The influence of an ecological worldview on tourist consumers’ behaviour and choices: What’s love got to do with it?

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ABSTRACT

At this point in human history our ongoing destruction of the natural environment and degradation of the planet’s living systems, is reaching catastrophic proportions, and there seems little doubt that much of this degradation has been at the hands of humankind. Coupled with a growing recognition of the significant threats to the natural environment, there has been a “greening” of the market and also of the consumer, most likely in response to changes in social norms and the imperatives of climate change.

Ecotourism, marketed as environmentally sensitive tourism, is considered to be one of the fastest growing sectors of a global tourism industry that generates billions of dollars annually (Fennell, 2003; Page & Dowling, 2002; Weaver, 2001a; Wight, 2001). In spite of the proliferation of eco-tours and nature based tourism offerings, little is known about the intrinsic psychological motivations of the consumers of these experiences (Fennel, 2003; Holden & Sparrowhawk, 2002; Wight, 2001), and some propose that there is little evidence for differentiation between the so-called “ecotourist”, as a more environmentally sensitive and aware consumer, and the mainstream or mass tourist (Sharpley, 2006). Moreover, there is a paucity of cross-disciplinary research incorporating theoretical models from environmental psychology and philosophy. This represents a substantial gap in the literature which impedes the development of theoretical and conceptual models of the psychology of these consumers and their motivations, both within the tourism setting and in their daily lives.

This study sought to address this gap in the literature and makes a significant contribution to the ecotourism literature by linking models and concepts within the extant environmental psychology and environmental philosophy literature in developing a psychological profile of the consumer who prefers ecotourism type experiences over more mainstream tourism activities. Furthermore, this research also extends the environmental psychology literature by incorporating a new construct of love and care for nature into established models of pro-environmental altruism and environmentally relevant consumer choice.

The primary aim of this research was to determine if a pro-environmental ecological worldview, comprising pro-environmental values and love and care for nature, significantly influences tourists’ pro-environmental attitudes, behaviours and choices, including preferences for ecotourism over more mainstream tourism. In order to achieve this aim, the research consisted of two separate empirical studies. The first study involved the development of a scale that measured the construct of love and deep caring for nature. This study involved expert and pre-pilot surveys during the early stages of the scale development process and a major pilot study with 307 university students, prior to an initial field trial of the scale within a tourism setting. The final 15-item scale demonstrated good psychometric properties and was used in the second study of this research to test a number of hypotheses. Specifically, this study examined the relationships between pro-environmental values, love and care for nature, and the pro-environmental attitudes, behaviours and choices of a sample of 261 tourists who were visiting two well-known tourism venues in the Gold Coast region.
The findings of this research support the proposition that an ecological worldview, comprising nature specific biospheric values and deep love and caring for nature, does indeed influence tourists’ attitudes, behaviours, and choices, including a preference for ecotourism type nature based leisure experiences. Moreover, levels of love and caring for nature were found to be the most important influence on pro-environmental behaviours that require more effort and commitment, as well as a willingness to make personal sacrifices in order to protect the environment, than either values or beliefs. Therefore, tourists who expressed a stronger ecological worldview appeared to be indicative of a more environmentally sensitive and aware consumer who makes many of their choices on the basis of their pro-environmental psychological profile, and such choices are not just confined to a tourism context. It may be more appropriate to refer to this market segment as environmentally sensitive and responsible travellers rather than as “ecotourists” per se.

The theoretical implications of this research include the integration of established theoretical models within environmental psychology and philosophy with ecotourism literature. This resulted in the development of a more complete understanding of the psychology the so-called “ecotourist”. Furthermore, this research has extended existing models of the psychological determinants of general pro-environmental altruism by incorporating a new emotional construct of love and care for nature. This construct, variously termed “biophilia” or a “land ethic” in philosophy literature, has not been previously measured in spite of its apparent importance for the development of a true environmental ethic. The new 15-item measure for this construct of love for nature, called the Love and Care for Nature (LCN) scale, developed in this research, is easily administered and will be useful across a wide variety of contexts for predicting a pro-environmental orientation and pro-environmental behaviour, as well as interest in nature based leisure experiences. Extensive testing of this new measure is needed in the future to further assess its reliability and validity, and thus its efficacy in both theoretical and applied research.
DECLARATION

This work has not previously been submitted for a degree or diploma in any university. To the best of my knowledge and belief, the thesis contains no material previously published or written by another person except where due reference is made in the thesis itself.

Helen Elizabeth Perkins
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The drops of rain make a hole in the stone, not by violence, but by oft falling. – Lucretius
PUBLICATIONS FROM THIS RESEARCH

Refereed Journal Articles

Refereed Conference Papers


¹ Change of name from Roobottom to Perkins.
CHAPTER ONE: BACKGROUND TO THE RESEARCH

Civilised man has marched across the face of the Earth and left a desert in his footprints (Anonymous, cited in Suzuki, 1997, p. 100)

1.0 Introduction

This chapter presents an overview and introduction to the research project including an explicit statement of the research problem and the overall aim of the research. The chapter commences in section one with a discussion of the general background to the research problem which guided the research approach and study design. Definitions of key concepts which arise in describing the background to the problem are presented in this chapter.

Following the statement of the aim of the research, the delimitations and scope of the research are then discussed, including arguments for the reasoning behind conducting the empirical research within a tourism context. A general justification for the need for this research is also presented. An overview of the thesis is then outlined, including a description of the objectives of each chapter.

1.1 Setting the Stage for the Study

At this point in human history our ongoing destruction of the natural environment and degradation of planetary living systems is reaching catastrophic proportions (Dietz, Ostrom, & Stern, 2003). It seems only now that the world community is beginning to wake up to the potential threats that species extinction, ecological degradation, and global warming pose to the earth and humanity, primarily at human hands. Yet many people still believe that environmental concerns are too remote from day to day existence, and we, as individuals, cannot make a significant difference in terms of human responses to environmental challenges. Too many people believe it is the sole responsibility of government, or at least someone else, to fix environmental problems and, thus, many individuals seem to suffer from inertia in terms of their commitment to act in any meaningful way at either personal or community levels.
Australia has the fourth largest ecological footprint in the world. An ecological footprint is a measure of the impact of everything humans do and consume in environmental terms, as individuals and in communities, and is an estimate of the land area that would be needed to sustain an individual indefinitely (Australian Conservation Foundation, 2004-2008). For Australia, the average ecological footprint is 7.09 hectares per person, whereas for the rest of the world it is 2.18 hectares. Alarmingly, the total sustainable carrying capacity of the earth is only 1.89 hectares per person (Australian Conservation Foundation, 2004-2008). Thus, Australia is well over the limit in terms of its use of the earth’s resources and therefore, irrespective of the actions of governments and relevant authorities, what each individual does and consumes in their everyday lives matters, and significantly so.

However, it seems that in spite of the preoccupation of the environmental movement over the past three decades with enhancing public knowledge about ecological principles and their importance to humankind and nature, increasing levels of environmental awareness and environmental knowledge per se have not necessarily fostered positive environmental attitudes or consistent environmentally responsible behaviour and choices among individuals (McKenzie-Mohr, 2000; Pooley & O'Connor, 2000; Stern, 2000b). Deeper understanding of the psychological mechanisms which motivate people to act are required, and thus psychological solutions to this problem are needed to complement technical solutions (Kaiser & Shimoda, 1999; McKenzie-Mohr, 2000; Oskamp, 2000; Schultz, 2001). Traditional technical solutions include the application of the hard sciences to developing environmental management systems and ecological sustainability programs. Psychological solutions include systematic study of the human factor, including motivation and behaviour, and the application of this knowledge in the development and use of programs that seek to encourage and develop pro-environmental choices and behaviour.

There is an abundance of literature about the problem of the human orientation towards nature and its association with pro-environmental behaviour and consumer choice. This literature emanates from a wide range of disciplines, including environmental philosophy, environmental ethics and environmental psychology. However, there seems to be a paucity of cross-disciplinary studies which attempt to better understand and, hopefully, predict the bases for pro-environmental choices and behaviour over a range of contexts (McMichael, Butler, & Folke, 2003). A key issue
remains, and one that is addressed in this thesis, is what motivates people to act in their daily lives, often contrary to their own personal self interest, in order to protect the environment? In other words what is it that facilitates a self-transcendent view of the world and our place in it\(^1\), rather than an egoistic view?\(^2\)

One psychological construct of interest in this debate, and one examined in this thesis, is the construct of core values. Core values are not the same as so-called lower order values which are often used to predict choices in the marketing, management, and tourism literature (e.g. comfort, fun, fashionable, esteem). Core values are higher order values which are more aligned with who we are and with our self concept. They have an “oughtness” quality to them and often underpin choices and behaviour which imply some personal ethical position. Rokeach (1973) and later Schwartz (1992, 1994, 1996) believe that core values - those that are central to our sense of self - are the ‘gold standards’ by which we judge our behaviour across a variety of contexts. Thus, in the realm of environmental ethics, sustainability and environmentally relevant choices and behaviour, core values can have a big influence on behaviour, especially when some personal sacrifice may be required. A number of eminent psychologists working in the field of environmental, and particularly conservation\(^3\) psychology, believe this is the case and have sought to develop theoretical models using core values and also cognitive environmental beliefs and concerns, as a basis for understanding pro-environmental choices and behaviours.

