental value, it does not allow the expression of instrumental mixed values.

7.4.3 PLACE ATTACHMENT

The respondents were asked to explain other places in the park that were important to them and not listed in the survey. The literature established that attachment is shaped through use and is formed most strongly in childhood and some examples have been included. The place attachment responses were divided into four themes: management; place attachment scale comments, place dependence and place identity and sub themes shown in Figure 39.

Figure 39: Place Attachment



Place Attachment Scale

This node related to the structure of the place attachment instrument. The place attachment (PA) scale was used to examine the respondents' dependence and identity attachments to the national park, the community and to locations within the park. Some respondents did not complete the multiple location statements in the survey, as they found it difficult to put one place above another.

> I found some of the surveys hard to answer as the questions were posed in absolutes. One place being better than another is difficult, as this puts them in competition rather than recognising that they offer differences, not better or worse. It all depends on your personal perspective at the time and this says more about the viewer than the place. (Respondent 161)

Other respondents commented on the structure of the statements. The comments related more generally to the survey and to one item in the place attachment scale.

> Comments are too extreme. (Respondent 159)

PA Statement: Identity Visiting this park says a lot about who I am

> Too egotistical for me to agree, who I am is of no importance whatsoever. (Respondent 157)

PA Statement: Commitment. I have or am willing to invest my heart and soul into this place

> Perhaps if it were necessary for its survival. (Respondent 62)

Place Dependence

Use of the national park and surrounding areas for work, sport or recreation is referred to as place dependence. There were no references to sport activities in the responses, however active and passive recreational activities were discussed by the respondents.

The respondents also spoke about locations that were important to them for business and recreation. Dependent attachment was evident in the Weak Anthropocentric Group and in the Ecocentric Group to Shipwreck Creek and Point Hicks. One respondent did not recognise that they had an attachment, however attachment was revealed through their talk about a place.

> The tracks and roads are very important because the journey to each place is half the fun. The open beaches, the old growth, the water quality. The Rapids is a beautiful spot. All the access points to the Mallacoota lakes. The best thing about this park is the places I haven't been to yet.

> I haven't formed an attachment yet but I have explored and discovered new wonders. (Respondent 27)

The majority of respondents formed attachments through recreational activities more that through work or sport related activities.

Hiking to Genoa Peak and Picnic at Genoa Falls

> Genoa Falls, a place of beauty and tranquility. We have always been there as a family. I have introduced many friends and family members to the wonders of its natural charms; the watercourses, the amazing cliffs and ferns, the water dragons, and the incredible cold water. A wonderful spot for a picnic and a swim after being up Genoa Peak for a hike. How lucky we are to have so much beauty in our own backyard. (Respondent 128)

Place Dependence Discussion

The use of the region by the respondents was mostly for recreation, with the exception of one related work activity. The work related activity was bird watching for documentation in a bird atlas, which is an appreciative activity and is recognised as an activity of the Ecocentric Group. The local community utilised all the locations in the national park and surrounding area extensively for recreational activities. The majority of activities were appreciative with a small number of consumptive and mechanised activities. There were similarities between the place attachment sites discussed in these questions, the use sites identified in the statistical data and the locations discussed in the focus groups. The locations and activities discussed by the respondents are shown in Table 63.

Table 63: Place Dependence

Location and Activities	
Bastion Point	Broken Board Rocks Activities: surf, swim, family, dive, fish, boogie board, views
Betka Beach	Activities: camp, swim
Bemm River	Activities: bike, fish, boat
Croajingolong NP Region	Mallacoota Inlet, Shipwreck Creek, Seal Creek, Genoa Peak, Wingan Inlet, Thurra River, Mueller River, Point Hicks, Tamboon Inlet. Activities: nature study
Genoa Peak	Genoa Falls Activities: family, nature study, swim, picnic, hike
Howe Range	Iron Bridge, Howe Hill Activities: family, camp, explore
Lake Barracoota	Activities: Boat
Lake Wau Wauka	Activities: hike, camp
Mallacoota Region	Mallacoota Inlet, Sandy Point, Narrows, Coulls Inlet, Double Creek, Bastian Point Betka Beach, Quarry Beach, Bastion Point, Secret Beach, Pebbly Beach, Goanna Bay. Activities: fish, boat, walk, family
Shipwreck Ck. Region	Benedore River, Little Rame Head. Activities: nature study
Thurra Muller Region	Activities: family, camp, fish, canoe, paint, explore, photography
Tamboon Inlet Region	Clinton Rocks, Point Hicks. Activities: family, views
Wingan Inlet Region	Easby Creek, Red River. Activities: camp, spurge weeding, views

Activities are mostly appreciative such as hiking, picnics and nature study, which were associated with the Ecocentric Group. There were some mechanised activities such as boating, and consumptive activities like beach fishing mentioned, which were associated with the Anthropocentric Group. The Weak Anthropocentric Group was represented by appreciative activities like surfing and mechanised activities like skiing, which was a boating activity.

Place Identity

Identity attachment has developed in this community from experiences that evoked memories of an emotional, spiritual, symbolic or historic nature connected to a location. Identity attachment was strongly represented in the Ecocentric Group and to a lesser extent in the Weak Anthropocentric Group. The responses showed that identity attachment was forged through living in the region and through emotional experiences such as a marriage or a death. Similarly, the knowledge of historic events and places helped to form historic or symbolic attachments. The responses suggested the presence of community identity, which was evident through dialogue about emotional and childhood experiences, through nature appreciation, the feeling of spiritual connections and through the recognition of historic places.

Community Identity

Community identity was formed through memorable experiences and identifying with the community. Respondents in this category displayed community attachment formed from living in the region over a long period, while others talked about community differences.

> I have lived in Far East Gippsland for the last 36 years. That is since I was 12 years old. After this time, you feel you become a part of the environment, community included. I feel fortunate to be living here. (Respondent 30)

> I have walked with my dog and painted scenes in oil paint on canvas since my husband and I retired. Although I am alone now, I will stay here for the rest of my life…My sons built my brick house and my husband did the timberwork. I love my garden and plant as many foods, shelters and nesting plants as I can, and am rewarded by the birds, possums and marsupials… The picnic areas are a delight. The shops are a pleasure to visit because of the happiness that abounds when people meet. Lastly, I show my grandsons the wonder of the many rock pools at the beach. (Respondent 189)

Community Differences

> Mallacoota is a divided community, I feel strangely connected to some in this community as we share ideals. Some wish to exploit, others wish to protect the environment… What are the lifestyles and values of the people who live or come here? They are varied and at times poles apart. Some people throw their rubbish in the bush or waterways, I do not identify with those values. (Respondent 40)

Community Identity Discussion

Many residents in the community have lived in the region for a very long time, while others have retired there more recently. The responses indicated varying levels of community attachment. Some dialogue showed a strong attachment while others showed attachment to some in the community and not to others. Community attachment is most likely to occur when the residents share the same ideals, views and values towards matters concerning their community. The division in the community may indicate that the residents do not share the same community ideals, which was also evident in the focus group discussions. Jacob and Schreyer (1980) found that a community that is dependent on the resource for their activities or lifestyle is more prone to conflict, a view supported in this study.

Emotional, Spiritual

This category represented respondents who expressed an emotional or spiritual attachment to the national park and surrounding areas and the Ecocentric Group, and the Weak Anthropocentric Group were both represented. Some of the respondents spoke about their emotional experiences and family ties, but did not specify locations. Other respondents talked about their emotional connection to locations but did not provide further detail. These locations included Bastion Point, Bemm River, Clinton Rocks between Tamboon Inlet and Point Hicks, Genoa Falls and Gabo Island. However, many talked about deeply emotional experiences that they associated with places such as childhood and family experiences, the death of a friend or their marriage.

Death of Loved One - Bastion Point

> This place is especially special to me as some time ago a friend of mine was murdered in Mallacoota. Bastion Point was a very special part of his life and his funeral was held at the point. Every year flowers are left there to mark another year of his passing. His ashes have been scattered there and in a way, it is almost a memorial for him. I believe Bastion Point to be a healing spot, many residents go there a least once a day to clear their thoughts and minds and often they feel relieved when they leave. (Respondent 46)

Marriage - Dolly's Garden

> Lake, pelicans, river, waterfalls, ocean, bellbirds, tree ferns, Elephant Rock, Bemm River bridge, friends places. All these remind me of my wedding at Dolly's Garden and the special places wedding photos were taken. The sound of the bell birds throughout the ceremony. The tranquility of the river with the trees reflecting in it. (Respondent 63)

Other respondents talked about the spiritual or sacred significance of sites that were special to them.

Spiritual Well Being - Bastion Point to Telegraph Point

> To walk along the beach from Bastion Point to Telegraph Point brings me immense peace of mind and spiritual wellbeing. To eat my sandwich on the top of the big sand dune near Lake Barracoota with its 360 degree views is an extra ordinary special privilege to be truly thankful for. (Respondent 151)

Inspirational - Benedore River

> The head waters of Benedore River for its beautiful rainforest communities and the heath lands for the amazing flowers is home for all the birds, animals and plants that I love. As an artist, I draw inspiration from these places. Personally, they provide places for me to reenergise, calm the mind, exercise amongst beauty and retreat from man made stresses and demands of modern living and reconnect spiritually with the land. (Respondent 161)

Emotional, Spiritual Discussion

Attachment to a place that has developed through an emotional or spiritual experience associated with the location is an identity attachment, which was evident in the Ecocentric Group and the Weak Anthropocentric Group.

The respondents used words like emotional, spiritual and sacred when discussing locations that were important to them. Some cited experiences that they associated with the location such as a wedding, a death, or a feeling of comfort and peace during anxious times. Locations associated with the death of a loved one were Bastian Point, Double Creek, Leudrick Point and Howe Range. Marriage at Betka Beach held significance for two participants. Backlund and Williams (2003, p. 321) deem that "past experiences should be a powerful predictor of place identity". Others talked about the spiritual aura of a place, which brought them peace and tranquility and Bastion Point, Benedore River, Secret Beach and Cave Beach were considered inspirational and spiritual locations. Heintzmann (2003) concluded that a combination of wilderness, solitude and nature experiences contribute to spiritual meaning. Other locations of emotional and spiritual significance to the respondents

included Bemm River, Clinton Rocks, Dolly's Garden, Gabo Island, Genoa Falls, Point Hicks and The Narrows.

Childhood Attachment

Place attachment is formed most strongly in childhood and this strong attachment was reflected in some of the responses. Childhood experiences revealed a deep identity attachment formed through activities at the location or through family visits as children.

Childhood – Bastion Point

> Moving from the city age 13, Bastion Point was my backyard. Growing up, learning to surf, dive and fish, and learning and experiencing nature. Growing up, communicating with all ages there respecting the area for its aboriginal heritage too. Experiencing death there of a small child and celebrating life of another friend who was murdered, treating it like a sacred site. Surfing before and after school, growing up waiting for 400metres [waves] from Broken Board Rocks is the best, it's a part of my spiritual being. When I go out of town, I always have a look at Bastion Point. When I get home, I go straight there. It should be preserved and protected. (Respondent 35)

Family – Muller Inlet

> Far East Gippsland is a place I have been going to since early childhood, long before it was a national park. Many places hold significance, but the Mueller is a place where family and friends would spend Christmas holidays, and very rarely would we see anyone else. (Respondent 62)

Childhood Attachment Discussion

The literature suggests that attachments form most strongly in childhood (Measham (2004). Many of the respondents talked about their experiences of growing up in the region or of family visits during the holidays. As adults, these respondents have a strong identity attachment to the location, through memorable experiences formed in childhood. Studies have shown that the integration of location with memory brings special significance to places (Johnson, 1998; Inalhan & Finch, 2004). Childhood attachments were formed to locations such as Bastion Point, Broken Board Rocks, Betka Beach and River, Genoa Falls, Goanna Bay, Mallacoota Inlet, Muller Inlet, 18 Mile Hole, Quarry Beach, Secret Beach and Pebble Beach.

Nature Appreciation

Nature appreciation was aligned with identity attachment because the respondents identified strongly with these places for emotional, symbolic or historic reasons. Identity attachment was evident in the Ecocentric and the Weak Ecocentric groups. Appreciation of nature was expressed through experiences of the wild coast, the marine ecosystem, habitats and the flora and fauna.

Mallacoota and surrounding

> All of the park around Mallacoota is special to me, it is diverse, beautiful, calming and inspirational. I especially love the beauty of the Entrance, Bastion Point and Betka River for the tranquility. Gipsy Point, for the birds and vegetation, Double Creek for the birds and lake, the walk up along the beach to Lake Barracoota, for the pristine coast, sands dunes, birds, lakes and sense of isolation and wilderness and all of the beautiful beaches. Mallacoota and all of its surroundings are a bit of paradise, please, please save it from jet skis, powerboats, houseboats, trail bikes and 4 wheel drives. Protect its sense of peace. (Respondent 47)

Gabo Island - penguins

> Gabo Island, peaceful, beautiful, a feeling of worth, seeing the penguins, sitting looking at the ocean. Mallacoota, so much to do and see, friendly, I love it. (Respondent 150)

Most of the respondents who spoke of their experiences, expressed emotions of joy and wonder, which made the place special to them and worth preserving.

> Croajingolong is a very special place – it contains incredible aesthetic, natural recreational, historical and biodiversity role. I feel happy in the knowledge that it is protected regardless of whether I visit it or not. Such a large part of Victoria has been cleared and destroyed; let's protect the few places we have left. (Respondent 179)

Wild Coast

> The wild and isolated coastline, which includes historic interest, lighthouses, wrecks, the human story. The reassurance that life still exists as it always has the marine life, birds etc. Ease of access to such wonderful places without competition from other humans, amazing. (Respondent 29)

Nature Appreciation Discussion

Identity attachment was formed to various locations through an appreciation of nature. Studies have shown that when a person is exposed to a place, they can develop a preference for that setting (Zajonc, 2001). Many of the respondents talked about the power and beauty of nature, the wildlife habitats, seals, penguins, birds, orchids and sea and landscapes were all important to them. Locations for nature appreciation are Bastion Point, Betka River, Bemm River, Cape Howe and Howe Range, Double Creek, Gabo Island, Genoa Peak, Gipsy Point,

Inland, Lake Barracoota, Mallacoota Inlet, Rame Head, Smellies Inlet, The Skerries, Wingan Inlet and the wild coast and marine ecosystem.

Symbolic, Historic Attachment

Represented in this category are respondents that have an identity attachment to a location, formed through memories of historic events or other experiences that have personal or symbolic meaning to them. These sites included indigenous burial sites, cultural sites such as those represented in the Anzac Day memorial services and historical and family sites that were important to the individuals.

Cultural Heritage - Gabo Island & Leudrick Point

> Gabo Island is of significance for its history, and Commonwealth recognised heritage structures, and has a strong connection to the Mallacoota community. Like other Mallacoota residents, I feel a strong commitment to Gabo Island. (Respondent 28)
>
> Leudrick Point is a place of remembrance for many for the Anzac Day ceremony, and the place where locals have chosen to have their ashes scattered to remain in the area. (Respondent 63)

Indigenous Heritage and Family History - Bastion Point

> Bastion Point is a legendary meeting place. Our grandchildren have visited and grown up knowing the rock pools etc, and especially the aboriginal burying sites and the aboriginal burials at sea. Mallacoota Township is not part of Croajingolong National Park, but is surrounded by it on one side, and a world heritage biodiversity area on the other. I hope this research will lead to Mallacoota being identified as a special area sustaining the rules of the other two areas. (Respondent 58)

Symbolic Historic Attachment Discussion

Studies have shown that communities formed symbolic attachments to natural settings, which in turn shaped their community identity (Tauhinu & Pitkanen, 2004). The national parks as well as the townships of Mallacoota, Bemm River, Cann River, Genoa and Gipsy Point, all have historic and symbolic importance to the community. The integration of location and history brings a special significance to locations that are symbols of important family or historic events. People who visited these locations reconnected with their culture and with nature (Svensson, 1998). The locations of Bastion Point, Gabo Island, Goanna Bay, Leudwick Point and Maramingo Creek are of historic significance. Some respondents mentioned historic sites that were important to them, which are the Bellbird Hotel, Bunker Museum, Lakeview Hotel and the Pioneer Cemetery.

Management and Attachment

Concerns about place attachment sites centered round what the respondents considered inappropriate development at Bastion Point, pressure on fishing in the Bemm River region and the threat to the tranquility of the Mallacoota region through mechanised activities.

Bastian Point -development

> Bastion Point must be protected from inappropriate development; an upgrading of existing boat launching facilities is what should happen, not any proposal that threatens the integrity of this important shared area. (Respondent 155)

Bemm River and Sydenham Inlet- fishing

> Sydenham Inlet is coming under increasing fishing pressure with the increase in fisherman numbers, both long period campers and day fishers. I believe that Bemm River should have a closed fishing time for bream breeding in September-January. Swan Lake should be closed to fishing. Bream legal size lifted to 28cm, and bag limit dropped to five. Many fishing groups go out two to three times each day when the fish are biting. Bemm River Progress Association are very keen to assist in the creation of nature walks in our area. We have already assisted Parks with work and are very willing to achieve more to benefit both residents and visitors usage of the park. (Respondent 88)

Mallacoota-mechanised activities

> Mallacoota and all of its surroundings are a bit of paradise, please, please save it from jet skis, powerboats, houseboats, trail bikes and 4 wheel drives. Protect its sense of peace (Respondent 47)

The conservation of the marine environment and a number of other locations in and around the national park were also included

Marine Parks, Gabo and Tullaberga Islands-conservation

> Point Hicks Marine Park, Beware Reef, Cape Howe Marine National Park, marine environments need more protection and these areas are a start. Gabo Island and Tullaberga Island are very important. (Respondent 155)

Park Management and Attachment Discussion

Many respondents expressed concern for places that were important to them, and took the opportunity to direct their concerns to management for intervention. The locations of immediate concern to the participants were Bastion Point through the threat of development; Bemm River and Sydenham Inlet from over fishing; Lake Furnell and Clinton Rocks for the threat to the aboriginal sites; and Mallacoota from the influx of mechanised, recreational craft. Concern for retaining the conservation values of the whole national park and the sites of Cape Howe, Gabo Island, Point Hicks and the marine ecosystems were also important.

Attachment was indicated through a heightened concern for these locations, which can form part of the community's regional identity and character (Atkisson, 1989).

Respondents throughout the study mentioned the location of Bastion Point, as the community considered that the location was under threat from development. The community's attachment to the location has highlighted the relationship between the place attachment, community identity and the risk associated with development that could alter or reverse place attachment. Measham (2004) found in his study of an Australian community that attachment was not always evident until an area was under threat, which has been the case with Bastion Point.

Bastion Point Attachment

During data collection, community views regarding a proposed development of a breakwater on the outskirts of the national park that had the effect of dividing the community was evident. In an effort to remain impartial, Bastion Point was not included in the study, however many of the respondents listed the location anyway as it had special significance to them.

The study has shown that many of the residents have a community attachment to Bastion Point, which means that they consider the location to be a symbol of their community and of special significance to them. Previous studies have shown that altering landscape can disrupt place attachment and community identity (Relph, 1976). Bastion Point is used extensively for recreational purposes; however, it also has emotional, spiritual and historic importance to the residents. It is valued for its natural features and is a symbol of this community. A range of attachments to Bastion Point were identified through the survey and included

- *Dependence Attachment* was evident through surfing, swimming, boogie boarding, watching dolphins, picnics and meeting with family and friends.
- *Attachment formed in Childhood* through growing up in the region and family visits.

- *Identity Attachment formed through Nature Appreciation* and expressed through dialogue about the power and beauty of nature, the dolphins, birds, sea and landscapes.
- *Emotional, Spiritual Identity Attachment* was associated with the death of loved ones. The location brought a feeling of comfort and peace during anxious times and had a spiritual aura. Activities with family and friends also contributed to the emotional attachment.
- *Symbolic and Historic Identity Attachment* formed as a symbol of the indigenous past and other personal family histories.

Place Attachment Summary

Responses to the open-ended questions in the survey provided more detail to place identity and place dependence identified in the statistical results. While talking about the places that were important to them, some respondents took the opportunity to include concerns regarding place attachment locations, which were directed to the management of the national park. Bastion Point, Betka Beach and Mallacoota Inlet were significant as they have both dependent attachment and identity attachment. The locations are used for recreational purposes; however, they also have emotional, spiritual and historic importance to the community. The locations are valued for their natural features and many in the community formed attachments during their childhood.

7.4.4 CONCLUSION

The results of the Croajingolong National Park study have been presented and discussed, and were found to support the literature presented in the previous chapters. The statistical analysis has revealed the views and values of the community surrounding Croajingolong National Park, which are mostly ecocentric with some adhering to anthropocentric and mixed worldviews. The hypothesis tests supported previous studies and found that there were differences between the groups, which related to their levels of education, gender, types of activities, attachment to sites and their conservation behaviour.

The focus groups and open-ended questions have contributed an aspect to the study through insight into experiences of the community. These experiences have provided a greater

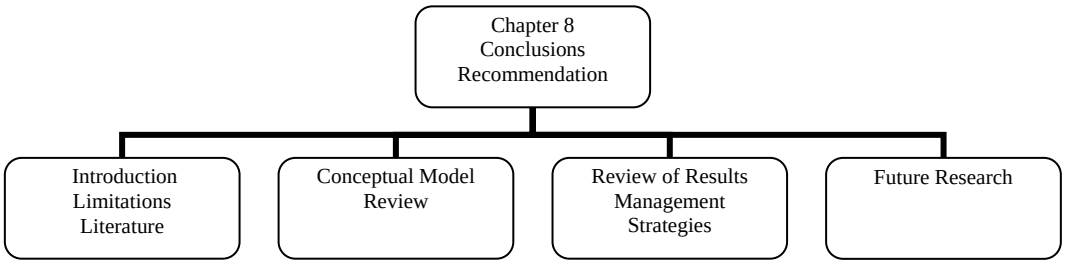
understanding of community environmental ethics and attachments concerning the national park and surrounding area. The relationship between conservation activism and environmental ethics has been discussed. The final chapter in the thesis will present the conclusions and recommendations that have emerged from the study, and discuss implementation of the results into management strategies.

C h a p t e r 8

CONCLUSIONS AND RECOMMENDATIONS

"To understand the place of humans in the universe is to solve a complex problem. Therefore I find it impossible to believe that an understanding based entirely on science or one based entirely on religion can be correct." *Wilton Robert Abbott*

Figure 40: Chapter 8



8.1 INTRODUCTION

The topics discussed in this chapter are shown in Figure 40. In this study, literature was reviewed from the social and natural sciences to examine the human natural world relationship; and to establish the research gap in the tourism and park management literature. The outcome of the literature review determined the direction and focus for the thesis and recommendations from the literature is briefly outlined in this introduction. The study used multidisciplinary research through a combination of place attachment theory and environmental ethics theory within a protected area setting, which helped to understand the human environment interaction and conservation behaviour, which was considered important by Penn (2003). The Human Natural World Relationship and the association to conservation behaviour were determined, and the study was placed within an ecosystem management framework that considered humans as part of ecosystems. A conceptual model set out the empirical concepts while the hypotheses model tested relationships between some of the concepts. Results from the study concluded that the study was successful in identifying community views, values, attachments and conservation

behaviours. While the results to the study have been presented in Chapter Seven, this chapter will present conclusions and recommendations that relate more broadly to park management research.

Human-Environment Research

The literature has shown that communities have been involved in environmental damage and also in environmental solutions, which was evident through the shifts in human history. The quote by Stephen Jay Gould (in Orr, 1994) suggested that people must feel connected to nature and care about nature in order to preserve it.

> "We cannot win this battle to save species and environments without forging an emotional bond between ourselves and nature as well - for we will not fight to save what we do not love"
>
> *Stephen Jay Gould (in Orr, 1994)*

Within the context of this study, the "emotional bond" in the quote represents an ecocentric worldview that is a pro ecological orientation and intrinsic values toward nature. The literature supported the results of the study that ecocentric views are a predictor of conservation behaviour, as suggested in the quote by Stephen Jay Gould. It seems that humanity faces a crossroad on nature values, and would benefit from considering the past and learning from it. Humans have the choice of recognition of intrinsic value and reconnecting with nature to preserve it, or to consider nature for its instrumental value and remain disconnected.

Many people in modern societies no longer fit within a purely anthropocentric or ecocentric classification, which was evident through examining the results of this study, and mixed views and values were inconclusive concerning conservation behaviour. The study also suggested that non-use values might be determined or driven by either intrinsic or instrumental values. Research into non-use values and their relationship to intrinsic and instrumental values would benefit from further investigation.

A challenge for scale developers is to develop environmental ethics instruments that reflect a modified anthropocentric stance that accurately reflects current community views and values,

and represents participants who acknowledge that humans use nature for survival but also recognise that nature has intrinsic value.

A review of the language used in scale development such as 'ugly' in reference to nature, and the context of the statements in Dunlap and Van Liere's New Ecological Paradigm (NEP) scale related to ecological crisis and limits to growth, would benefit from revision. The statements in the NEP scale appear to be outdated, as many of the study participants believe that an eco crisis has already happened and that the earth has reached its limits.

Place Attachment Research

A review of the literature has shown that place attachment can inform management on use and activities of visitors, businesses and community. The literature supported the study results that suggested that place attachments form most strongly in childhood and emanate from historic, emotional or dependent experiences.

Most community studies have been conducted in urban or rural settings, and within these communities are symbols that have contributed to self-identity and a distinctive community identity, which were evident in this study. Place attachment can be disrupted though altering landscapes or community symbols. Sharpe and Ewert (1999) used the term *place interference* to describe activities that deliberately reverse place attachment, and caused *placelessness* which is a lack of recognition of special places, the erosion of symbols, or the severing of roots to places (Relph, 1976). Alteration of place attachment included place destruction caused by administrations (Windsor & McVey, 2005). The meaning that this community has assigned to places in this study may assist managers in decisions that involve interpretation, planning, and zoning, appropriate development and activities and how places are interpreted and marketed. Additionally, support for the park through community involvement and communication that develops trust and support may also be forthcoming.

Limitations

Place attachment covered a broad range of subject areas such as social psychology, sociology, environment, anthropology and human geography (Pruneau et al., 1999). Numerous subject areas were explored to establish the most relevant literature for the study.

The wide range of topics on place attachment and environmental ethics meant that the research was confined to studies most relevant to protected area management. Omitted from the review were the psychology behind place attachment development, the health sciences literature, and the work relating to regional identity, as the main purpose of this work was to examine a person's attachment to natural areas, not the characteristics or identity of a region or the psychological aspects of attachment.