Another relevant construct which is discussed at some length in the environmental philosophy literature is “biophilia”, a term first used by Fromm in his book “The Heart of Man: Its Genius for Good and Evil” (1964). Fromm used the term to mean the love of living systems, or love of life. Wilson used a similar concept and proposed the so-called biophilia hypothesis in his books “Biophilia” (1984) and “Consilience” (1998), where he argued that biophilia is an innate emotional bond that humans have with all living things. It is this emotional bond, or the love people have for nature, which many philosophers and educators believe is an important key to moving people to act for the environment (e.g. Fien, 2003; Gould, 1991; Kellert & Wilson, 1993; Naess, 1989; Roszak, 1995; Noddings, 2003; Miles, 1991). In support

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\(^1\) Consideration beyond one’s self interest
\(^2\) Consideration primarily of one’s self interest
\(^3\) Conservation psychology is the relatively new term for the branch of environmental psychology which investigates the human relationship with nature and how this affects environmental ethics and pro-environmental behaviour.
of this view, the link between personal sentiment and public action is also central to Abraham Lincoln’s (1858) observation that: “With public sentiment, nothing can fail; without it nothing can succeed”.

However, very little research has attempted to measure the philosophical construct of biophilia, although psychological measures for some related constructs have been developed recently. Most of the work already undertaken in the environmental psychology field has concentrated on the cognitive aspects of human relationships and connectedness with nature. The relative paucity of psychological research on the explicitly emotional aspects of the innate bond humans have with nature is surprising considering the philosophical and theoretical importance placed by many thinkers on the significance of this bond and its capacity to influence individual and personal commitment to protecting the environment in daily life.

Recently, there has been a so-called “greening” of the market, at least to some extent, which suggests that there may be a corresponding greening of the consumer in line with the changes in social norms, especially in response to climate change imperatives. For example, supermarket shelves are laden with so-called “eco-friendly” products including soap powders, cleaning products, recycled paper products, and so on. There also appears to be a move away from Australia’s love affair with the plastic shopping bag which wreaks environmental havoc. In addition, there are more green marketing campaigns for fuel efficient cars, although it is difficult to say if this is truly in response to environmental concerns or simply a response to increasing fuel prices (Australian Competition and Consumer Commission, 2008).

Tourism, as one of the world’s most important and lucrative industries, has also been influenced by changing sentiments and a growing interest in environmental tourism. Ecotourism is emerging as one of the fastest growing sectors of the global tourism industry, generating billions of dollars annually, and has expanded supposedly in line with a purported “greening” of the consumer (Fennell, 2003; Page & Dowling, 2002; Weaver, 2001a, 2002; Wight, 2001). However, there is some debate as to whether the growth in ecotourism is really due to increasing demand by environmentally sensitive and aware consumers, who choose many products and services on the basis of environmental impact and consequences, or by green marketing campaigns based on “eco-sell” which has influenced consumption patterns.
That said, ecotourism is usually marketed as being just the type of product (and service) where appreciation of nature is the focus of the experience purchased and commitment to environmental sustainability is explicitly espoused. Ecotourism organizations (i.e. the providers) can seek accreditation and certification through the Australian Nature and Ecotourism Accreditation [Certification] Program (NEAP), which is highly regarded nationally and internationally (Ecotourism Australia, 2008; Weaver, 2006). The NEAP, under the auspices of Ecotourism Australia, has produced certification criteria for ecotourism products and services including the need for products to focus on personal experience with nature, facilitation of increased understanding and appreciation of nature, positive contributions to conservation and local communities, sensitivity to local cultures in product interpretation, as well as accurate marketing and the consistent meeting of customer expectations (Ecotourism Australia, 2008; Weaver, 2006). The certification programs are purely voluntary but provide certified organizations with a major benefit in that certification can influence consumers’ purchasing decisions whereby potential tourists perceive certified providers to be offering genuine and high quality ecotourism experiences. These experiences embody the principle of “ecologically sustainable tourism with a primary focus on experiencing natural areas that fosters environmental and cultural understanding, appreciation and conservation” (Crabtree, O’Reilly, & Worboys, 2002, p. 4).

Given the potential of ecotourism to provide both psychological (e.g. increasing the sense of emotional bonding with nature) and technical (e.g. ensuring through environmental management systems the integrity of the natural environment) solutions to the issues that have been raised, it is worthwhile determining the environmental orientations of so-called ecotourists and their perceived relationship with the natural environment, including their levels of love and caring for nature and the effect of these psychological variables on their choices and behaviour. In addition, interpretive components of the ecotourism experience are highly valued by the consumer, and are also most effectively designed to meet the psychological characteristics of consumers (Kimmel, 1999; McArthur, 1993; Robbins & Greenwald, 1994). Yet data on these very characteristics are rarely collected, or made available to
the industry, and thus opportunities to better package these experiences have been largely missed (McArthur, 1993).

In consideration of the incomplete knowledge of the ecotourist as a distinct consumer segment, this research was initially commenced with the aim of investigating ecotourists’ environmental attitudes and orientation towards nature, and the influence of these factors on tourists’ choices and behaviours. Therefore, the approach, in the first instance, was one of a market research perspective in order to better understand the ecotourist market segment. The research was also partially funded during this initial stage by the Sustainable Tourism Cooperative Research Centre (STCRC). The STCRC was originally established under the federal government’s cooperative research centres program and was designed to underpin the development of an internationally competitive and sustainable tourism industry for Australia (CRC Sustainable Tourism Pty. Ltd., 2008). The original project under the auspices of the CRC was originally entitled “Ecotourism: the role of broader social values on tourist environmental behaviour and choice”, and aimed to simply gather empirical evidence for the proposed pro-environmental orientation of ecotourists. However, as this research progressed, the increasing complexities involved in deeply comprehending the human nature relationship and a pro-environmental orientation became more apparent. For example, environmental philosophy and environmental ethics research has focused on issues of the human relationship with nature from a broad societal and cultural viewpoint, rather than from an individual and thus psychological one. On the other hand, psychologists have focused on the psychological determinants of pro-environmental behaviour and the measurement of relevant psychological constructs, largely without reference to many of the most germane philosophical concepts emerging from the past few decades of environmental thought. Furthermore, ecotourism research has considered little of the extant literatures from either of these key environmentally relevant disciplines in developing a more complete understanding of tourist choices and behaviour. While there has been considerable ecotourism research collating and categorising tourist preferences for particular activities and experiences, there has been a relative paucity of research developing explanations of ecotourists’ choices and behaviours. Therefore, it became clear that it would be necessary to expand the original approach and undertake cross disciplinary research, incorporating concepts from environmental philosophy, ethics and psychology, as well as ecotourism, in investigating the
influence of a pro-environmental orientation and perceived personal relationship with nature on tourist choice and behaviour.

1.2 The Aim of this Research

The aim of this research project is to determine the relative influence of core psychological components of an ecological or pro-environmental worldview, including pro-environmental values and love and caring for nature, on consumer pro-environmental decision making and choices, including leisure preferences for ecotourism over other forms of tourism. Therefore, the primary research question to be addressed in this thesis is:

*Does an ecological worldview, comprised of pro-environmental values and especially feelings of love and care towards nature, significantly influence tourists’ pro-environmental attitudes, behaviours, and choices?*

In order to answer the research question, this research sought to test the relationships between pro-environmental values and deep love and care for nature, as key psychological aspects of an ecological worldview, and determine the influence of these on pro-environmental attitudes, behaviours and choices, including preferences for ecotourism as a form of green consumerism.

However, during the course of this research there also emerged a growing realization of some of the shortcomings of the existing psychographic measures of the human-nature relationship in regard to the human emotional connection with nature, and no measure existed that explicitly measured deep love and caring for nature. Therefore, it became necessary to structure this research project around two main stages. The first stage involved the development of a psychometrically sound scale in order to measure the psychological construct of *love and deep caring for nature* (Study One). The second stage of the project (Study Two) involved hypothesis testing utilising the newly developed scale, together with existing measures of the other environmentally relevant constructs, in order to answer the primary research question. The hypothesis testing stage of this project seeks to add more value to the body of research in both environmental psychology and ecotourism, by using and extending existing theoretical models within psychology to include the element of
love and deep caring for nature, and also to explain and predict, rather than simply collate and describe, the observations made about consumers of ecotourism.