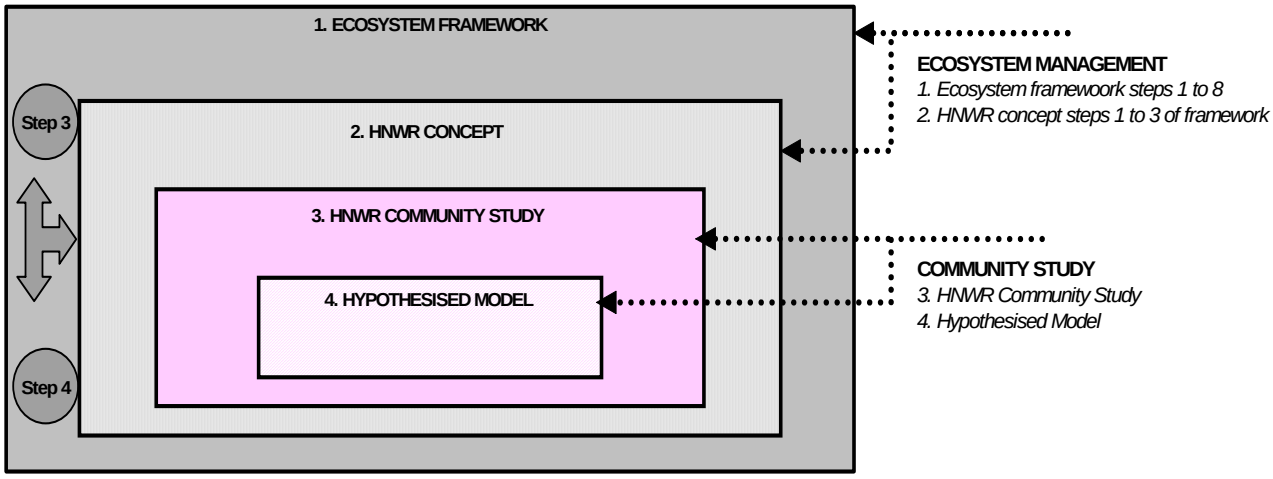
A self-administered survey was used to examine community place attachment and environmental ethics. The survey contained statements about place attachment to the national park, the community and various locations within the national park. Many of the participants did not complete the section about the various locations within the park as expected, which was a limitation to the research. The participants considered that they had already answered the questions, as the questions were repeated for each location.

Responses from the participants suggested that the statements in the New Ecological Paradigm Scale that related to an ecological crisis and limits to growth were outdated, as they considered that these events had already happened. Additionally, the scale did not seem to accommodate mixed views that represented acceptance that humans dominate nature and also a belief in nature balance. The scale may no longer accurately represent modern ecological views and this has proved to be a limitation to the study. The limitation was overcome through close examination and comparison of the quantitative and qualitative data in order to uncover true community mixed views.

8.2 REVIEW OF THE CONCEPTUAL MODEL

The conceptual model was designed to contribute taxonomy of community views, values and attachments to allow park management a greater understanding of community interaction with the national park. The knowledge was integrated into an ecosystem management framework that allowed human valuing to be assessed alongside economic and environment values, so that the needs of the whole ecosystem could be considered. The conceptual model consisted of four parts as shown again in
Figure 41.

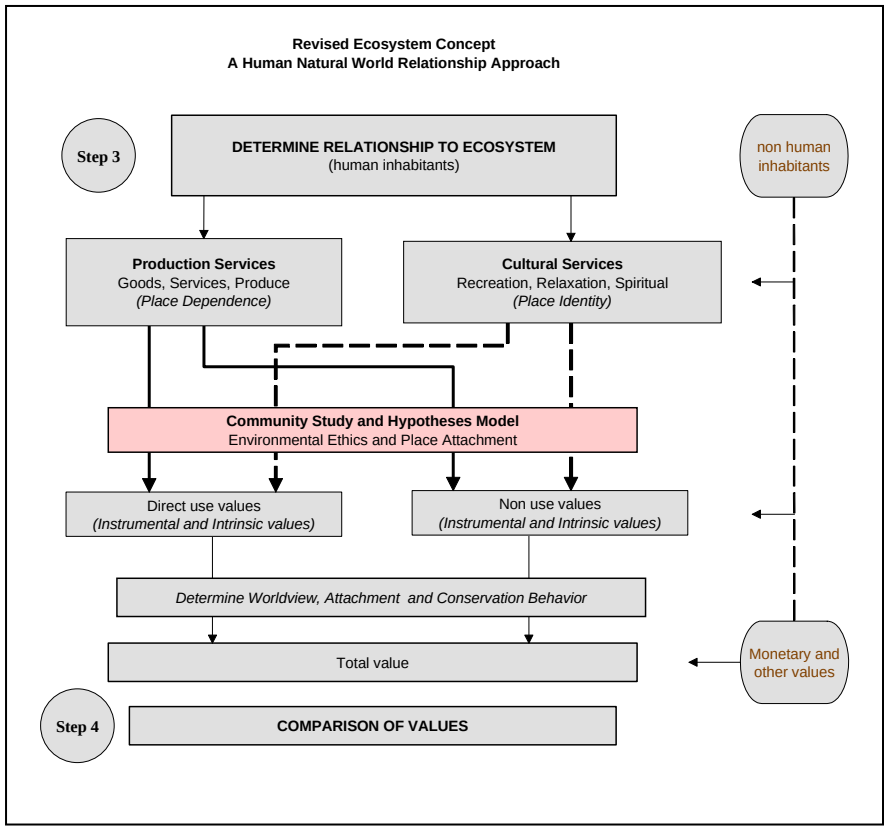
Figure 41: Conceptual Model Review



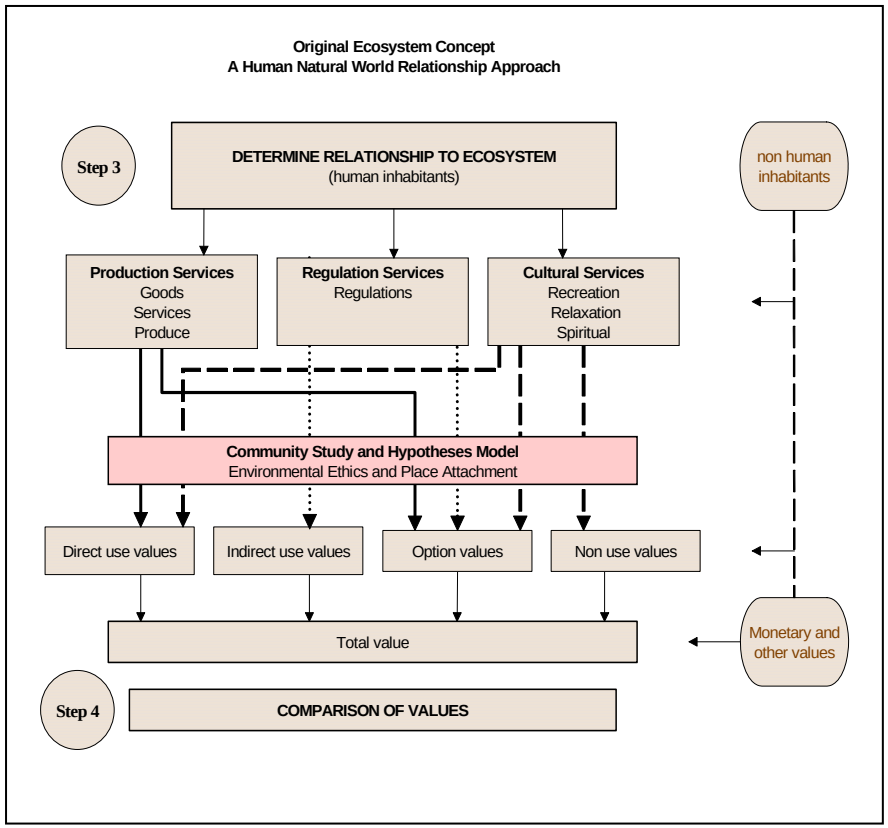
The empirical component of this study found that the conceptual model supported the ecosystem framework, the community study and the hypothesised model very well. The results from the hypothesis tests supported previous findings that university education, the female gender, appreciative activities and conservation activism were all associated with pro ecological views and intrinsic values. Alternatively, the results found that age, place of residence and sites used by participants were not supported in representing the views and values of the community. The HNWR ecosystem concept, which formed Part 3 of the model, required some revision, as some of the links were not used, while other links were needed. The HNWR ecosystem concept has been revised and the original and the revised versions are shown in Figure 42.

Figure 42: Revised HNWR Concept

Revised Concept



Original Concept



The revised HNWR concept has been simplified, by the deletion of regulatory services. This was not needed as the human aspect of ecosystem management was represented within the production and cultural services. Production services are the goods and services that stem from the ecosystem, while cultural services represented recreational, spiritual and cultural services that the ecosystem provided. Dependent attachment was placed within production services and identity attachment within cultural services.

In the revised HNWR concept, the indirect use, non-use and option values were collapsed into one value called non-use, which meant that the model had just two categories use and non-use values. Non-use values represented areas that are valued for the future, and results from the study have concluded that non-use values may link to a person's instrumental or intrinsic value. Similarly, use values can be linked to places that are considered to have either intrinsic or instrumental value to the participant.

An additional step was provided, where environmental ethics and conservation activism was determined, so that the value of community's contribution to conservation could be established by the agency. The completed HNWR value set included community place dependence, identity and commitment; environmental views and values; conservation behaviour and the potential of the community to contribute to conservation and management of the park.

8.2.1 The Research Question

> "*What is the extent of the Human Natural World Relationship in the community and how can this understanding enhance protected areas managers' conservation and management strategies.*"

The study has answered the research question, through forming the community into groups based on their Human Natural World Relationship. The groups have displayed different views, values, attachments and behaviour preferences consistent with the theory. A brief review of the most significant results have been included to preceed discussion.

8.3 REVIEW OF SIGNIFICANT FINDINGS FROM THE STUDY

A review has been included to remind the reader of the significant findings from the study. The review is followed by recommendations that eminate from the study that are relevant to management of the natonal park and the community who are the main uses of the park.

Demographics

Some demographic variables and not others had an influence on the environmental views, values and attachments of the local community, who were the main users of the park. The study found that:

Age

- Age had no influence on the community's environmental views and values.

Education

- University education was a significant influence and strongly related to those in the community with pro ecological views, intrinsic values and identity attachment.
- Those with lower levels of education displayed anti ecological views and no attachment to the park.

Gender

- The influence of gender was significant to the views, values and attachments held by the community.
- The group with a majority of females had pro ecological views, intrinsic values and identity attachments.
- The group with the majority of males displayed anti ecological views, instrumental values and no attachment.

Place of Residence

- The place of residence within the study region had no influence on the community's environmental views and values.

Site Use

Specific sites located in and around the national park that were used by the community were examined and found that the sites were not significant to the community's environmental views and values.

Recreational Activities

The types of activities that the community engaged in were significantly related to the community's views, values and park attachment. The study found that:

Consumptive Activities

- Those that participated in consumptive activities displayed anti ecological views, instrumental values and a lack of park attachment.

Appreciative Activities

- Those that participated in appreciative activities displayed pro ecological views, intrinsic values and identity attachment.

Appreciative and Mechanised Activities

- Those that participated in both appreciative and mechanised activities displayed mixed views and values and mostly a dependent attachment The results support previous finding by Jackson (in Schuett & Ostergren, 2003), who discovered that those engaged in appreciative activities were more ecologically focused than those in other categories.

Conservation Activities

Some conservation activities and not others had an influence on the environmental views, values and attachments of the local community, who were the main users of the park. The study found that:

- Activities such as being a national park volunteer, a member of a volunteer organisation or donating to the national park were not significantly influenced by views, values or park attachment in this study, when compared to those in the community that did not undertake these activities.

- Activities such as expressing a willingness to volunteer to maintain or manage sections of the national park, and a willingness to adapt lifestyle for the environment were strongly related to those in the community with pro ecological views, intrinsic values and park attachment.

Place Attachment

The three groups identified in the study, Anthropocentric, Ecocentric and Weak Anthropocentric displayed differences in their attachment to the national park, attachment to their community and to locations in and around the national park. The differences in attachment were related in some instances to the environmental views and values of the local community, who were the main users of the park. The study found that:

Attachment to the National Park

- Those with pro ecological views and intrinsic and non-use values (Ecocentric Group) displayed an emotional attachment (identity attachment) to the national park.
- Those with mixed ecological views and instrumental and non-use values (Weak Anthropocentric Group) displayed both an emotional (identity) and functional (dependent) attachment to the national park.
- Those with anti ecological views and instrumental values (Anthropocentric Group) displayed a strong lack of attachment to the national park.

Attachment to the Local Community

- Community identity, displayed as both an emotional and functional attachment to the community was strongly related to those with mixed ecological views and instrumental and non-use values (Weak Anthropocentric Group).
- A lack of community attachment was related to those with anti ecological views and instrumental values (Anthropocentric Group).
- Community identity was not significantly related to those with pro ecological views, intrinsic and non-use values (displayed in the Ecocentric Group).

Attachment to Mallacoota Inlet

- A functional (dependent) attachment to Mallacoota Inlet was related to those with mixed views and instrumental values (Weak Anthropocentric Group).
- An emotional (identity) attachment to Mallacoota Inlet was related to those in the community with pro ecological views and intrinsic values (Ecocentric Group).
- A commitment to Mallacoota Inlet was related to those with pro ecological views and intrinsic values (Ecocentric Group).
- No attachment to Mallacoota Inlet was related to those with anti ecological views and instrumental values (Anthropocentric Group).

Attachment to Sites in the Park

- Those with anti ecological views and instrumental values (Anthropocentric Group) displayed a significant lack of attachment to the sites of Shipwreck Creek, Thurra Inlet, Genoa Peak and Point Hicks.
- Those with pro ecological views and intrinsic values (Ecocentric Group) displayed an emotional (identity) attachment to Seal Creek, Genoa Peak, Shipwreck Creek, and Point Hicks as well as a functional (dependent) attachment to the last two sites.
- Those with mixed ecological views and instrumental values (Weak Anthropocentric Group) displayed an emotional (identity) attachment to Seal Creek and Genoa Peak; this group also displayed a commitment as well as a functional (dependent) attachment to Wingan Inlet and to the local community.