### 1.3 Delimitations and Scope of the Research

This research project investigates the relationships between the proposed psychological components of an ecological worldview, including pro-environmental values, and love and caring for nature, and the influences of these on behaviour, behavioural intentions, consumer choices and willingness to pay to protect the environment. Thus, a key outcome of this research is the development of a new measure of love and care for nature, with sound psychometric properties, which reflects the philosophical concepts of biophilia and deep caring, as manifestations of a nature or land ethic (Study One). The construct of love and care for nature has not previously been measured; although similar concepts have been discussed in the environmental philosophy literature for decades (see Chapter Three). Therefore the results of the initial scale development process presented in this research, while encouraging, require extensive future empirical testing using a range of different samples and research contexts before firm conclusions can be drawn about the efficacy of this new measure.

The hypothesis testing phase of this research within a tourism context (Study Two) was conducted to gather some evidence of the links between the constructs of interest and their relationship to environmentally relevant choices and behaviour. Thus, generalization of these results from the tourism context to the general population should be attempted with caution until further testing of these relationships across a wider variety of research contexts and population samples is undertaken. Although the delimitations outlined in this section are acknowledged, they do not render this research or the significance of the results and findings of lesser value or merit.

### 1.4 Definition of Key Terms Used in this Study

The plethora of research into environmental values, attitudes and beliefs over the past several decades has employed a wide variety of conceptual terminology, marked by a lack of clarity and consistency (Schultz et al., 2005). Therefore, the
following definitions of the relevant primary constructs presented in this research are outlined below.

For the purposes of this study, *an ecological worldview* is defined as “a constellation of concepts, values, perceptions, and practices shared by a community which forms a particular vision of reality that is the basis of the way the community organizes itself” (Capra, 1996, p. 5). Moreover, an ecological worldview, also termed an *ecocentric* view, is one where our view of reality recognizes that humans do not simply value nature in terms of its “use” value (to humans), that humans are simply one strand in the web of life and that the world is not a collection of isolated objects but rather a network of phenomena that are fundamentally interconnected and interdependent, with all living things having intrinsic value (Capra, 1996, p. 7).

An *environmental ethic of care* is one which incorporates the principles of the ecological or ecocentric worldview and deep caring and respect for nature, similar in concept to Leopold’s (1949/ 1987) idea of the *land ethic*, described in his seminal work, “A Sand County Almanac”.

Core *values* are those which Rokeach (1973) and Schwartz (1992) describe as central to one’s sense of self, and represent guiding principles for how one behaves in life. *Self-transcendence* means consideration for and valuing issues and ideas beyond oneself, and thus mere self-interest, as described by Maslow (1968, 1971), Erikson (1997), and particularly Schwartz (1992, 1994) in his work on the structure of human values. *Self-enhancement* means egoism, where one is concerned with and values primarily self-interest, as originally described by Schwartz (1992, 1994).

*Value orientation* is defined by the relative importance placed on particular types of values with respect to all other values in a person’s values set. *Environmental value orientation* is a perspective which represents the relative importance placed on the environmentally relevant values (biospheric, socio-altruistic, and egoistic) with respect to all other values.

*Biospheric values* are those values which reflect an ecocentric orientation, that is, a concern for the wellbeing of nature for its own sake. *Socio-altruistic values* are those which reflect more concern for the wellbeing of humanity. Both biospheric and
socio-altruistic values are values which are *self-transcendent* in nature. *Egoistic values* are those which reflect a focus on self-interest, and are thus by nature associated with *self-enhancement*.

*Biophilia* means literally love of all living things and nature as defined by Wilson, in his work “Biophilia” (1984), and also Fromm, in “The Heart of Man” (1964). Deep *caring* is similar in concept to the types of caring described by van Hooft (in “Caring: An Essay in the Philosophy of Ethics”, 1995), Noddings (in “Caring: A Feminine Approach to Ethics and Moral Education”, 2003), and Maslow (in “The Farthest Reaches of Human Nature”, 1971), but extended to encompass the whole biosphere.

The psychological construct of *love and care for nature* is defined as incorporating the philosophical concepts of *biophilia* and *deep caring*, as well as Schultz’s (2002) psychological *inclusion of nature in self* concept from an explicitly emotional perspective.

*Ecotourist* in this study means those tourists who prefer and are more interested in ecotourism over mainstream type tourism. *Ecotourism* is nature based and environmentally responsible tourism, where nature is the focus of the experience, and environmental learning is a goal. *Mainstream tourism* is a type of tourism that is more typically associated with mass tourism, and usually includes more hedonistic pursuits. If nature forms part of the experience in mass tourism it serves primarily as the context and not the focus of the experience. *Mainstream tourists* in this study are seen to be those tourists who prefer and are more interested in mainstream type tourism experiences over nature-based ecotourism type experiences.

It should be noted that definitions of relevant constructs which are the subject of this research project and which have either not been presented, or only briefly presented, in this section, are detailed as they occur in the subsequent sections of the thesis.
1.5 Justification for the Research and Contributions

Responses to the question “Who are ecotourists?” are many and varied for the following reasons: a lack of a consistent definitional understanding of the term ecotourist (Fennell, 2003; Sharpley, 2006); a view that ecotourist markets tend to be somewhat heterogeneous (Fennell, 2003; Sharpley, 2006; Wight, 2001); and that theoretically sound and empirically tested social psychological models of core characteristics of so-called ecotourist are wanting (Fennell, 2003; Sharpley, 2006). It is the systematic investigation of core psychological constructs, especially those environmentally relevant constructs, which seems essential to a more complete understanding of consumers of ecotourism and other nature based tourism, and their environmentally relevant choices and behaviours (Dolnicar & Leisch, 2008; Fennell, 1999; Page & Dowling, 2002; Sharpley, 2006). Such research will help to develop more robust theoretical models and also add valuable information about explanations for consumer choices and behaviour both within the tourism setting and at home (Dolnicar & Leisch, 2008; Fennell, 2001; Page & Dowling, 2002; Pitts & Woodside, 1983; Stronza, 2001).

The development of a conceptual model linking pro-environmental values and beliefs, and love and deep caring for nature, with consumer pro-environmental attitudes, choices and behaviours, including tourism preferences is a significant outcome of this research. This study contributes to the understanding of the consumer of ecotourism experiences (i.e. the so-called ecotourist), as a form of environmentally aware and responsible traveller, through demonstrating the link between the well grounded theoretical models developed within the extant environmental psychology literature and the choices, intentions and behaviours of the tourist. Ecotourists within this research have been identified by their greater levels of interest in and preference for ecotourism type experiences (e.g. wildlife watching; volunteer ecotourism, etc.) over more mainstream tourism experiences. They have been shown to have a stronger biospheric value orientation (i.e. pro-environmental values) and greater feelings of love and care for nature than those who prefer mainstream tourism experiences (e.g. luxury resorts; nightlife, gaming and shopping, etc.). They are also more likely to believe in and support (by preferential purchase decisions) green accreditation.
systems for tourism, and are more willing to curb their individual freedoms and to pay to protect the environment.

Psychometric measurement of the relationship of love and deep care for nature is a significant contribution made by this research project, as this measure might be used in a range of contexts to track incremental changes in people’s perceived relationship with nature. This instrument is short and easy to administer, and could be used to measure incremental changes in feelings towards nature as a result of experiential learning activities associated with environmental education programs, and therefore could be a useful evaluation tool for social education programs and future research work.

Such an instrument could also form part of an evaluation process for the outcomes of many nature-based leisure experiences and may, in particular, provide a basis for verifying claims about the environmental, social and spiritual benefits of ecotourism, as a form of environmentally sustainable tourism, and the capacity of ecotourism to contribute to economic development and environmental preservation. This instrument might also be used as a component of market research within the lucrative ecotourism industry with a view to developing products and programs that better meet consumer needs. Most importantly, the instrument could prove to be a powerful tool for identifying social change in terms of making visible the benefits of environmental education to encourage pro-environmental values and caring for nature as a way of protecting the planet for future generations.

1.6 The Structure of the Thesis

The main focus of this research is to determine the influence of an ecological worldview on tourist choices and behaviour, including preferences for ecotourism type experiences over other forms of tourism. In view of the complexity involved in understanding the human relationship with nature, this thesis is structured around two main parts (Part I and Part II). The first part (Part I) consists of Chapters Two to Five which deal with the contextual and theoretical aspects of the research, and the epistemological and ontological paradigm underpinning the research design. The second part of the thesis (Part II), covered in Chapters Six to Nine, describes the two separate stages of the specific empirical research conducted in order to answer the
research question and address the overall aim of this research (i.e. Study One and Study Two).

Because the research question and aim of the research focus on the psychological determinants of pro-environmental choices and behaviour in tourists, the empirical phase of this research was necessarily psychological in nature. However, it was considered important to understand the philosophical, moral and ethical foundation of a pro-environmental orientation as an expression of human altruism or consideration beyond pure self-interest. Therefore, Chapter Two presents the background literature concerning current environmental problems, environmental philosophy and ethics, the nature of an ecological worldview in terms of the human relationship with nature, and the relevance of these concepts to the ecotourism context. The link between the psychological concept of values, altruism, and ethics is then presented in Chapter Three.

The first part of Chapter Three discusses the theory of values, their relationship with moral and ethical behaviour, and the importance of core values to the broad and deep concept of an ecological worldview, as a pro-environmental orientation. The second part of Chapter Three argues the relevance of environmental value systems in understanding tourist choices and behaviour, particularly with respect to preferences for ecotourism as a form of environmentally responsible tourism.

Chapter Four discusses the relevance of the emotional aspects of the human relationship with nature as a manifestation of biophilia or the land ethic, and the importance of this in terms of human propensity for pro-environmental choices and behaviour, including willingness to sacrifice to protect the natural environment. An argument is presented that this emotional component of a pro-environmental orientation, love and care for nature, is a crucial aspect of an ecological worldview. The last part of Chapter Four argues a case for differentiation of so-called ecotourists from mainstream tourists on the basis of their respective psychological profiles.

Part I of this thesis is completed in Chapter Five which presents a justification for the epistemological and ontological assumptions underlying a Critical Rationalism perspective and the quantitative methodological approach considered most appropriate for this type of hypothesis testing research.

Part II of the thesis, comprising empirical research and findings used to answer the research question commences with Study One scale development which is
described in Chapter Six. Chapter Six covers the specific scale development
procedure employed for the new Love and Care for Nature measure (LCN), and
begins with a description of pre-pilot development of the scale including the use of a
panel of experts in a process similar to a delphi technique as well as a small pre-pilot
survey. The next part of Chapter Six details the main pilot testing phase using a
sample of 307 university students, and includes a description of the scale purification
processes. The final part of Chapter Six details the results of the field trial used to
reduce the scale to 15 items exhibiting the best psychometric properties from the
original 93 item pool. Appropriate validity and reliability results have also been
presented in Chapter Six together with evidence for not only differentiation of new scale from other theoretically related measures, but also for its unique contribution.

Study Two, the hypothesis testing phase conducted in a tourism setting is
described in Chapter Seven and Eight. Chapter Seven outlines the method used for
hypothesis testing including the specific procedures employed, details and
justification for each of the measures used, and a justification for the statistical
analysis techniques applied for hypothesis testing. Finally, in the last part of Chapter
Seven a discussion of the results of some general methodological issues of relevance
in this type of survey research (e.g. common methods variance issues) is presented. In
Chapter Eight the descriptive statistics about the sample used together with the results
of the hypothesis testing process for Study Two are presented and examined briefly in
relation to the literature.

In light of the empirical evidence gathered in the two studies, the final chapter
(Chapter Nine) draws the main threads of the thesis together and considers how an
ecological worldview influences not only tourists’ choices for particular tourism
experiences, but also their pro-environmental attitudes and behaviours, including
willingness to sacrifice to protect the environment, both in the tourism setting and in
their daily lives. This chapter also examines the practical and theoretical implications
of the outcomes of this research, together with an overview of the limitations and
suggestions for further research. Figure 1.1 overleaf presents an overview of the
structure of this thesis.
1.7 Summary and Conclusion

This chapter has presented a foundation and framework for the thesis. Firstly, a background to the research problem has been provided in the context of the growing social urgency of environmental issues coupled with a corresponding and paradoxical inertia on the part of individuals in committing to environmental protection in their daily lives. The relevance of these issues to a tourism context was argued, particularly in light of the explicit ethos of ecotourism as an essentially environmentally and socially responsible form of tourism. Thus, a premise of environmental ethics and altruism might be an assumed part of the psychological profile of ecotourists as consumers of this form of tourism. However, at this time relatively little is known about the psychology of tourists who prefer ecotourism over mainstream tourism experiences, or the influence of this on their choices. The primary research question and the overall aim of this research were presented in order to address this gap in our understanding of the psychology of the ecotourist. The importance and justification of this research has been argued in terms of its contribution to the existing body of knowledge concerning the influence of a pro-environmental orientation on tourists’ interests, preferences, and behaviours. Moreover, a description of the evolution of this research journey and the emergent
recognition of the need for cross-disciplinary research to adequately answer the research question has also been outlined. Delimitations of the scope of this research were acknowledged, and the definitions of the main terminology used throughout this thesis were specified. The general research approach was briefly described and justified in terms of both the cross-disciplinary nature of this research, and also the need to develop a new psychometric measure of a key psychological construct to be used in the hypothesis testing phase of this research. The thesis report structure was also outlined in detail presenting an overview of the function of each part of this thesis, and the role of each chapter in the overall narrative of this research project.

The following chapter provides an overview of current environmental crisis and the philosophy of an ecological worldview in the context of the human relationship with nature. The relevance of moral and ethical concerns as well as the importance of values and deep caring in this environmental debate is argued from the broad perspectives of both philosophy and psychology. Moreover, a case is made for the link between human relationships with the natural environment and leisure in nature, including nature-based tourism experiences such as ecotourism.
PART I

LITERATURE REVIEW
A great change in our stewardship of the Earth and life on it is required if vast human misery is to be avoided and our global home on this planet is not to be irretrievably mutilated (World Scientists' Warning to Humanity cited in Suzuki, 1997, p. 4)

2.0 Introduction

The central aim of this research, to determine the relative influence of an ecological or pro-environmental worldview on consumer decision making and choices, including leisure preferences, is pursued by examining, firstly, the core psychological components of an ecological worldview, values and caring, and relating these to human moral and environmental ethics systems. The relevance of environmental ethics to ecotourism, as a form of environmentally sensitive tourism, is then argued on the basis of the implied ethical quality inherent in authentic ecotourism products, and also presumably in the motivations of consumers who prefer these types of experiences over mainstream or mass tourism.

This chapter reviews the literature from a range of perspectives including philosophy, environmental ethics, and psychology, and then links these perspectives to human participation in leisure experiences in unspoilt nature. The first part of the chapter outlines the growing problem of environmental degradation and climate change and the importance of the widespread development of an ecological worldview, including pro-environmental values as well as caring about the environment. In the last part of this chapter, the relevance of these theoretical concepts to human leisure experiences in nature is then considered.

2.1 The Growing Global Environmental Crisis

In November 1992, a document was released that was signed by more than sixteen hundred senior scientists, including the majority of all Nobel Prize winners from seventy-one countries (Suzuki, 1997, p. 4). This document called "World Scientists' Warning to Humanity" included the statement presented at the
commencement of this Chapter. Since this warning was published more than a
decade ago, humanity has been in the grip of increasing instances of global ecological
degradation (Fien, 2003; Stern, 2007; Suzuki, 1997). However, despite the warning,
human interest and concern has not equated with any meaningful action until very
recently. It seems that many people and nations across the globe have continued to
adopt a collective state of denial about environmental issues resulting in a slowness to
act to reduce global warming and mitigate impending ecological devastation.

The blame for escalating global warming has now been placed squarely and
explicitly at the feet of humankind by the Intergovernmental Panel on Climate Change
in its report released on Friday 2 February 2007 (Brahic, 2007). Moreover, habitat
destruction, directly and indirectly as a result of human activities, has been identified
for several years as the primary cause of the extinction of species as well as disastrous
disruption to global ecosystems (Espar & Lewis, 2001). Many environmentalists have
predicted that humanity will be forced into making dramatic changes much sooner
than previously thought so that the earth’s capacity to support human beings and non-
human ecosystems is not degraded or, at worst, incapacitated (McKenzie-Mohr, 2000;
Suzuki & Dressel, 1999; Suzuki, 1997). Furthermore, Fromm (1998) and McKenzie-
Mohr (2000) have both argued that a radical change in human value systems including
a sense of caring for nature is imperative to avoid impending disaster.

Not surprisingly, social researchers have reported during the past decade that
environmental issues are considered among the most urgent for humanity and the
planet, and that a sizeable proportion of the developed world’s population considers
these issues to be a major cause for concern (Dunlap, Van Liere, Mertig, & Jones,
2000; Schultz, 2001; Wight, 1993). Such concerns have increased since the release of
Al Gore’s film “An Inconvenient Truth” (David, Bender, Burns & Guggenheim,
2006), as well as the recent publication of several high profile international reports
warning of the potentially devastating effects of global warming, including the so-
called Stern (2007) review on “The Economics of Climate Change”. Along with
increasing levels of concern there has also been a corresponding growth in worldwide
interest in conservation issues and a “greening” of social processes, reflected in a
global rise in green political parties and policy platforms. In turn, more and more
organisations are adopting principles of sustainability and environmental
accountability into their strategic thinking (Page & Dowling, 2002; Weaver, 2001a;
Wight, 1993).
The economic market has also recognised that “eco” and “green” marketing campaigns can sell almost anything. For example supermarket shelves are full of so-called eco-friendly products such as soap powder, dishwashing liquid, recycled paper products and toilet paper, plastic bags which rapidly break down into harmless compounds, recyclable shopping bags, and recyclable packaging. According to Page and Dowling (2002), this greening of the market, including the growth in ecotourism, can not be considered merely a fad, but instead represents an undercurrent pervading all business sectors including tourism. But does this global interest in the environment and concerns about ecological degradation translate into a more ecological worldview and pro-environmental behaviours and choices at the individual level?