8.3.1 Management Strategies

The majority in the community were willing to volunteer to maintain or manage sections of the national park, and were willing to adapt their lifestyle for the environment. Integrating the results of the study into management strategies was also discussed in the literature. The discussion centred on the understanding of community views, values and attachments and using this knowledge to enhance conservation and management in protected areas. The participants in this study displayed a range of views towards the national park, which provides a challenge for managers in their consultation with community.

An understanding of environmental worldviews could assist management to educate internal and external stakeholders on management zones and resource use; and assist in conflict resolution amongst users, while developing effective policies, programs and implementation strategies (Tarrant, Cordell & Green, 2003). Additionally, Manzo, Perkins and Douglas (2006), identify a strong connection between emotional place attachment and community activism, and call for place attachment and place meaning to be incorporated into planning and community participation. Their research supports the findings in this study and the connection between emotional attachment and environmental activism.

Using Place Attachment

The majority of the people in the local community who participated in the study have an identity attachment to the park and surrounding region developed through memories of an emotional, spiritual, symbolic or historic nature. The attachment to the park is also in the psyche of the community, which means that their individual and collective identity is intricately linked to the national park. The community utilised all locations in and around the national park, which has enhanced the attachment to locations that they use. The activities were mostly for recreational purposes with the majority undertaking appreciative type activities like bird watching, nature walks, nature study, picnics and sight seeing activities. Place attachment was linked with conservation behaviour and the study identified that the community would support policy that maintained the national park, and were willing to be involved in its upkeep.

It is recommended that localised concerns should be addressed, which could impact on or change the community's attachment and identity to the region. These concerns include:

- Bastion Point Development
- Increased pressure on fishing at Bemm River and Sydenham Inlet
- Increased mechanised activities on Mallacoota Inlet
- Continued conservation efforts for the region and particularly for Point Hicks Marine Park, Beware Reef, Cape Howe Marine National Park, Gabo and Tullaberga Island

Using Environmental Ethics

The study has shown that environmental ethics, that is deep-seated views and values about nature and nature's value, can direct the way a person lives their life. These views and values permeate all aspects of social, cultural, economic and environmental decisions by the participants. Traditionally business owners adhere to an anthropocentric view of the environment, where use for business purposes is more important than other considerations. However, in this study the business owners were split between those that held anthropocentric views and those that held ecocentric views. The majority of the study participants also adhered to an ecocentric view where they were pro ecological and held beliefs in nature's intrinsic value. These participants drew inspirational and spiritual meaning from the park and locations in the region and felt that it provided tranquility and a buffer from the trials of modern life. They also felt a strong connection with nature as part of self, which was integral to human wellbeing, so access to natural areas was very important to them. The participants were most concerned about localised issues that they believed would affect the natural features of the region and their way of life. Preserving the park and the identity of the town were foremost in their minds. These issues included:

- A strong belief in limiting growth to the town region
- A belief that nature should no longer be dominated
- Curb logging, inappropriate development and inappropriate park use
- A greater emphasis on implementing strategies for nature preservation and legislation for protecting the environment
- Concern for the increase in development and population in the region
- Shortage of natural resources such as water to cater for increased growth
- Increase weed and animal control
- Utilise indigenous skills
- Implement a new regime of fire management to incorporate indigenous and what the community considers more acceptable practices
- Improved road access for fire control
- Increased staff, funding and research
- Increased park access so community has opportunity to reconnect with nature

A small number of participants in the study, which included some in the business community, adhered to a purely anthropocentric view, whilst other held mixed views. The value of the park for these participants is foremost that the park is valued for what it could provide to human. Issues for these participants included:

- Improved access to the park for Tourism
- Improved marketing of the park as a destination for nature based tourism
- Greater and more timely availability of information for visitors
- Less complex bureaucratic processes and more profitable outcomes for business dealing with fishing licenses etc

Volunteers

The quantitative results showed that the majority of the community were committed to the national park and were willingness to volunteer and to adapt their lifestyle for the environment. This result is also an indication of support for management decisions regarding conservation initiatives. The qualitative results however, indicated that the local volunteers are time poor, whilst willing to volunteer they are already involved in many local activities. The implications of this result is that the community has the appropriate views and values to maintain or manage select sections of the park for conservation outcomes but they do not have the number of volunteers needed to undertake this task. Since the 1996 management plans for the park were developed, members of Friends of Croajingolong are 12 years older and many have retired and have not been replaced. The recruitment of more youthful volunteers for the region should be considered. It is recommended that the agency continue to involve programs such as Conservation Volunteers, to generate the volume of help needed to undertake activities needed within the park. However, other strategies may also be useful in both engaging the community and in the repair and upkeep of the park. It is therefore further suggested that the agency not only continue to involve the community in decisions regarding the upkeep of the park but utilise skills in the local community in the repair and upkeep of infrastructure, in both paid and voluntary capacities. However, appropriate funding allocation is necessary in order to implement these strategies.

The results from the research indicated that the majority of participants were willing to be involved in volunteer activities and to change their lifestyle for the environment. A profile of

these participants emerged as mostly female and university educated, while age and living in the region were not significant factors in their willingness to volunteer. This confirms other findings in the study that indicated that community identity is not a predictor of a willingness to volunteer in the national park. It seems that people who volunteer care about the environment and want to preserve it. This leads us to speculate that people who live outside the region can still care about the park and be willing to be involved in its upkeep. The majority of the participants in this study undertook appreciative activities, such as nature walks, hiking, nature study, bird watching, which help to build a profile of those willing to volunteer and may provide an alternative source of assistance to park management through bushwalking, bird watching and hiking clubs.

The Study Results

The community that surrounds Croajingolong National Park displayed ecocentric views and positive conservation behaviour, however there are a small number that do not support the park and display anthropocentric views, while some have mixed views but support the national park and use it for recreational activities. The majority have an identity attachment, which is an emotional, spiritual and historic bond and suggests that the community is deeply connected to the park and locations in the region. Some use the park extensively for recreation, which also shows a dependent attachment. While a minority of community, members do not value the park or display any attachments. This knowledge will allow management to understand the community, their activities and capacity for involvement in conservation management. The study has highlighted the attachment most of the residents have to their small community, and the common experiences that bind them. The majorities however are passionate about the park and display positive conservation behaviour toward its upkeep.

The Ecocentric Group identified in the study had pro ecological views, intrinsic values, identity attachment and community identity and commitment to the national park. They were the only group that displayed positive conservation behaviour. The Anthropocentric Group had anti ecological views, instrumental values and displayed a lack of attachment and disinterest in the national park. The Weak Anthropocentric Group had mixed ecological views, instrumental values and a dependent attachment and park commitment.

Further park management strategies for this location could include:

- Activate Biosphere status and buffer zones inclusive of Mallacoota, using guidelines set out in the Man and the Biosphere Program.
- Recruit and train volunteers, donors, board members, fee supporters, contractors, for planning and management involvement.
- Recognise and support community views, values and attachments in management policy and strategies.
- Implement landscape planning for zoning and resource use that considers the community's Human Natural World Relationship as well as the biotic community.
- Build knowledge and respect for biotic communities and resource use through understanding community worldview and developing education strategies that foster environmentally responsible behaviour.
- Use the knowledge of the community's views and values in community consultation strategies.
- Continue to involve the community in decisions regarding the park.

Recommendations

The results also highlighted the community's many concerns about the park. Their passionate responses suggested that they cared deeply for the park and wanted their concerns regarding upkeep, access, fire and animal control addressed. The image of the park agency was highlighted in some comments, while many were concerned about inappropriate development. This view supports a New Zealand study by McCleave, Espiner and Booth (2006, p. 554) who found that park agency staff are not held in high regard, particularly if they come from outside the region (Brown & Lipscombe 1999; Kaltenborn et al. 1999; Kappelle, 2001 in McCleave et.al., 2006). The study also found that a community could view the park agency either as a government institution or as people who live and work locally. The Croajingolong National Park study has mirrored this research. The community talked about the relationship with the park agency as difficult and bureaucratic; however, the local rangers were seen as doing a good job despite government restrictions.

An outcome from the study is a recommendation that the agency consider suggestions put forward by the community, which concerned utilising the skills within the community for repair and upkeep of infrastructure, and that park staff have a stronger presence in the town. This would benefit the park agency to develop closer links with the community, and improve their image. A suggestion to combine the park office with the information centre could benefit the park agency and the community. The park office would benefit from volunteer staff and longer opening hours, which would leave park staff available for other duties.

The results showed that community identity was deeply connected with the identity of the national park and matters that concerned both the town and the national park directly affected the community. Protecting the status of the national park as well of the town of Mallacoota is recommended, as this would also protect the unique identity of the community and the bond they have to the park. Concerning inappropriate development, a suggestion by one participant that the town should be zoned as a park town has much merit. This would ensure that the unique aspects of the town and the natural features of the area that include the national park are preserved so that people can enjoy the wilderness experience. Croajingolong National Park is a Biosphere Reserve, which suggests that human interaction with nature is a requirement of a park with this status. Environmental education, place attachment and valuing nature all emanate from the human-environment experience.

Summary

The thesis sets out a framework for the examination of a community's place attachment, environmental ethics and capacity for involvement in conservation and management. Knowledge of community can then be integrated into planning and management strategies for the national park. The results of this research have provided protected areas managers and policy makers with information about the community and their relationship to the national park. This information can be used to inform and influence strategies for policy and decision-making, validate initiatives in park classification, governance, funding and operational models that account for conservation needs and human use.

Understanding community views will ensure that education and marketing initiatives and environmental interpretation are designed to encourage a reconnection with nature and a shift towards more positive conservation behaviours, which are considered important by Archer

and Wearing (2002; 2004). Additionally, the park agency can determine the community's ability to support and participate in the environmental and operational aspects of the park and gain public support for conservation decisions. Finally, knowledge of community can assist to minimise conflict and improve relationships between park management and the community.

8.4 FUTURE RESEARCH

Many researchers have called for the integration of environmental ethics into tourism studies in an effort to understand views and values of community, visitors and businesses. The literature suggests that agency values are also important. There were three aspects identified in the study for future research, the park agency's views and values, associations between the instruments and conservation behaviour, and associations between the instruments to establish relationships between types of attachments, views and values.

Agency Views and Values

Previous research has shown that policy and management decisions are influenced by an agency's views and values. Recognition of the differences in worldviews, both in the agency and in the community, may assist with conflict resolution, accommodate diversity, educate staff and involve staff in local community interaction through community education programs and other activities.

Stenmark (2002) proposed that goals of environment policymaking as well as policy development were affected by the environmental ethic stance held by agencies. For instance, an anthropocentric stance would produce policy that focused on preservation for future generations, while an ecocentric policy would insure that human use did not violate the integrity of the biotic community. Reser and Bentrupperbaumer (2005) stated that understanding value concepts in environmental ethics was an important and necessary element in developing policy for conservation outcomes.

Decisions concerning the environment can be influenced by an organisation's internal climate (Flannery & May, 2000), such as the example of forest management in the United States, who traditionally held anthropocentric views but experienced a shift in values from economic

to non-economic values. According to Tarrant, Cordell and Green (2003), this shift was prompted by changes in community views of forests and their management, and the importance of public involvement in management decisions. Most people wanted to be involved in environmental solutions, and Kaplan (2000) deemed that those that showed disinterest had distanced themselves due to feeling a helplessness to contribute and affect change.

Conservation Activities

Further research would examine the associations between conservation behaviour and place attachment, ecological orientation and nature value in this study, to establish which of the instruments may be the better predictor of conservation behaviour. For instance, the research would examine associations between

- conservation activities and park attachment
- conservation activities and place commitment
- conservation activities to ecological orientation
- conservation activities and nature values

Associations between the Instruments

Future research would also examine associations between environmental orientation, nature values and park attachment. The research may establish if relationships exist between the different types of attachments and views and values. For instance, in this study is identity attachment associated with pro ecological views or intrinsic values and so on. Further research would examine associations between

- park attachment and ecological orientation
- park attachment and nature values
- park attachment and park commitment and community identity
- ecological orientation and nature values
- Intrinsic value and non-use value
- Instrumental value and non-use value

Scale Development

The views of the community imply that the New Ecological Paradigm Scale concepts related to ecological crisis and limits to growth are outdated and in need of revision. In a recent study, Lundmark (2007) found that the New Ecological Paradigm Scale represented strong anthropocentric views, but "missed crucial elements of the environmental ethics debate" (P. 329). The results from this research suggest that the scale would benefit from inclusion of statements that represent mixed views, such as displayed in the Weak Anthropocentric Group. The statements about nature balance and domination of nature contributed to mixed views in this group.

The Natural Area Value Scale may not accurately represent some participants who are honest in their interpretation that humans use nature, but recognise that nature has intrinsic value. The accuracy of the scale may benefit from inclusion of statements that reflect this view, as well as revision of the term 'ugly', in association with nature, which caused strong objection from the community.

Many of the respondents took the opportunity to comment on the park agency and management of the national park although this was not required in the survey. Reflected in the community's perceptions on how the park was managed were views and values about the park. The study found that there was no provision within the research instruments to accommodate these views.

8.5 CONCLUSION

The results of this study have determined that the local community is well placed to assist in the maintenance and management of Croajingolong National Park, as their views and values are aligned with good conservation practices. However, the community is small in comparison with the volume of help needed for the upkeep of the park. It is therefore recommended that the park agency enlist the help of organisations such as Conservation Volunteers; that the community is involved in the upkeep of infrastructure and in decisions regarding the national park; that the park is adequately resourced and that the community's views, values and attachment are considered in management decisions.