In spite of efforts by the environmental movement, over the past three decades, with enhancing public knowledge about ecological principles and their importance to humankind and nature, it has been argued that environmental knowledge per se has not necessarily fostered positive environmental values or environmentally responsible choices or behaviour by individuals (McKenzie-Mohr, 2000; Pooley & O'Connor, 2000; Stern, 2000b). Therefore, several environmental researchers believe that psychological solutions as well as technical solutions are needed to address this issue (Kaiser & Shimoda, 1999; McKenzie-Mohr, 2000; Oskamp, 2000; Schultz, 2001). Traditional technical solutions include the application of the so-called “hard” sciences in developing environmental management systems and ecological sustainability programs. Psychological solutions include the systematic study of the human factor including motivation and behaviour, and the development and application of programs that consistently encourage and develop pro-environmental behaviours. Psychological solutions are particularly important given the anthropogenic nature of environmental degradation and the need to understand human behaviour in order to forestall and slow harmful changes and, more particularly, to bring about changes in behaviour in order to address environmental concerns (Stern, 1992).

An understanding of the psychology of pro-environmental behaviour in the individual necessitates an understanding of the relationship of behaviour to human worldviews. Such worldviews in the environmental sense include the mechanistic and currently dominant paradigm, at least in the Western world, as compared with an
ecological one. The next section presents philosophical arguments that a worldwide paradigm shift is necessary for effecting a change in human stewardship of the earth.

2.2 In Search of an Ecological Worldview

Over more than a decade increasing environmental problems have spawned a plethora of warnings that a change in human worldview is imperative and urgent, and specifically from a mechanistic paradigm to an ecological one which embraces a true nature ethic (Capra, 1996; Fien, 2003; David et al., 2006; Merchant, 1992; Suzuki, 1997; Suzuki & Dressel, 1999; Roszak, 1995). A number of researchers have argued that such a paradigm shift has profound implications for science and the social sciences in terms of developing a more complete understanding of the complexity and interconnectedness of all living systems and the very serious problems currently facing humanity and the environment (Capra, 1996; Oskamp, 2000; Suzuki, 1997).

Whatever befalls the earth befalls the sons of the earth. If men spit upon the ground, they spit upon themselves. This we know – the earth does not belong to man, man belongs to the earth. All things are connected like the blood which unites one family. Whatever befalls the earth befalls the sons of the earth. Man did not weave the web of life: he is merely a strand in it. Whatever he does to the web he does to himself (Chief Seattle 1855, cited in Greig, Pike, & Selby, 1987, p. 6).

The above warning suggests the need for humanity to embrace a new worldview which recognises the fundamental interconnectedness of humans with all of nature if environmental challenges are to be dealt with more effectively. Capra (1996) defines this worldview, an ecological worldview, as one which utilises concepts of interconnectedness and integrated wholes embedded within living systems, rather than simply viewing living systems as collections of relatively unrelated parts. This belief in the essential interconnectedness of living systems is one embraced by the deep ecology movement, which argues that development of an ecological worldview in humankind is of crucial importance to achieving the goal of global sustainability (Bragg, 1996; Naess, 1989; Roszak, 1995). Moreover, the philosophy of deep ecology stands on its conviction that human expansion of both the individual and collective sense of self to encompass all the natural world is central to
facilitating effective and consistent pro-environmental behaviours and action (Bragg, 1996; Macy, 1991; Naess, 1989). The ideas espoused by the deep ecology movement are similar to those espoused by Einstein (in the following quotation), who conceptualised a necessary expansion of each human being’s personal sense of self to include identity with and compassion for all of nature:

A human being is a part of the whole that we call the universe, a part limited in time and space. He experiences himself, his thoughts and feelings, as something separated from the rest – a kind of optical illusion of his consciousness. This illusion is a prison for us, restricting us to our personal thoughts and desires and to affection for only the few people nearest us. Our task must be to free ourselves from this prison by widening our circle of compassion to embrace all living beings and all of nature (cited in Fien, 2003, p. 7-8).

Thus, an ecological worldview from this perspective is more than simply a collection of attitudes towards issues of environmental conservation and preservation, or even beliefs about the impact of human beings on nature. Instead, the definition of an ecological worldview, presented by many environmental philosophers, is a much deeper and broader one, very much consistent with the deep ecology paradigm (Capra, 1996; Naess, 1989; Roszak, 1995; Suzuki, 1997). For example, Capra (1996) argues that an ecological worldview encompasses a whole philosophy of life, an all pervading conception of the world and one’s place in it, a conception in which the world is seen as a “network of phenomena that are fundamentally interconnected and interdependent” (p7), with intrinsic value inherent in all living beings, including humans. Moreover, this concept of an ecological worldview necessarily includes feelings of deep reverence for the wonder of nature, and associated standards for how one ought to behave to preserve and protect nature (Capra, 1996).

Reverence for life incorporates a sense of wonder and awe in the face of the complexity of the natural world, a profound emotional affinity which humans have the capacity to embrace according to several philosophers (Callaghan, 2001; Carson, 1965; Roszak, 1995; Rosenblatt, 2000; Wilson, 1984, 1993, 1998). Furthermore, Fromm (1998), Wilson (1993), and Naess (1989) have argued that this emotional affinity is a fundamentally innate emotional connection with nature that is universally experienced by all human beings. Yet as Roszak (1995) observes, humans have,
paradoxically, failed to consistently act in accordance with this supposed innate emotional affinity or feeling of connection with nature. He goes on to speculate that the innate connection with nature seems to have been lost somewhere, perhaps through extensive urbanisation which has served to distance human beings from nature. This distance has resulted in an increased sense of alienation from the natural environment and the development of a myopic belief that humans are somehow separate from nature and above it (Roszak, 1995).

Some environmental philosophers believe that the environmental crisis of the late twentieth and early twenty-first centuries should clearly remind us as humans that our relationship with nature depends very much on situating ourselves within nature rather than continuing to believe ourselves separate from it (Capra, 1996; Meadows, Meadows & Randers, 1995; Meyer-Abich, 1996; Pyle, 2003). Furthermore, many have argued that if the innate, although sometimes veiled, affinity with nature is nurtured and encouraged, it will grow and lead to an ecological paradigm shift towards a deeply held environmental ethic of care which will seamlessly expand human moral consideration to include all of nature (Johnson, 1991; Macy, 1991; Naess, 1989; Roszak, Gomes, & Kanner, 1995; Wilson, 1993). Similarly, Hay (2002) and Johnson (1991) have presented a belief, at the core of environmental philosophy and ethics, that it is time for human moral considerations to focus not only on human life and wellbeing but also on the wellbeing and thriving of the whole living world. They go on to argue that this moral orientation is marked by an increased awareness and deep respect for the interests of all other beings and entities that share this world with human beings. Moreover, Hay (2002) argues that belief systems about the nature of human-nature relationships are the essence of moral orientations towards nature and have significant effects on environmental ethics, and that moral norms should be extended to cover not only interpersonal relationships among human beings but also human-environment relationships as well. Many environmental theorists believe that the distinction between an ecocentric view of human-nature relations, assigning moral consideration and thus care to the whole biosphere, and the anthropocentric view emphasising human domination over nature, is central to the question of environmental ethics.
2.3 Environmental Philosophy and the Ecological Worldview

One of the world’s foremost thinkers in environmental philosophy is Edward O. Wilson, Harvard biologist and environmental theorist. Wilson (1998) stated that governments everywhere have struggled to manage the burgeoning global problems of ecological degradation, dwindling forest reserves, and species extinction. Furthermore, he proposed that one of the reasons for this may be that there have been few, if any, agreed ethical guidelines concerning nature, and none have been based on either a thorough understanding of, or a valuing of nature and ecology (Wilson, 1998). Like other thinkers in the field (Callicott, 2001; Johnson, 1991; Pyle, 2003), Wilson considered that the human relationship with nature is the key to understanding our moral and ethical orientation towards the environment, but argued that there is, as yet, little understanding of the human psychological relationship with natural ecosystems and this area of research remains largely unexplored (Wilson, 1998). Wilson (1998) also believed that it is essential there is understanding and continuing dialogue on the issues across the disciplines of environmental policy, ethics, biology, and the social sciences, including psychology. Moreover, the development of effective action on environmental issues depends on the degree to which the educated public can also think about the issues presented by each of these theoretical disciplines and develop appropriate strategies to deal with them.