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APPENDIX A

ENVIRONMENTAL TIMELINE			
Legend			
		Represents significant events in conservation history	
		Represents significant events in conservation history in Australia	
		Represents The Human-Natural World Relationship or Human-Natural World Relationship Theorists	
	Date	**Significance**	**Reference**
		1713-1800	
1713	**1713**	Concept of sustainability was first mentioned in the scientific literature by German miner, Hans Carl Von Carlowitz in referring to sustainable forestry.	15
1750	**1750**	1750's noble savage concept, Jean-Jacques Rousseau contended that man was good by nature, a "noble savage" when in the state of nature, but is corrupted by civilisation and society.	15
	1750	1750 onwards saw the emergence of nature writers & artists in Europe & America.	1
	1750+	Industrial Revolution	1
	1776	Adam Smith wrote "Wealth of Nations" which explores the nature and causes of wealth.	1
	1776	American Republic founded using Wealth Of Nations Principles.	1
	1788	First fleet commanded by Arthur Phillips arrives at Botany Bay and Sydney Cove 26th January.	3
	1788	French Socialist, Francois Fourier, writes about a fundamental principle of sustainability, that goods should be made to last and wasteful types of production halted. Critical of the 'Harmonians" who he saw as promoting waste and changes in fashion in order to maintain the worker.	20
		1801-1850	
1801	**1816**	Royal Botanic Gardens established in Sydney, New South Wales.	6
	1817	German geologist Carl Ritter wrote "The Science of the Earth in Relation to Nature and the History of Mankind" expressing the mutual relationship between earth and its inhabitants.	15
	1818	Royal Tasmanian Botanic Gardens established in Hobart.	6
1820	**1826**	Charles Tompson publishes the first collection of Australian verse "Wild Notes from the Lyre of a Native Minstrel".	3
	1830	British geologist, Charles Lyell wrote Principles of Geography, introducing uniformitarianism; understanding the past is key to the present, used fossils as time indicators.	14
	1836	Charles Darwin, naturalist & evolutionist, arrives in Australia aboard HMS Beagle.	3
1840	**1843**	First parliamentary elections held in Australia with 24 members of the NSW Legislative Assembly.	3
	1845	Alexander Von Humboldt, a German geographer wrote " Kosmos". Holism and the interdependence of humans to nature.	15
	1846	Royal Botanic Gardens established in Melbourne, Victoria.	6
	1848	First zoological gardens established in Australia in Sydney's Hyde Park.	3
	1848	Marx publishes the Manifesto of the Communist Party. The more wealth produced the poorer the worker becomes.	1
		1851-1900	
1851	1854	Henry Thoreau wrote "Walden" and articulated the idea that humans are part of nature and we function better when we are aware of this.	7
	1855	Adelaide Botanic Gardens established in South Australia.	6
	1858	Charles Darwin and Alfred Wallace present Theory of Natural Selection ideas at the Linnaean Society of London. The theory drew on work from Lyall and Von Humbolts and had an impact on religious thought.	14
	1859	Charles Darwin publishes "Origin of the Species".	1
1860	1863	British anatomist and anthropolist,Thomas Huxley wrote "Evidence as to Man's Place in Nature" and applied Darwin's theory to man in his book.	14
	1864	American, George Perkins Marsh writes "Man and Nature", the first major intellectual tract on nature conservation, which raised concern about the human impact on the environment.	1

	1865	Frederick Law Olmsted work first systematically establishes the philosophical justification for public preservation of great natural scenery and its unique capacity to enhance human psychological, physical, and social health.	7
	1865	John Burrows, an American writer published his first nature essay "With the Birds" in the Atlantic monthly.	7
	1866	Ernst Haeckel, a German biologist, coins the word "Ecology".	5
	1866	William Stanley Jevons wrote "Brief Account of a General Mathematical Theory of Political Economy".	1
	1867	American paleontologist, Edward Drinker Cope, founded the Neo-Lamarckian School of Evolutionary Thought, on the theory that embryonic timing was the cause of evolution, not natural selection.	15
1870	1873	Ayers Rock was discovered and named after the Premier of South Australia.	6
	1875	American Forestry Association is established to protect trees for conservation.	7
	1876	John Muir publishes "God's First Temples: How Shall We Preserve Our Forests?," in it, he suggests the necessity for government protection of forests.	7
	1879	Alfred Marshall with Mary Paley wrote "The Economics of Industry".	1
	1879	The Royal National Park, south of Sydney was the first National Park gazetted in Australia and the second in the world (prior to Yellowstone NP in the USA seven years earlier).	4
1880	1880	Royal National Park was extended and reserves in the Blue Mountains in NSW gazetted.	3
	1881	NSW Legislative Assembly passed the Ringbark Act to prevent the unlawful removal of trees.	3
	1882	The Forest Conservation Branch is established in NSW.	3
	1882	The Ferntree Gully National Park east of Melbourne was the second National Park gazetted in Australia.	4
	1883	The Australian Geographical Society held its first meeting in Sydney.	3
	1883	The Adelaide Zoological Gardens was established in South Australia.	3
	1888	Centennial Park opened in Sydney as a public park.	3
	1891	The New South Wales government decides to take all unoccupied islands in Port Jackson as public reserves.	3
1890	1890	1890's. In a time of growing awareness of the potential benefits of scientific forestry, the forestry movement shifts its emphasis from saving trees to promoting scientific forest management.	7
	1892	John Muir meet with colleagues to found the Sierra Club, which was dedicated to preserving wilderness, this raised the environmental consciousness and inspired conservation programs for national parks in the USA.	7
	1895	Kings Park established in Perth, West Australia.	
	1896	Svent Arrhenius, a Swedish scientist, developed a model, which in time provided the basis for predicting the greenhouse effect.	1
	1898	The Zoological Gardens opened in Perth, West Australia.	3
		1901-1950	
1901	1901	1901 to 1950 Two World Wars and the Great Depression prompted soil and water conservation and the retention and development of native forest for wood production and other uses.	1
	1901	Federation - the Commonwealth of Australia was formed.	3
	1908	Australia's Fraser Island, the world's largest sand island was declared a forestry reserve.	3
	1908	US President, Theodore Roosevelt, set up a National Conservation Commission to look at the use, wastage and conservation of natural resources.	1
	1909	US President Theodore Roosevelt asked all the world's powers to meet in the Hague to consider global conservation. The meeting is never held. Roosevelt loses office in March 1909.	1
1910	1912	Concern for "human conservation" as American cities cope with air pollution are reflected in a publication, City Smoke Ordinances and Smoke Abatement, by Samuel B. Flagg.	7
	1915	German interdisciplinary scientist, Alfred Wegener wrote "The Origins of Continents and Oceans"1st edition, which presented evidence from many fields that continents were once connected.	14
	1915	Lamington National Park in Queensland was is proclaimed as Subtropical Rainforest.	3
1920	1920	1920's, Arthur Cecil Pigou advocated the use of environment taxes to reduce pollution emissions.	1
	1920	1920's, University of Sydney geography department head, Griffith Taylor spoke about environmental limits to Australian settlement and population.	4
	1929	The Great Depression begins and influences an entire generation of policy makers and governments.	6
1930	1930	The first historical negative environmental impact of European settlement on Australia was recognised in WK Hancock's "Australia".	4
	1930	1930's, Harold Hotelling examined the use of exhaustible resources and established the Hotelling rule applicable to the resource industry.	1
	1932	National Parks and Primitive Areas Council established in Australia.	4
	1939	1939 to 1945 World War 2 provided capacity for governments to organise and create opportunities. Its legacy lives on in corporate planning, command and control hierarchies in firms, and in development projects.	1
1940	1940	1940's USA – Stanford Business School Professor, Theodore Kreps, used the term "social audit" " for the first time in relation to companies reporting on their social responsibilities.	1
	1940	1940's United Nations System of National Accounts developed which allowed a comparable measurement of Gross Domestic Product.	1

	1944	Kosciusko National Park was the first of many new parks that were reserved in the post war period.	4
	1945	The people of Japanese cities of Hiroshima and Nagasaki suffer total devastation from nuclear weapons.	17
	1948	The Universal Declaration of Human Rights was adopted on the 10th December.	1
	1948	World Health Organisation was established.	1
	1949	American naturalist and writer, Aldo Leopold wrote "A Sand Country Almanac". Known as the father of wildlife conservation and his outspoken view about America's relationship with the land.	21
	1949	Australian National Botanic Gardens established in Canberra, Australian Capital Territory.	6
		1951-1970	
1951	1955	Nature Conservation Council of NSW is founded.	17
	1957	The International Geophysical Year was a study of the earth by scientists from 55 nations. Australia's involvement was to maintain a number of research stations including three in Antarctica and 94 across the mainland.	3
1960	1960	The Organization for Economic Cooperation and Development (OECD) was created. Convention signed in Paris on the 14th December, which came into force on 30/9/61. The convention was designed to contribute to sustainable economic growth and employment; development of the world economy and expansion of world trade on a multilateral, non-discriminatory basis.	1
	1960	1960's, Australian troops involved in the Vietnam War, culminating in social outrage in 1969.	4
	1960	Aboriginal people were recognised as Australian citizens for the first time.	6
	1960	1960's James Lovelock, developed GAIA Theory, which saw the planet as a self-evolving and self-regulating living system.	8
	1960	1960's, UK George Goyder proposes that a social audit can act as both a useful management tool and offer stakeholders a platform for challenging and influencing companies.	1
	1962	The "First World Conference on National Parks" was held in Seattle to establish a more effective international understanding of national parks and to encourage further development of the national park movement on a worldwide scale.	39
	1962	American, Murray Bookchin , wrote "Our Synthetic Environment". Founder of Social Ecology which involved people in environmental solutions, believed that mans domination of man has shifted to domination of nature. Later was a critic of Deep Ecology, which he believed did not recognise human domination.	15
	1962	Ecologist, biologist and feminist, Rachael Carson publishes "Silent Spring". It shatters the assumption that the environment has an infinite capacity to absorb pollutants and unleashes a new wave of environmentalism.	2
	1962	Botanic Garden established in Perth West Australia.	6
	1963	International Biological Program. The programme is initiated by nations around the world to analyse environmental damage and the biological and ecological mechanisms through which it occurs. In creating a large body of data, it laid the foundation for science-based environmentalism.	2
	1965	The now Australian Marine Conservation Society founded.	17
	1965	"Unsafe at Any Speed" was published – an analysis of corporate greed and consumer rights in the car industry.	1
	1966	International Covenant on Economic, Social and Cultural Rights adopted by the United Nations.	1
	1966	International Covenant on Civil and Political Rights adopted by the United Nations.	1
	1967	Environmental Defense Fund formed to pursue legal solutions to environmental damage.	2
	1968	Garett Hardin publishes his thesis "Tragedy of the Commons" where he surpasses that human self interest and the increase of wealth will dominate leading to use and consumption and the eventual collapse of the natural common resources, which sustains life.	13
	1968	USA – Milton Moskowicz publishes "Business in Society" newsletter, social reporting on sustainability.	1
	1968	Paul Ehrlich publishes his book "Population Bomb" which explores the connection between human population, resource exploitation and the environment.	2
	1968	Friends of the Earth was formed. Dedicated to protecting the earth from degradation and giving people a voice in conservation.	2
	1968	The Club of Rome, led by Italian industrialist, Aurrelio Peccei, and Scottish scientist, Alexander King, was established by 36 European economists and scientists. The purpose was to analyse interactions between industrial production, population, environmental damage, food consumption and natural resource usage (later published as “The Limits to Growth”.	2
	1968	The Intergovernmental Conference for Rational Use and Conservation of Biosphere was held, providing an early forum (UNESCO) for ecologically sustainable development.	2
	1968	The UN General Assembly authorised the holding of a Human-environment Conference in 1972.	2
	1969	National Environmental Policy Act adopted by the USA.	17
	1969	Ecological sensitivity, environmental insights and human history were exposed in poet historian Eric Rolls book, They All Ran Wild".	4
1970	1970	The Victorian Environment Protection Act established the Environment Protection Authority (EPA) in 1970. It was the first in Australia and one of the first in the world.	1

	1970	The Natural Resources Defense Council was formed to push for comprehensive US environmental policies.	2
	1970	The first Earth Day is held as a national teach-in on the environment. An estimated twenty million people participate in peaceful demonstrations all across the USA.	2
	1970	1970's, saw the creation of environmental economics by Professor David Pearce, University of London, and Mick Commons from the Centre for Resource and Environmental Studies, Australian National University.	1
	1970	1970's, UK – Social Audit Ltd undertakes external audits of a small number of companies.	1
	1970	1970's USA – Council on Economic Priorities and others begin to rate companies publicly on their social and environmental performance.	1
	1970	1970's, Peter Singer published his book "Animal Rights" which gave rights to non humans and put a wedge in anthropocentricism.	25
	1970	Strong growth in American Socially responsible investment funds.	1
	1970	1970's, the first emissions trading market established by EPA in the USA.	
	1970	Early 1970's, the oil price shock leads to global economic problems. This ends Keynesian policy hegemony and initiates the rise of laissez faire economics (privatisation, marketisation, small government policies).	1
		1971-1975	
1971	1971	Term "Green Ban" used in support of conservation to protect heritage sites from redevelopment.	6
	1971	Commonwealth Department of Environment, Aborigines and Arts is established in Australia.	3
	1971	Greenpeace commenced in Canada.	
	1971	In Britain, the International Institute for Environment and Development(IIED) was established to seek ways of economic progress without destroying the environmental resource base.	2
	1971	The Founex Report was prepared by a panel of experts who met in Founex, Switzerland in June. It called for the integration of environment and development strategies.	2
	1972	1972, Norwegian activist and philosopher, Arne Naess, founded Deep Ecology, a holistic approach that brings together thinking, feeling, spirituality and action. It involves seeing ourselves as part of the earth.	9
	1972	George Seddon was a pioneer of the new environmental history through his book "Sense of Place".	4
	1972	Discovering Monaro: A Study of Man's Impact on his Environment" by W.K. Hancock was influential in the cooperative alliance between historians and ecologists most notable in forest history in the 1980's and 1990's.	4
	1972	The Total Environment Centre was established in Sydney as Australia's first full time environment centre.	3
	1972	Australian Institute of Marine Science was established in Townsville, Queensland.	3
	1972	1971-72 Tasmania's Lake Pedder, was flooded by the Huon-Serpentine despite large protests to save the region. This campaign and the later campaign to save the Franklin River led to the establishment of The Tasmanian Wilderness Society.	1
	1972	An article in "The Ecologist" magazine, endorsed by a large number of scientists, and titled 'The Blueprint for Survival", proposes the concepts of "sustainability" and sustainable development" as an alternative to an ethos of 'expansionism".	1
	1972	Rene Dubos and Barbara Ward wrote "Only One Earth". about the impact of human activity on the biosphere but expresses optimism that a shared concern for the future of the planet can lead humankind to create a common future.	2
	1972	The UN Conference on Human-environment is held in Stockholm. The conference is rooted in the regional pollution and acid rain problems of northern Europe. It provide the first international recognition of environmental issues.	2
	1972	The Club of Rome published "Limits to Growth". The report was extremely controversial because it predicts dire consequences if 'growth' through raw materials from nature is not slowed.	2
	1972	OPEC oil crisis fuels the limits-to-growth debate.	2
1973	1973	The Minister for the Environment and Conservation announced a massive increase in jobs and funding for the department over the next 12 months, with the expansion of the department to include two new divisions, Environmental Protection and National Parks and Wildlife Protection.	1
1974	1974	The Federal Environmental Protection Act becomes law under the Whitlam government.	3
	1974	Françoise d'Eaubonne, a French feminist, introduced the term Ecofeminism that explained a movement, which included cultural and social concerns and related the domination of women to the domination of nature, sexism, racism and other injustices.	24
	1974	USA - Sherwood Rowland and Marlo Molina release a seminal work on CFCs in Nature magazine. They calculated that if human use of CFC gases is to continue at an unaltered rate the ozone layer will be depleted by many percent after some decades.	2
1975	1975	Commonwealth Great Barrier Reef Marine Act is passed into law under the Whitlam government.	3
		1976-1980	
	1976	J.M. Powell book "Environmental Management in Australia" was one of a series of significant studies on the environment.	4
	1976	Sand mining ceases on Fraser Island.	3
	1976	International Covenant on Economic, Social and Cultural Rights comes into force 3 January.	1

	1976	The UN International Covenant on Civil and Political Rights comes into force 23 March.	1
	1976	Brisbane Botanic Gardens established in Queensland.	6
	1976	The Tasmanian Wilderness Society was formed in 1976,when the campaign to save Tasmania's wild Franklin River began. It has protected over five million hectares of wilderness. The river was saved in March 1983 when the Labor Party won the federal election.	1
	1977	Aboriginal Land Rights Act 1966 (NT) allowed claim to crown or vacant land.	6
	1977	Peter Berg, the acknowledged `Father' of Bioregionalism, met the esteemed ecologist, Raymond Dasmann, who was interested in counter-cultural movements as a vehicle for more ecologically-oriented values. The new philosophy was published in the ecologist in 1977.	12
	1978	Toxic dump disaster in the Love Canal in New York State.	1
	1978	The Ranger Uranium Mine Agreement between a mining consortium and the Northern Land Council (on behalf of traditional owners) in Jabiluka, Northern Territory, Australia, prompted a major national and international campaign to save the surrounding wilderness areas.	1
	1978	OECD Directorate of the Environment relaunches research on the environment and economic linkages.	2
	1978	The Aboriginal Land Rights (NT) Act was proclaimed on the 26th January giving land rights to aborigines in the Northern Territory to claim traditional or sacred rights to land.	3
	1979	Kakadu National Park was declared.	3
	1979	The Nullarbor National Park was declared.	3
	1979	Ranger Uranium Mine in the Northern Territory in Australia is constructed.	17
	1979	The Great Barrier Reef Marine Park was declared.	3
	1979	J. Coomer (ed.) published the book “Quest for a Sustainable Society”. In his own chapter, “The Nature of the Quest for a Sustainable Society”, he described “the sustainable society" as one that lives within the self-perpetuating limits of its environment.	1
	1979	The chair of Tata Steel, India’s largest integrated private sector steel company, asked the audit committee to report on “whether, and the extent to which the company had fulfilled the objectives…regarding the social and moral responsibilities to consumers, employees, share holders, society and the local community.”	1
1980	1980	The US Comprehensive Environmental Response, Compensation and Liability Act (CERLA) was passed as a result of the toxic dump disaster in the Love Canal in New York State.	1
	1980	The first “World Conservation Strategy” was released by the IUCN. “Sustainable Development” is defined as the maintenance of essential ecological processes and life support systems, the preservation of genetic diversity, and the sustainable utilisation of species and ecosystems.	2
	1980	“The Global 2000 Report to the President”, commissioned in 1977, is submitted to US President Jimmy Carter. This report provided a comprehensive projection of global environmental impacts and resource supply issues over the next 20 years. The Report recognised biodiversity for the first time as a critical characteristic in the proper functioning of the planetary ecosystem.	2
	1980	1980's the Total Quality Management concept was deployed from Japan to the world.	1
		1981-1985	
1981	1981	World Heritage Listing declared for Kakadu National Park, Willandra Lakes and Great Barrier Reef Marine Park.	3
	1981	Central Australia Land Rights are given to the Pitjantjatjara Aboriginal Community.	3
	1982	Business in the Community was founded, a UK based business led membership organisation focused on corporate social responsibility.	1
	1982	IUCN World Congress. The "Third World Congress on National Parks" was held in Bali and focused on the role of protected areas in sustaining society.	39
	1982	The "UN World Charter for Nature' was published and stated that all forms of life are unique and should be respected irrespective of their value to humankind.	2
	1982	Tasmania's south-west was listed by the World Heritage Commission.	6
	1983	The Franklin River was saved when a Labor government came into power in Australia.	1
	1983	Australia adopted a National Conservation Strategy to implement the objectives of the World Conservation Strategy.	1
	1983	Establishment of the World Commission on Environment and Development, also known as the Bruntland Commission after its Norwegian chairperson, Gro Harland Bruntland. The purpose was to investigate links between environment and development that were suspected at the time.	16
	1983	February Ash Wednesday Bushfires, the worst in Australia's history swept through Vic and SA	3
	1983	Dust storm in Melbourne covered 77,000sq Km dumped tones of top soil on the city.	6
	1984	English biologist, Edward O Wilson coined the term "Biodiversity" and was one of the originators of the Socio-Biology and the Biophilia Hypothesis. "Biophilia" is the human propensity to affiliate with other life forms, for the conservation of biodiversity. Humans evolved as creatures deeply enmeshed with the intricacies of nature, and that we still have this affinity with nature ingrained in our genotype.	11

	1984	In Bhopal India, the Union Carbide plant exploded and caused the deaths of 1500 and injured many more thousands. This tragedy shook the chemical industry into action and the Responsible Care program was developed.	1
	1984	In Bhopal, India, a gas leak from the Union Carbide's factory killed over 3,800 people and injured up to half a million.	1
1985	1985	The title deeds to Ayers Rock was handed over to the Mititjulu people, the traditional owners.	3
	1985	The Antarctic ozone hole was discovered by British and American scientists.	2
	1985	The Villach (Austria) meeting was called by the World Meteorological Society, UNEP and the International Council of Scientific Unions (ICSU) to report on the build-up of carbon dioxide and other greenhouse gases in the atmosphere, and to predict global warming.	2
		1986-1990	
1986	1986	The IUCN Conference on Environment and Development was held in Ottawa. Meeting participants saw sustainable development as an emerging paradigm derived from two closely related paradigms of conservation and resource stewardship.	2
	1986	An accident at a nuclear power station in Chernobyl, Ukraine (in former USSR) generated a massive toxic radioactive explosion with much of the damage occurring in Belarus.	2
	1987	Edward Abbey wrote the "Monkey Wrench Gang" which inspired a new generation of environmental activists such as Earth First.	15
	1987	"Our Common Future" (Brundtland Report) was published. It reported on the work of the World Commission on Environment and Development. The report wove together consideration of social, economic, cultural, and environmental issues. For the first time it gave some direction for comprehensive global solutions. It also popularised the term "sustainable development".	2
	1987	The Montreal Protocol on Substances that Deplete the Ozone Layer was adopted, committing signatories to phase out CFCs.	2
	1988	An Inter-governmental Panel on Climate Change (IPCC) was established with three working groups to assess the most up-to-date scientific, technical and socio-economic research in the field of climate change.	1
	1988	Ben and Jerry's (Ice Cream Company) in USA produced the first Social Performance Assessment.	1
	1988	The establishment of the Resource Assessment Commission to evaluate the best use of resources in Australia.	1
	1988	The Magna Carta of European Universities was signed, to deal with misconceptions on the concept of sustainability.	1
	1988	1988-89 Wet Tropics listed as a World Heritage area by the Commonwealth Govt amidst much protest and attempted appeal by the Queensland Govt.	17
	1988	State and federal governments announced that a significant part of the Port Nepean area on the tip of the Mornington Peninsula will become National Park.	6
	1989	The Exxon Valdez supertanker ruptures spilling 41.6 million liters' of crude oil into Alaska's Prince William Sound.	1
	1989	A report was published for the Thatcher government – the Blueprint for a Green Economy, by David Pearce and others. The report introduced the concept of natural capital.	1
	1989	1989 to 1990 saw the collapse of communism and the Berlin Wall. This represented the failure of an expensive economic experiment. It is clear that somehow or other we have to get capitalism to work because there are no alternatives. The spotlight is now firmly on capitalism.	1
1990	1990	Allan Solomon in the International Institute for Applied Systems Analysis (IIASA) report "Towards Ecological Sustainability in Europe: Climate, Water Resources, Soils and Biota" defines "ecologically sustainable development" as a condition in which society's use of renewable resources takes place without destruction of the resources or the environmental context which they require.	1
	1990	Talloires Declaration of University Presidents for a Sustainable Future was signed, dealing with misconceptions on the concept of sustainability.	1
	1990	East Australia devastated by worst floods in recorded history.	6
	1990	Publication of Australian Conservation Foundation document, Ecologically Sustainable Development.	1
	1990	War in Iraq following the invasion of Kuwait, causes environmental damage.	17
	1990	The United Nations Human Development Index is created to offset the power of GDP as measure of human progress.	1
	1990	AC, WWF, The Wilderness Society and Greenpeace put a major submission to the federal government on Ecological Sustainable Development and thereby helped establish the terms of reference for sustainable development in Australia.	1
	1990	1990's Australian Conservation Foundation and the National Farmers Federation formed an alliance known as Landcare, and was allocated $320 Million over 10 years for a national land management, catchments and regional planning program.	1
		1991-1995	
1991	1991	The Australian Prime Minister Bob Hawke establishes nine multipartite Working Groups to develop recommendations for promoting "ecologically sustainable development" (ESD).	1

	1991	IUCN/UNEP/WWF publish " Caring for the Earth: 2nd World Conservation Strategy". The strategy built on the first World Conservation Strategy.	1
	1991	Commonwealth Government Ecologically Sustainable Development process established.	1
	1991	1991-92 1.000km blue green algae trail appears in the Darling River.	17
1992	1992	Mabo decision by the High Court in Australia recognising native land title where it has not been extinguished.	1
	1992	UN Environmental Policy statement by financial institutions on the Environment and Sustainable development. Revised in 1997. 165 signatories, no Australian financial house signed.	1
	1992	Sep 30 - The US space agency reported that the "ozone hole" over Antarctica grew 15 percent in 1992 and is now nearly the size of the entire North American continent. The Antarctic ozone hole, first spotted in 1985, was caused by the depletion of the Earth-shielding ozone layer by human-made chemicals such as chlorofluorocarbons, known as CFCs.	1
	1992	The Federal government recognised the potential of the "Green Jobs in Industry" program and contributed funding for the establishment of a Green Jobs Unit.	1
	1992	Social Historian, Theodore Roszak defined eco psychology in his book "Voice of the Earth" although central ideas were present in 1972. Ecopsychology suggests that there is a synergistic relation between planetary and personal well being; that the needs of one are relevant to the other.	10
	1992	The U.N. Conference on Environment and Development (UNCED) was held in Rio de Janiero It results in the publication of Agenda 21, the Convention on Biological Diversity, the Framework Convention on Climate Change, the Rio Declaration, and a statement of non binding Forest Principles. The main achievement of the Earth Summit is a treaty to reduce emissions of "greenhouse gases".	2
	1992	U.N. Commission on Sustainable Development established.	17
	1992	IUCN World Congress. The "Fourth Congress on National Parks and Protected Areas: Parks for Life" was held in Caracas. One of the main messages was that the relationship between people and protected areas is often ignored.	39
	1992	Term Sustainable Development became popularised. Sustainable Development, according to one definition, demands that we seek ways of living, working and being that enable all people of the world to lead healthy, fulfilling, and economically secure lives without destroying the environment or endangering the future welfare of people and the planet.	15
	1992	The World Business Council for Sustainable Development published "Changing Course" and established businesses in sustainable development.	2
	1992	Business for Social Responsibility, a USA based business led membership organisation, which focused on corporate social responsibility was founded.	1
1993	1993	The complex Mabo Bill passed into legislation, leading the way for social justice and reconciliation.	3
	1993	May 20 - US scientists reported that they have invented a computer model for predicting effects of global warming on crops and forests.	1
	1993	Oct 20 - US President Bill Clinton announced an ambitious plan to combat global warming. Under the plan, US greenhouse gas emissions would be cut to 1990 levels by 2000 through over 50 initiatives affecting all sectors of the economy.	1
1994	1994	Mabo Native Title Bill became law.	6
	1994	International Conference on Population and Development held in Cairo.	17
	1994	Much of Australia affected by drought, 98% of NSW, 45% of QLD and large areas of SA,VIC and WA.	3
	1994	June 1 - The international environmental group, Greenpeace announced in a report entitled "The Climate Timebomb", that global warming is causing severe climatic changes and environmental disasters around the world.	1
1995	1995	Robert Costanza and Bernard Patten publish the article "Defining and Predicting Sustainability" in the journal, Ecological Economics.	1
	1995	November - Ken Saro-Wiwa hanged in Nigeria sparking wide spread protests. Questioning Shell's responsibilities to the Ogoni people in Nigeria.	1
	1995	Caux Round Table Principles for Business adopted – setting out business responsibilities to society.	1
	1995	The formation of the World Trade Organisation.	1
	1995	World Summit on Sustainable Development held in Copenhagen.	17
	1995	Kyoto Protocol hints at global trading system for carbon emissions and credits.	1
		1996-2000	
1996	1996	The OECD, in their report "Pollution Prevention and Control, Environmental Criteria for Sustainable Transport" point out that "the originators of the term sustainable development had a particular definition of the word sustainable in mind: capable of being continued.	1
	1996	Ok Tedi dispute and BHP settles by paying compensation of $110 million to PNG villagers for ecological damage caused by mining.	17
	1996	New proposal tabled for underground uranium mine at Jabiluka and milling at Ranger located inside the world heritage listed Kakadu National Park. IUCN (The World Conservation Union) passed a resolution opposing the development of Jabiluka if World Heritage values were shown to be threatened.	1