Wilson’s belief in the importance of interdisciplinary research in understanding the human psychological relationship with nature, and its influence on moral considerations, parallels the growing realisation that emerged from this current research of the need for a cross disciplinary approach. A consistent theme arising from the literatures of environmental philosophy and psychology is the contrast between an anthropocentric and ecocentric view of human-nature relations, and the importance of the ecocentric perspective in the development of a more effective environmental ethic.

Over the past few decades, many environmental theorists have agreed that it is time that environmental ethics are considered from non-anthropocentric or ecocentric and ecological perspectives (Callicott, 2001; Capra, 1996; Hay, 2002; Kellert, 1997; Wilson, 1984, 1993; Roszak, 1995). The ecocentric perspective views nature as having intrinsic value, in and of itself, whereas the anthropocentric perspective views
nature as having more extrinsic value in terms of its perceived benefits for the wellbeing of humankind (Callicott, 2001; Capra, 1996; Hay, 2002; Kellert, 1997; Roszak, 1995; Stokols, 1990; Thompson & Barton, 1994; Wilson, 1984, 1993). For example, in their research into pro-environmental motivation, Thompson and Barton (1994) studied what they called ecocentrics and anthropocentrics in terms of attitudinal orientation towards nature and the effect of this on orientation and pro-environmental action. According to Thompson and Barton (1994) individuals who were concerned about the natural environment because of their belief in the value of nature for its own sake were termed ecocentric, and those who were concerned about the natural environment because of their belief in the value of nature primarily because of its importance in maintaining quality of life for humans, they termed anthropocentric. They argued that ecocentrics are likely to support pro-environmental actions and issues because of their view that nature is worth preserving for its own sake, regardless of the economic or lifestyle consequences of conservation (Thompson & Barton, 1994). Furthermore, they proposed that ecocentrics also viewed nature as having a spiritual dimension, and believed in a fundamental emotional connectedness of humans with the natural world, which is reflected in their positive feelings about their experiences in nature and natural settings (Thompson & Barton, 1994). Thompson and Barton (1994) stated that anthropocentrics also support environmental preservation and conservation, but primarily do so with a view to maintaining human health and quality of life, or because natural resources can satisfy human material or physical wants, and not because anthropocentrics have deep concerns for nature per se. Therefore, their proposition was that anthropocentrics, as distinct from the ecocentrics, believe nature preservation is primarily a means to an end in terms of benefiting humans. Whereas ecocentrics believe nature preservation is an end in itself (Thompson & Barton, 1994).

In a similar vein, Hay (2002) talked about the anthropocentric perspective from a philosophical, moral and ethical standpoint. He argued that, while nature still holds value from this position, and preservation of the natural environment is considered worthwhile, the anthropocentric valuing of nature is focused very much on instrumentalism. From the anthropocentric perspective, according to Hay (2002), nature is viewed as a resource where only human interests count, as the pinnacle of a hierarchical model of natural systems, and thus moral considerations are not extended to non-human nature. Conversely, he described ecocentricism as a more ecological
form of the human-nature nexus, where there is no hierarchy. Instead there is clear emphasis on the interdependency of the whole biotic community (Hay, 2002). According to several environmental thinkers, moral and ethical considerations from an ecocentric perspective necessarily extend to all members of the biotic community, including, but not limited to, humans (Johnson, 1991; Hay 2002; Leopold, 1987).

Thus, the ecocentric perspective and the concept of an ecological worldview or paradigm have a common ideological base. Johnson (1991) described the ecocentric, or using his terminology, the biocentric perspective, and the corresponding biocentric ethic as one in which all life and living systems are worthy of moral consideration. In his work, “A Morally Deep World” (1991), Johnson argued that all ethics, including environmental ethics, are based on respect for interests, and furthermore, that moral considerations are inherent not only in human but also in non-human life, which includes individual organisms and holistic entities (Johnson, 1991). Interests, he stated, are a function of wellbeing needs, and adopting an ethic based on reverence for life and respect for the wellbeing interests of all living systems is what he calls the core of deep morality (Johnson, 1991).

As argued previously, the ecological paradigm is a social paradigm which is characterised by those values, beliefs, feelings of connectedness with nature, and general way of thinking which drives human morals and ethics towards ensuring the integrity of the entire web of life, both human and non-human. Wilson (1984), for example, believed strongly that environmental ethics based on this extension of human moral consideration is of paramount importance: “the future of the conservation movement depends on such an advance in moral reasoning” (p.119).

Seminal thinkers have grappled with this issue of morals and ethics which encompass not only the human world but also the non-human world for some time.

For example, Charles Darwin (1894) envisioned a kind of social evolution, in tandem with his theory of biological evolution, as underpinning the ongoing development of human ethical systems. Darwin noted that ethics develops correlatively with social development, and the scope of ethics tends to expand to the boundaries of each emergent social system. For example, as part of his concept of social evolution, described in “The Descent of Man and Selection in Relation to Sex”, Darwin (1894) foresaw that human sympathies and therefore ethics would firstly extend to “men of all nations and races” (p. 122). According to Callicott (2001), clear evidence for a worldwide widening of ethical consideration, as foreseen by Darwin,
has already been established commencing with the emergence in the 20th century of the Universal Declaration of Human Rights. This declaration was adopted by the United Nations in 1948 soon after the end of World War II in response to the development of the so-called “global village”, and the beginning of globalisation. Moreover, Darwin (1894) using a similar logic also foresaw the eventual expansion of humankind’s sympathies and ethical consideration in the development of a species-wide human ethic, which he identified as “our latest moral acquisition” (p. 123). He believed that the development of this species-wide human ethic could be acquired through education and also by example until it eventually became incorporated into general public opinion (Darwin, 1894, p.123).

In the context of developing a species-wide human ethic, Callicott (2001) has argued that Leopold based his so-called “land ethic” on Darwinian theories of social evolution. In his book “A Sand County Almanac” (first published in 1949 and reprinted in 1987), Leopold believed that ethics are a kind of evolving community instinct-in-the-making as a mode of co-operation between interdependent community members (pp. 202-203). He observed that human beings are members of a global biotic community (a community which he defines as “the land”) along with plants and animals, soils and waters, and as such, being a member of this community, the land necessarily requires an ethical response from humans. Leopold (1949/1987) believed that "all ethics so far evolved rest upon a single premise: that the individual is a member of a community of interdependent parts" (p. 203). Leopold (1949/1987) went on to argue that ecological ethics, or the “land ethic” as he calls it, simply expands the boundaries of the community of compassion and concern to include soils, waters, plants, and animals (p. 204), a concept which is reminiscent of Darwinian predictions of social moral evolution. Moreover, Leopold (1949/1987) maintained that this land ethic transforms the role of human beings from one of domination of nature to one of being an ordinary member of the whole biotic community of nature, which implies that humankind should respect fellow-members of the biotic community and also the community as a whole.

Leopold’s (1949/1987) description of human consideration towards the biotic community is also similar to Darwin’s (1894) ideas in terms of the language they both used. For example, Darwin (1894) said that man’s extension of his “sympathies” to non-human life is a virtue that is “one of the noblest with which man is endowed” and “seems to arise incidentally from our sympathies becoming more tender and more
widely diffused, until they are extended to all sentient beings” (p. 123). Leopold (1949/1987) in turn talks about “compassion” and “respect” (p. 204). In the English language “sympathy” and “respect”, terms used by both Darwin and Leopold in relation to environmental ethics, are linguistic correlates which give rise to interconnected meanings such as care, empathy, kindness, consideration, veneration, awe, admiration, highest regard, value, appreciation, esteem, treasure, look after, take care of, nurture, and so on (Thesaurus, Microsoft Word 2003). Each of these words and phrases are emotionally laden. This implies that the concept of ethics, including environmental ethics, seems to have an inherent emotional component, and that this emotional component, or caring, coupled with associated beliefs about human-to-human and human-nature relations, could be viewed as expanding outwards from humankind to all of creation.

Recent evidence for the emergence of human recognition of the importance of the whole planetary biotic community can be found in the United Nations’ adoption of a universal declaration of social and environmental ethics called “The Earth Charter”, which is a document recognising the necessity for expanding human ethical systems beyond humankind. The Earth Charter document, endorsed by millions of individuals over more than a decade since its inception in the mid 1990s, explicitly incorporates the concept of universal human rights and also adds to that endorsement a clear statement concerning the nature of environmental ethics, as illustrated by the following extract:

The Earth Charter ... is a declaration of fundamental principles for building a just, sustainable, and peaceful global society for the 21st century. It seeks to inspire in all peoples a new sense of global interdependence and shared responsibility for the well-being of the human family and the larger living world. (The Earth Charter Initiative, 2007, The Earth Charter, p. 2).

Further, the latest mission statement of the Earth Charter Initiative includes the following statement:

To help establish a sound ethical foundation for the emerging global society and to promote the transition to a sustainable way of life founded on: respect and care for the community of life; ecological integrity; universal human rights; respect for diversity;

Thus, the human sense of connectedness and community with all of nature, rather than being somehow separate from and dominant over nature, seems to be a central and recurring theme running through environmental philosophical and ethical thought, both past and present. Human connectedness with nature is also embodied with emotional elements of love and caring for nature. This concept of environmental ethics, from an ecological perspective or worldview, akin to Leopold’s land ethic, is also expressed in the principles of the Earth Charter. The first two principles of this Charter state:

1. Respect Earth and life in all its diversity: (a) Recognize that all beings are interdependent and every form of life has value regardless of its worth to human beings (The Earth Charter Initiative, 2007, The Earth Charter, Principle 1, p. 2)


Worldwide adoption of these principles of The Earth Charter supports the notion of a growing move towards a universal environmental ethic (in addition to and distinct from a social ethic), built around the ideas of interconnectedness and community with nature, love, compassion, and respect for all life irrespective of the biotic community’s worth to human beings. In other words, realisation of an ecological or ecocentric worldview seems to be emerging overtly and includes a sense of love, care and compassion for nature, as the affective or emotional elements of that worldview. However, the problem remains how to link this collective and global recognition of the importance of the whole biosphere with an individual’s ethical commitment to preserve and protect nature as an expression of personal psychological moral considerations. Therefore, an examination of the psychological underpinnings of individual, as opposed to collective, moral and ethical concerns is necessary in order to present a more complete picture.
2.4 The Psychology of Moral Consideration and Ethics

Social cooperation and altruistic or moral behaviour has been seen to flow from the sense of relationship one feels with others, being a sense of connectedness, trust and community, which results in the moral principle of caring and altruistic action (Johnson, 1991; Staub, 1993; Van Hooft, 1995). In contrast, as Staub (1993) and Pyle (2003) have argued, a relationship which is characterised by a sense of disconnectedness is likely to result in a propensity to focus on self-interest, disaffection, and greed.

In a similar conceptualisation of the importance of connectedness, Erikson (1997) proposed a new version of the Golden Rule\(^4\), compatible with his so-called generative ethics, which is expressed in his psychology of a mature adult human being, and is based on the virtue of care and concern for others. Erikson’s version of the Golden Rule is one that is bound up in one’s having a sense of interconnectedness with something larger than oneself: “Do unto another what \([\text{sic}]\) will advance the other’s growth even as it advances your own” (Erikson, 1997, p. 93). Erikson (1997) further described an evolution in human consciousness, or transcendence, as the expansion of one’s sense of self to include a wider range of interrelated others, and feeling of communion with the whole cosmos. This view implies a necessary redefinition of self in terms of interconnectedness with and concern for all of creation.

Maslow (1968, 1971) has also argued that mature adult development could overcome the tendency for pseudo-speciation with its corresponding principle of exclusion and rejection in favour of a view based on transcendence and interconnectedness as characteristics of the highest reaches of human nature (i.e. mature adult development). He described one aspect of transcendence as being related to the ability to go beyond one’s personal self-interest, to have a sense of responsibility towards “others and to the world of reality”, and also of “being in harmony with nature” or living as if one “belonged with it” (Maslow, 1971, p.271). These views are encapsulated in the following quotation:

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\(^4\) The traditional version of the Golden Rule is based on the principle: Do unto others as you would expect them to do unto you. Variations on this maxim have long traditions in religious and moral traditions, and were developed from the principle of reciprocity.
Transcendence refers to the very highest and most inclusive or holistic levels of human consciousness, behaving and relating, as ends rather than as means, to oneself, to significant others, to human beings in general, to other species, to nature, and to the cosmos. (Maslow, 1971, p. 279).

Thus, both Erikson and Maslow theorised the idea of evolution of human consciousness to include an increasing sense of interconnectedness of the self with other entities, and the relation of human moral and ethical concern with this sense of interconnectedness. For example, Maslow (1971) explicitly expanded this concept of one’s sense of self to include not only all of humanity but also all of creation, thus extending human moral consideration and concern to the whole biosphere. Erikson (1997), on the other hand, only implied the expansion of moral consideration to include nature through his new version of the Golden Rule, although Erikson’s version could be logically extended to define “other” to include nature. Therefore, the concept of inclusion of the biosphere in human concern, from the perspective of psychological theory, is consistent with Leopold’s (1949/1987) philosophy of a land ethic which recognises that something is morally right when it tends to “preserve the integrity, stability, and beauty of the biotic community. It is wrong when it tends otherwise” (pp. 224-225). Hence, Maslow’s, and to a certain extent Erikson’s, ideas about the development of human consciousness to include fundamental interconnectedness between all humans and nature, are in concordance with the philosophy of a land ethic which assigns human moral consideration and empathic concern to the biotic community as a whole.

Elaborating on the relationship between empathic concern and altruism or moral consideration, Davis (1996), has argued that affect, in the form of empathic concern, sympathy, or tenderness is a central psychological determinant of all altruistic behaviour, and therefore, also of ethics as a set of standards for moral behaviour. Furthermore, Davis (1996), supported later by Hoffman (2000), has stated that while there may be multiple paths for initiating altruistic or ethical motivations, including arousal reduction\(^5\), reinforcement\(^6\), and empathy\(^7\), it is empathy and compassion that are the source of truly altruistic motivation. Moreover, these emotions are distinctly other-focused rather than being egoistic in nature. Batson

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\(^5\) Reduction of negative feelings such as distress or anxiety.
\(^6\) Social rewards or reduction of guilty feelings.
\(^7\) Feelings of tenderness or compassion.
(1994), investigating the psychology of altruism and moral motivation, has also affirmed that empathic concern seeks the welfare of the other (i.e. the target) as well as the self. He further asserts that empathic concern is highly predictive of altruistic motivation irrespective of the difficulty or level of personal distress to the self (Batson, 1994). Some philosophical arguments on the development of morals and ethics in individuals propose that caring is linked strongly to empathic concern. Furthermore, caring is not situation specific, but represents an overarching moral principle, an imperative, a fundamental value and ideal, which is bound up in one’s sense of the type of person one wishes to be (Hoffman, 2000; Noddings, 2003; Van Hooft, 1995). These arguments suggest that such a moral principle strengthens one’s sense of obligation to act when the object of one’s caring and empathic concern is threatened (Hoffman, 2000; Noddings, 2003; Van Hooft, 1995). However, Bamber and Moser’s (2007) recent review of the literature revealed that there has been a paucity of research into “moral” emotions, and thus there is a need for more research in this area to develop a deeper understanding of the role of emotion in moral and altruistic behaviour. Investigating the link between caring, values, and pro-environmental action, as a form of altruistic behaviour, may help to address the challenge of determining the influence of an ecological worldview in individual tourists on their choices and behaviours, and is the primary aim of this research.

2.5 Caring and Moral Consideration

The idea that morality and ethics are substantially based on human emotional considerations has been argued powerfully by Van Hooft (1995) in his treatise on the concept of what he calls deep caring and its relationship to morals and ethics. He describes deep caring as caring which goes all the way down to one’s central character and, thus, is enduring in nature (Van Hooft, 1995). He also maintains that deep caring is strongly tied to action. That is, if one deeply cares about something (including nature), then one acts in the pursuit of the well-being of the thing one cares about (Van Hooft, 1995). He goes on to argue that deep caring is an emotional feeling and commitment which is central to one’s sense of self, and is tied to one’s authenticity and personal ethics which are expressed through actions that seek to maintain the wellbeing of the object of that deep caring. Moreover, there is a pervasive sense of mutual interdependency underpinning such actions (Van Hooft,
Therefore, Van Hooft (1995) posits that deep caring is at the very root of ethics, and that ethics is driven by love, in the sense of caring about other and by commitment to act for the good of what is cared about.

Maslow (1971) presents a somewhat similar view to Van Hooft when he argues that it is not enough to be merely affected by what happens to the other; one must be inclined to act, and the strength of that inclination and commitment to act defines the depth of love or caring about the other. Thus, both Maslow (1971) and Van Hooft (1995) maintain that deep caring, or love, responsibility, and commitment are all inextricably linked. Following the ideas of Maslow (1971) and Johnson (1991) concerning the necessary evolution of human empathic concern and moral consideration outwards towards nature, Van Hooft’s deep caring hypothesis could also be extended beyond humankind to the whole biotic community. Presumably then if one cares deeply about nature and the environment, one will act in ways which facilitate nature’s preservation and future well being. Environmental educator Fien (2003) believes it is important, in the quest for encouraging an ethic of deep caring in individuals, to understand and distinguish between two main types of affectively (emotionally) charged psychological constructs: values and attitudes.