1997	1997	Environment Minister, Robert Hill, brokered a deal allowing Australia to increase the limit of greenhouse emissions.	3
	1997	Earth Summit + 5 held to assess progress from the 1992 summit.	17
	1997	The Kyoto Protocol for the Implementation of the Framework Convention on Climate Change is negotiated. Developed nations adopt targets for the reduction of greenhouse gas emissions (in aggregate, 5.2% below the 1990 levels). The targets become binding when the protocol is signed by a sufficient number of nations.	1
	1997	SA8000 launched by Social Accountability International (SAI), formerly known as the Council on Economic Priorities Accreditation Agency (CEPAA).	1
	1997	John Elkington published "Cannibals with Forks" in it he coined the term Triple Bottom Line.	1
	1997	The Global Reporting Initiative was launched.	1
	1997	Shell includes respect for human rights in its written global business principles.	1
	1997	Mattel, a world wide toy manufacturer (in 2000 revenues of US$5.5 billion), established a global code of conduct for its production facilities and contract manufacturers, called the Global Manufacturing Principles (GMP).	1
	1997	The Natural Heritage Trust (NHT) was set up by the Australian Government to help restore and conserve Australia's environment and natural resources.	22
	1997	Australia's first regional Forestry Agreement finalised.	17
	1997	The Body Shop International published The Values Report.	1
	1997	Asia - land clearing fires intensified by EL Nino induced drought causing smoke haze and health risk.	2
1998	1998	Amnesty Human Rights Principles for Companies released.	1
	1998	Shell publishes its first social responsibility report Profits and Principles – Does there have to Be a Choice?	1
	1998	November - Around 170 nations gathered at the United Nations global warming conference Buenos Aires to discuss ways of cutting emissions of greenhouse gases by 2008-2012. - Specialists told the summit that global warming is killing the world's coral reefs, and with them the swarming sea life they shelter and support.	1
	1998	54 countries hit by floods and by 45 drought. Highest global temperature ever recorded.	2
	1998	Controversy over genetically modified crops. UN governments stop imports from North America.	1
1999	1999	Ecotheology: American cultural historian, writer and eco-theologian, Thomas Berry wrote "The Great Work". Berry is known as one of the most important contemporary philosophers on the human relationship with the natural world and its implications for religion and the survival of the earths systems.	15
	1999	January – Kofi Annan's Global Compact Speech at Davis.	1
	1999	Creation of the Dow Jones Sustainability Index.	1
	1999	Seattle protests against the World Trade Organisation and globalisation.	1
	1999	UK Corporations Disclosure Legislation passed.	1
	1999	Nov 4 - Environment ministers from 173 countries meeting in Bonn to discuss the Kyoto Agreement, end talks without any breakthroughs and with many difficult issues remaining unresolved, such as penalties and payments for not meeting targets	1
	1999	Paul Hawke and Amory and Hunter Lovins publish "Natural Capitalism": The next industrial revolution" which shows that a change in our economy, that will rival the first industrial revolution, is not only necessary but is already underway.	1
2000	2000	World Heritage Listing was given to the Greater Blue Mountains.	3
	2000	A team of Dutch experts and an English writer publish "Sustainable Technology Development" which reports on the results of a major program backed by the Dutch Government to develop technologies that can improve resource use efficiency by 95% and 98%. Outlines a practical and systematic methodology for achieving this.	1
	2000	Global Higher Education for Sustainability Partnership created by the Copernicus programme of the Association of European Universities, the Association of University Leaders for a Sustainable Future and The UN Education, Scientific and Cultural Organization (UNESCO). committed to making sustainability a major focus in higher education.	1
	2000	July – UK Pension Act amended to require the trustees of occupational pension schemes to disclose their policy on socially responsible investment in their Statement of Investment Principles.	1
	2000	Sep 8 - Scientists from the US space agency NASA report the largest ozone hole ever observed had opened up over Antarctica, a sign that ozone-depleting gases churned out years ago are just now taking their greatest toll.	1
	2000	Melbourne protests at the World Economic Forum.	4
		2001-2005	
2001	2001	Jul 5 - Japanese Environment Minister, York Kawaguchi, said that there seemed to be no likelihood of a breakthrough at the next round of talks but suggested that the deadline for final agreement on the rules of the Kyoto pact should be late October when a United Nations conference on climate change was to start in Marrakech, Morocco.	1
	2001	Globalisation protests at the Genoa World Economic Forum. Protester killed	1
	2001	Globalisation protests at the Melbourne World Economic Forum	1

	2001	Australia disclosure legislation passed in the Financial Reform Bill, requires that fund managers disclose the extent of social and environmental issues and that these are taken into account when selecting or reinvesting ethical investments.	1
	2001	Australia Legislates for 2% renewable energy production by 2010	1
	2001	Sept 11 terrorist attacks on the Twin Towers of the World Trade Centre in New York and the Pentagon in Washington.	3
2002	2002	Rio +10 Conference, UN Conference on Sustainable Development, held in Johannesburg South Africa.	17
	2002	The United Nations General Assembly proclaimed the years from 2005 to 2014 the Decade of Education for Sustainable Development (DESD). Governments from around the world have been invited to strengthen their contribution to sustainability through a focus on education.	22
	2002	Australia suffers its worst drought in over 70 years.	3
2003	2003	In January, the ACT was devastated by bushfires.	6
	2003	Earth Observation Summit to begin to develop a conceptual framework and implementation plan for building a coordinated, and sustained Earth observation system or systems.	23
	2003	A proposed development of Ningaloo Reef in Perth WA was blocked after a long environmentalist campaign.	4
2004	2004	The Millennium Ecosystem Assessment (MA) is launched by UN Secretary-General Kofi Annan. The MA is a study on the consequences of ecosystem change on human health and response options.	19
	2004	Australian scientist, Tim Flannery publishers a book called "The Weather Makers", which sets out the history and future of climate change.	34
2005	2005	ABC TV airs a story on Four Corners on Monday 21 March, on global warming and global dimming which highlights catastrophic times ahead for the earth.	18
	2005	An article in Nature on 27 January, states that scientists predict long term temperature rises of 3.4 degrees Celsius due to doubling carbon dioxide levels.	15
	2005	March 30, an international draft landmark study conducted by 1,300 experts from 90 countries is released titled 'Millennium Ecosystem Assessment' (MA) which reports that 60% of the earths ecosystem services that support life are degraded and could grow significantly worse in the next 50 years.	19
	2005	Tim Flannery book "The Weather Makers" is published in Australia, which contributes to understanding and addressing human induced climate change.	34
	2005	December 11, The Great Otway's National Park is declared in Australia. From Anglesea to Cape Otway in Victoria a new 100,000-hectare national park.	29
		2006-2010	
2006	2006	January 8,The third toxic spill in China in three months threatens two major cities. The industrial chemical cadmium, which can cause neurological disorders and cancer, flooded out of a smelting works and into the Xiangjiang River in Hunan province.	28
	2006	January 11, The first government-business Asia-Pacific Partnership on Clean Development and Climate Change (AP6) is held in Australia to outline ways to reduce greenhouse gas emissions. The six participating nations are USA, Australia, India, China, Japan and South Korea. No emission targets are set.	26
	2006	January 12, An article in Nature, by a team led by Frank Keppler of the Max Planck Institute in Germany has found living plants, dried leaves and grass emit methane adding to greenhouse gases. This leads scientists to rethink strategies to control global warming.	27
	2006	February, A consultancy report for the Australian Business Roundtable on Climate Change was released. It set out the effects on climate change on Australia.	35
	2006	August 31, The governor of California, Mr. Arnold Schwarzenegger, announced sweeping controls on carbon emissions to curb man made causes of climate change. The first of the states in America to take such action against the man made causes of global warming.	30
	2006	September 4, The world mourns the death of Australian conservationist and naturalist, Steve Irwin. Irwin, known as the Crocodile Hunter died while filming a documentary on the Great Barrier Reef, when a barb from a stingray pierced his chest in a freak accident. Erwin, poured all of the earnings from his Queensland reptile park, Australia Zoo, into conservation.	31
	2006	A documentary and book on global warming is released around the world. The documentary titled "An Inconvenient Truth" is based on a slide show by Al Gore, American Vice President in the Clinton administration. The documentary explains both the scientific evidence and the current state of the world, which is due to human induced carbon emissions.	32
	2006	October 30, release of the Stern Report, the world's biggest economic evaluation of climate change, puts the cost of global warming at $A9 trillion. A bill greater than two world wars and the great depression. The report by Sir Nicholas Stern, was commissioned by the British Government and calls for action to be taken now to address climate change.	33
	2007	Tim Flannery is awarded Australian of the Year in recognition of his contribution to understanding and addressing human induced climate change.	36
	2007	Two books were published in Australia that examine politics and climate change "High and Dry by Guy Pearce and "Scorcher" by Clive Hamilton.	38
	2007	July 6, Live Earth concerts begin in Australia. The concerts are performed sequentially on seven continents to bring awareness of climate change.	37

2010	2010	CFC use to be phased out world wide. Montreal Protocol 1987.	1

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APPENDIX B

SUSTAINABLE TOURISM CRC

Parks VICTORIA

VICTORIA UNIVERSITY | A NEW SCHOOL OF THOUGHT

QUESTIONNAIRE

It is important that all questions are answered by placing a ✓in the box next to your answers. The questionnaire consists of 6 parts; demographics, park use locations, park activities, your environmental worldview, your nature values and your place attachment. *August 2006*

1. DEMOGRAPHICS

Please mark one answer for each of the following questions.

Which age bracket do you fall into?

☐ **18-24** ☐ **25-34** ☐ **35-44** ☐ **45-54** ☐ **55-64** ☐ **65 or more**

What is your gender?

☐ Female ☐ Male

What is your level of education?

☐ Secondary School ☐ Trade ☐ University

Where do you live?

Postcode ☐ Location ☐ ☐ Victoria ☐ Outside Victoria ☐ International

2. AREA OF USE

In this section, we wish to know the area of the national park that you use.
You may choose multiple locations in answering this question.

Which areas do you use in the Cann River Region?	**Which areas do you use in the Mallacoota Region?**
☐ Cann River	☐ Mallacoota
☐ Swan Lake	☐ Mallacoota Inlet
☐ Furnell Landing	☐ Gabo Is Lighthouse Reserve
☐ Tamboon Inlet	☐ Genoa
☐ Peachtree Creek Reserve	☐ Gypsy Point
☐ Point Hicks Lightstation Reserve	☐ Seal Creek
☐ Point Hicks Maringe NP	☐ Genoa Peak
☐ Thurra Inlet	☐ Lake Barracoota
☐ Muller Inlet	☐ Lake Wau Wauka
☐ Elusive Lake	☐ Tullaberga Island
☐ Rame Head	☐ Shipwreck Creek
☐ The Skerries	☐ Cape Howe Marine NP
☐ Wingan Inlet	☐ None of the above
☐ Bemm River	
☐ None of the above	

☐ Other (please specify)

3. ACTIVITIES

In this section, we want to understand your activities towards the national park and your community. Please mark one answer for each of the following questions.

Are you a member of Lions, Rotary or other volunteer organization?
☐ Yes ☐ No

Do you participate in any national park voluntary activities?
☐ Yes ☐ No

Do you donate money to national park organisations?
☐ Yes ☐ No

Would you be willing to be involved in volunteer activities to maintain or manage sections of the national park? ☐ Yes ☐ No

Would you be willing to adapt your lifestyle to support the natural environment?
☐ Yes ☐ No

What other activities do you undertake in the Croajingolong National Park region?
You may choose multiple locations in answering this question.

☐ Sightsee	☐ Canoe	☐ Commercial vehicles
☐ Picnic	☐ Sea kayak	☐ Beach fishing
☐ Swim	☐ Sail	☐ collect oysters, mussels
☐ Photography	☐ Abseil	☐ Ocean fishing
☐ Painting	☐ Horse ride	☐ Hunting
☐ Nature study	☐ Cycle	☐ Farming
☐ Bird watching	☐ Mountain bike	☐ Mining
☐ Nature walks	☐ Water-ski	☐ Logging
☐ Hiking	☐ Jet ski	☐ Tourism operations
☐ Orienteering	☐ Powerboat	☐ Apiculture (bee)
☐ Camping	☐ Car	☐ Retail
☐ Surf	☐ 4 wheel drive	☐ Other (please specify)
☐ Dive	☐ Air flight	

4. ENVIRONMENTAL WORLDVIEW

In this section, we want to understand your view about humans and the natural environment

Please answer each of these questions in terms of the way you generally feel. There are no right or wrong answers. Please place a number between 1 and 5 next to each statement using the scale 1 Strongly Disagree, 2 Disagree, 3 Neutral, 4 Agree, 5 Strongly Agree.	**Strongly Disagree** **Disagree** **Neutral** **Agree** **Strongly Agree**	**1** **2** **3** **4** **5**
We are approaching the limit of the number of people that earth can support.		
Humans have a right to modify the natural environment to suit their needs.		
When humans interfere with nature, it often produces disastrous consequences.		
Human ingenuity will insure that we do NOT make the earth unlivable.		
Humans are severely abusing the environment.		
The earth has plenty of natural resources if we just learn how to develop them.		
The balance of nature is strong enough to cope with the impacts of modern industrialised nations		
Plants and animals have as much right as humans to exist.		
Despite our special abilities, humans are still subject to the laws of nature.		
The so-called “ecological crisis” facing human kind has been greatly exaggerated		
The earth is like a spaceship with very limited room and resources.		
Humans were meant to rule over the rest of nature.		
The balance of nature is very delicate and easily upset.		
Humans will eventually learn enough about how nature works to be able to control it.		
If things continue on their present course, we will soon experience a major ecological catastrophe.		

In the space below, please explain any other views you have about the natural environment that you consider important *(you may use the back of this sheet if you need more space).*

5. NATURAL AREA VALUES

In this section, we want to understand your views about the value (or lack of value) you place on natural areas and the plants and animals within these areas.

Please answer each of these questions in terms of the way you generally feel. There are no right or wrong answers. Please place a number between 1 and 5 next to each statement using the scale 1 Strongly Disagree, 2 Disagree, 3 Neutral, 4 Agree, 5 Strongly Agree.	**Strongly Disagree** **Disagree** **Neutral** **Agree** **Strongly Agree**	**1** **2** **3** **4** **5**
The value of nature exists only in the human mind. Without people, nature has no value.		
The only value that a natural place has is what humans can make from it.		
Ugliness in nature indicates that an area has no value		
The value of an ecosystem only depends on what it does for humans.		
Only humans have intrinsic value – that is, value for their own sake.		
Forests are valuable because they produce wood products, jobs and income for people.		
To say that natural areas have value just for themselves is a nice idea but we just cannot afford to think that way: the welfare of people has to come first.		
All plants and animal's lives are precious and worth preserving but human needs are more important than all other beings.		
Our children will be better off if we spend money on industry rather than on the natural environment.		
It is better to test new drugs on animals than on humans.		
I'm seeing natural areas the next generation [of children] may not see, and that concerns me.		
I need to know that untouched, natural places exist.		
Natural areas are valuable to keep for future generations of humans		
We have to protect the environment for humans in the future, even if it means reducing our standard of living today.		
Even if I don't go to natural areas, I can enjoy them by looking at books or seeing films.		
In the space below, please explain any other views you have about the value of plants, animals and nature that you consider important *(you may use the back of this sheet if you need more space).*		

6. PLACE ATTACHMENT

In this section, we want to understand your overall feeling towards CROAJINGOLONG NATIONAL PARK and YOUR LOCAL COMMUNITY. *These can be places that are valuable to you for work or recreational purposes, or that hold special meaning to you for other reasons.*

Please answer each of these questions in terms of the way you generally feel. There are no right or wrong answers. Please place a number between 1 and 5 next to each statement using the scale 1 Strongly Disagree, 2 Disagree, 3 Neutral, 4 Agree, 5 Strongly Agree.

CROAJINGOLONG NATIONAL PARK	**Strongly Disagree** **Disagree** **Neutral** **Agree** **Strongly Agree**	**1** **2** **3** **4** **5**
I feel like CROAJINGOLONG NATIONAL PARK is a part of me.		
This NATIONAL PARK is the best place for what I like to do.		
This NATIONAL PARK is very special to me.		
No other place can compare to this NATIONAL PARK.		
I identify strongly with this NATIONAL PARK.		
I get more satisfaction out of visiting this NATIONAL PARK than from visiting any other place.		
I am very attached to this NATIONAL PARK.		
Doing what I do in this NATIONAL PARK is more important to me than doing it in any other place		
Visiting this NATIONAL PARK says a lot about who I am.		
The things I do at this NATIONAL PARK I would enjoy just as much at another site.		
This NATIONAL PARK means a lot to me.		
I wouldn't substitute any other area for doing the types of things I do in this NATIONAL PARK.		
I feel no commitment to this NATIONAL PARK.		
The time I spent here could just as easily be spent somewhere else.		
I do not really feel that I relate at all to this NATIONAL PARK.		
I identify with the lifestyle and values of the people who live here (or come to) this NATIONAL PARK.		
I have (or am willing to) invest(ed) my heart and soul into this NATIONAL PARK.		

LOCAL COMMUNITY	**Strongly Disagree** **Disagree** **Neutral** **Agree** **Strongly Agree**	**1** **2** **3** **4** **5**
I feel like this COMMUNITY is a part of me.		
This COMMUNITY is the best place for what I like to do.		
This COMMUNITY is very special to me.		
No other community can compare to this COMMUNITY.		
I identify strongly with this COMMUNITY.		
I get more satisfaction out of visiting this COMMUNITY than from visiting any other community.		
I am very attached to this COMMUNITY.		
Doing what I do in this COMMUNITY is more important to me than doing it in any other place.		
Visiting [or living in] this COMMUNITY says a lot about who I am.		
The things I do in this COMMUNITY I would enjoy just as much at another site.		
This COMMUNITY means a lot to me.		
I wouldn't substitute any other place for doing the types of things I do here.		
I feel no commitment to this COMMUNITY.		
The time I spent here could just as easily be spent somewhere else.		
I do not really feel that I relate at all to this COMMUNITY.		
I identify with the lifestyle and values of the people who live (or come) to this COMMUNITY.		
I have (or am willing to) invest(ed) my heart and soul into this COMMUNITY.		

(Final Page)

Please tell us about other places within the park that are of special significance to you and why? *These may be sites that are of personal significance to you, for business, recreation, emotional, historic or family reasons.*

Thank you for taking the time to complete the questionnaire

LOCATIONS WITHIN THE PARK

please specify

1) Please place a ✓in the box of the locations that you have been to or that hold special meaning to you. _____

2) Place a number next to each statement in terms of the way you generally feel towards the ticked locations. There are no right or wrong answers. **Use the scale**	☐ **Mallacoota Inlet**	☐ **Shipwreck Creek**	☐ **Seal Creek**	☐ **Genoa Peak**	☐ **Wingan Inlet**	☐ **Thurra River**	☐ **Muller River**	☐ **Point Hicks**	☐ **Tamboon Inlet**	☐ ↖ **Other**
	1 Strongly Disagree	**2** Disagree	**3** Neutral	**4** Agree	**5** Strongly Agree					
I feel like THIS PLACE is a part of me.										
THIS PLACE is the best place for what I like to do.										
THIS PLACE is very special to me.										
No other place can compare to THIS PLACE.										
I identify strongly with THIS PLACE.										
I get more satisfaction out of visiting THIS PLACE than from visiting any other place.										
I am very attached to THIS PLACE.										
Doing what I do in THIS PLACE is more important to me than doing it in any other place.										
Visiting THIS PLACE says a lot, about who I am.										
The things I do here I would enjoy just as much at another site.										
THIS PLACE means a lot to me.										
I wouldn't substitute any other place for doing the types of things I do in THIS PLACE.										
I feel no commitment to THIS PLACE.										
The time I spent here could just as easily be spent somewhere else.										
I do not really feel that I relate at all to THIS PLACE.										
I identify with the lifestyle and values of the people who live (or come) to THIS PLACE.										
I have (or am willing to) invest(ed) my heart and soul into THIS PLACE.										

CROAJINGOLONG NATIONAL PARK (HNWR) STUDY

We would like to invite you to be a part of a study into the environmental orientation and place attachment of the local community surrounding Croajingolong National Park and Biosphere Reserve. This research will make a significant contribution to park managers understanding of your community concerning the national park. A more detailed summary of the aims and outcomes of the project are attached in a document titles "Information to Participants Form".

Please allow 15 minutes to complete the questionnaire.

INSTRUCTIONS FOR COMPLETING THE HARDCOPY QUESTIONNAIRE

A hard copy of the questionnaire will be available through the post office, school and local store

Step 1:	Read Information to Participants Form
Step 2:	Sign Consent Form
Step 3:	Complete Questionnaire
Step 4:	Complete prize entry form
Step 5:	Submit Questionnaire and Prize entry form in reply paid envelope

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INFORMATION TO PARTICIPANTS FORM
For Subjects Involved in Research

1. Background

Parks and protected area managers face limited funds and dwindling human resources while struggling to address many management issues. An innovative approach to this dilemma is the involvement and support of the community in conservation and management initiatives, thus the choice of participants by park managers will have significant consequences. Understanding the relationship between community and the natural environment is important to park managers in understanding the range of diverse views towards natural areas.

2. Aims/Objectives of the Research

The objectives of the research are to provide parks and protected area managers with:
The ability to establish community potential for support and involvement in conservation and management of parks and protected areas. An understanding of the variety of underlying key messages from the community in order to elicit appropriate and desired responses. A greater understanding of community needs in regard to the national park.

The research will involve an examination of the environmental orientation (either human or nature focus) and the place attachment (use of the park for work, leisure, emotional or symbolic purposes) of the local community.

The research will be conducted in two stages.
In stage one; the researcher will conduct a focus group meeting with six to eight representatives of community groups. The purpose of this meeting will be to refine the topic items and themes for stage 2 of the research. This meeting will be followed by a one on one interview with each of the focus group participants to clarify any issues.

In stage two, the researcher will distribute an electronic or hard copy questionnaire to the community through both community groups and through selected locations. The purpose of the questionnaire will be to identify the environmental orientation and place attachment of the participants.

3. Outcomes

This research will make a significant contribution to park managers understanding of the community, their environmental orientation and functional, emotional, or symbolic needs. It can inform and influence strategies for policy and decision making to include community contribution to conservation as well as their support for, or opposition to proposed strategies, and contribute to improving human-to-human relationships between the community and park managers.

4. Potential Risk

There are no perceived physical, psychological, social, legal, or other risks connected with the proposed procedures.

5. Confidentiality

All information provided to the researcher will be classified as “commercial in confidence” and will be kept confidential. As such, integrity will be observed in the treatment of any data collected. The data will be stored securely be the principal researcher.

The project is being undertaken by PhD scholar, Judi Inglis and supervisors, Dr Margaret Deery and Mr Paul Whitelaw. Any queries about your participation in this project may be directed to the principal supervisor (Dr Margaret Deery, Ph. 03 9919 4626). If you have any queries or complaints about the way you have been treated, you may contact the Secretary, University Human Research Ethics Committee, Victoria University, PO Box 14428 MCMC, Melbourne, 8001 (telephone no: 03-9688 4710).

CONSENT FORM

For Subjects Involved in Research

INFORMATION:

We would like to invite you to be a part of a study into the environmental orientation and place attachment of the local community surrounding Croajingolong National Park and Biosphere Reserve. The study will provide park and protected area managers with a greater understanding of your community. A more detailed summary of the aims and outcomes of the project are attached in a document titles "Information to Participants Form".

CERTIFICATION BY SUBJECT

I**,** _____(name)
of _____(suburb)

certify that I am at least 18 years old* and that I am voluntarily giving my consent to participate in the study entitled:

Towards an Integrated Conceptual Framework for the management of Parks and Protected Areas: An exploration of the Human-Natural World Relationship and its role in Conservation and Management

being conducted at Victoria University by: **Ms Judi Inglis, Dr Margaret Deery and Mr Paul Whitelaw.**

I certify that the objectives of the study, together with any risks and safeguards associated with the procedures listed hereunder to be carried out in the research, have been fully explained to me in the document titled "Information for Participants" given to me by **Judi Inglis** and that I freely consent to participation involving the use on me of these procedures.

Procedures:

- **provision of data directed at establishing environmental orientation and place attachment**
- **provision of data relevant to park and protected area conservation and management**

I certify that I understand I have the opportunity to have any questions answered by contacting the researchers and that I can withdraw from this study at any time and that this withdrawal will not jeopardise me in any way.

I have been informed through the information to participants form that the information I provide will be kept confidential.

Signed:_____} Date: ._____}

Witness other than the researcher:_____}

The project is being undertaken by PhD scholar, Judi Inglis and supervisors, Dr Margaret Deery and Mr Paul Whitelaw. Any queries about your participation in this project may be directed to the principal supervisor (Dr Margaret Deery Ph: 03 9919 4626). If you have any queries or complaints about the way you have been treated, you may contact the Secretary, University Human Research Ethics Committee, Victoria University, PO Box 14428 MCMC, Melbourne, 8001 (telephone no: 03 9688 4710).

[*please note: where the subject/s is aged under 18, separate parental consent is required; where the subject is unable to answer for themselves due to mental illness or disability, parental or guardian consent may be required.]