2.6 Values and Moral Consideration

Rokeach (1973) in his seminal work, “The Nature of Human Values”, argues that values, as guiding principles for behaviour, are central to human moral and ethical concerns. While both values and attitudes form part of the affective make-up of an individual, and are similar in some respects, values are more enduring and stable than attitudes. Values are not context specific, but are a more overarching set of principles that can be related to personal strivings and important goals in life (Emmons, 1999; Rokeach, 1973). Furthermore, like deep caring, values are also central to one’s sense of self and as such can be related to environmental concerns (Emmons, 1999; Rokeach, 1973). For example, Capra (1996) has argued that values are fundamental to understanding the human capacity for embracing an ecological worldview and environmental ethic of care. In support of this view, Fien (2003) maintains that development of core values which are consistent with an ethic of caring, and engaging people’s love and compassion towards nature must be the ultimate goal of all environmental education and environmental ethics. Thus,
understanding an ethic of caring involves understanding the relationships and influence of the central psychological constructs related to moral and ethical concerns (and subsequent actions), particularly those with a strong affective component such as values. As Fien (2003) says “We have to learn to care enough to want to act. Central to this is the capacity to care deeply and widely” (p. 4), and to hold all of nature intrinsically valuable.

In the quest to better understand global environmental issues from the perspective of the psychology of human motivations, many social and environmental or conservation psychologists have sought to determine what people deeply care about and will act to protect, as well as understand what values people hold. Such an understanding might then be used to develop strategies that change people’s values and behaviour towards greater environmental sensitivity (Feather, 1994, 1995; Oskamp, 1995; Schultz, 2000, 2001; Schultz & Zelezny, 1999; Stern, 2000a, 2000b). The values of particular interest, when investigating altruistic psychological orientation and motivations relevant to issues of human moral and ethical concern towards the environment, are those associated with a self-transcendent worldview. Such a worldview considers the wellbeing of other as important as the wellbeing of self. Other in this sense includes the natural environment or the whole biotic community.

It has been argued that people’s emotion-laden values towards different natural environments do indeed play a distinct role in motivating pro-environmental behaviours which seek to reduce the destruction of natural ecology and the extinction of living things (Callaghan, 2001; Orr, 1993, 2004; Ulrich, 1993). Indeed, many environmental philosophers have proposed that environmental values, those that seek to preserve wild nature, may lie deep in the human psyche and are part of our roots which serve as the cradle of our spirituality (Bragg, 1996; Rolston, 1991, 1993; Roszak et al., 1995). For example, Rolston (1991, 1993) has assigned a somewhat noetic or spiritual quality to the value people place on nature by maintaining that we humans want nature preserved not just because it is good for us, but because it is good for the animals, plants and whole ecosystems. He goes on to argue that in the recent past, humans were thought to be the measure of all things, and all things were defined in relation to us. But at some point, humans started “seeking relationships in an elemental stream of being…” and wanted to know “how we belong in this world, not how it belongs to us” (Rolston, 1991, p. 402.). Rolston (1993) has further argued that
direct contact with nature tends to immediately reconnect humans “with a submerged world of sympathy long forgotten or ignored” and to a “life that connects us with all life”. Meyer-Abich (1996) also believed that those who appreciate and love the beauty of nature must necessarily extend their love to all living things, and they may also demonstrate that love, even to their own individual detriment or disadvantage, because they realise that there is mutual interdependency among all life forms. Appreciating and loving the beauty of nature implies a desire to be immersed in unspoilt nature through direct contact experiences.

2.7 The Experience of Nature

Environmental theorists and researchers have proposed that human beings have a deep seated need to feel a relation with nature, and that direct contact with nature tends to immediately reconnect humans with a sense of oneness with all life (Kaplan & Kaplan, 1989; Rolston, 1993; Rosenblatt, 2000; Wilson, 1984). As Stokols (1990) argues, nature and nature settings are contexts to which people are strongly drawn because of their symbolic and affective meanings. Direct experiences in nature have been reported as encouraging strong emotional responses to the natural world and promoting genuine feelings of closeness with all living things (Finger, 1994; Rolston, 1993; Rosenblatt, 2000), as well as a strong sense of care towards the environment (Callaghan, 2001; Reynolds & Braithwaite, 1999). Experiences in nature also help to promote greater understanding of, and reflection about, environmental issues and problems (Finger, 1994; Naess, 1989). Such experiences can also enrich the lives of participants, with the potential for emotional, physical and spiritual growth through environmental activities which engender feelings of transcendence (Fredrickson & Anderson, 1999; Greenway, 1995; Suedfeld, 1991).

Rolston (1991) attempted to explain the potential for transcendence and human feelings of connectedness during nature-based leisure experiences. He and others have proposed that when humans are at work they use and consume natural resources in order to produce human artefacts, food and shelter in order to live. However, when humans are at leisure and not tied to work they are more truly themselves and free to just be (Borrie & Roggenbuck, 2001; Korpela, Hartig, Kaiser, & Fuhrer, 2001; Rolston, 1991, 1993; Rosenblatt, 2000). Rolston (1991) has further argued that natural resources “used” in leisure are actually loved and appreciated for
their own sake. As Korpela et al. (2001) have described it so succinctly, people simply participate in nature rather than use it.

The idea of emotional bonding and feeling connected when experiencing nature can be extended to a person feeling oneness not only with other life-forms but with inanimate features of the natural environment as well. Such experiences can lead to feelings of awe and wonder, which are described in detail by Carson (1965). Her description of human responses to the grandeur of nature is akin to the peak experiences described by Maslow (1968) in his theory of human motivation. Maslow (1968) described peak experiences as intense emotional responses to the overwhelming beauty of nature, which facilitate a sense of interconnectedness and oneness with all of creation and existence. Similarly, Carson (1965) has described the intensity of these effects as profound emotional responses to nature which may cause fundamental changes in the human psyche.

Clayton (2003) has argued that direct interactions with the natural world are often emotionally significant to the individual, and these nature experiences can increase environmental identity and the moral consideration one extends to all of nature. Moreover, she believes that nature experiences can significantly affect the individual’s self-concept and self-identity. Like Carson (1965) and Maslow (1968), Clayton believes this change in self-identity as a result of direct experiences in nature occurs through an increasing sense of psychological interconnectedness with the whole biosphere (Clayton, 2003). This expansion of one’s sense of self to include concern for the whole of nature, in conjunction with increasing emotional connection with nature, is a primary tenet of the moral philosophy of deep ecology. Naess (1989), Norwegian philosopher and founder of the deep ecology movement, has said that “contrary to expectation, urbanised life has not killed human fascination with free nature, but only made the access more difficult, and promoted mass tourism”8 (p. 177). The following section examines the growth in nature-based tourism and the relationship of this with the human need to seek direct contact with the natural environment.

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8 In this quote Naess was using the term “mass tourism” to refer to the proliferation of nature based tourism.
2.8 Humans Seeking Nature Experiences through Tourism

Tourism is a burgeoning global industry and ecotourism, as a form of nature-based tourism, has emerged as the one of the fastest growing sectors of that industry. This growth has often been attributed to a supposed “greening” of the market brought about by increased levels of awareness about the environment among consumers (Donohoe & Needham, 2008; Juric, Cornwell, & Mather, 2002; Luzar, Diagne, Gan, & Henning, 1998; Wight, 2001; World Tourism Organization, 2002; Wurzinger & Johansson, 2006). The World Tourism Organization has stated that ecotourism represents approximately one fifth of all global tourism and some reports have estimated that it receipts approximately one third of the world’s trade in services (Stronza, 2001). In spite of sometimes wide variation in the assessment of ecotourism’s global economic contribution within the industry, it nevertheless accounts for a substantial and lucrative proportion of the tourism industry as a whole (Weaver, 2006). Thus, there is considerable collective fiscal power resting in hands of those consumers who prefer and seek out this type of experience.

If positive emotional responses to natural environments are innate in human beings, and such responses are a fundamental predisposition as has been proposed by several environmental theorists (see for example Fromm, 1998; Kaplan & Kaplan, 1989; Rolston, 1993; Roszak, 1995; Wilson, 1993), then leisure experiences such as nature tourism and particularly ecotourism, with its emphasis on unspoilt nature as the focus of the experience, may be an expression of a person’s psychological orientation towards the environment and the quality of their relationship with nature. In the last few years there has been a proliferation of advertising in travel and tourism with references to ecotravel, ecotour, ecoexpedition, ecoadventures, ecotourism, and so on (Weaver, 2001, 2006; Wight, 1993). Higham and Carr (2002) and Merchant (1992) have argued that consumer preferences for ecotourism activities over other forms of tourism may be a manifestation of a deep seated human need to reconnect with nature. Furthermore, they suggest that these experiences, by their very nature, may also engender a deepening of feeling, care, and concern towards the natural environment as the focus of these activities (Higham & Carr, 2002; Merchant, 1992). The foregoing reasoning suggests that a human need for connection with nature coupled with the capacity for positive emotional responses to nature which is arguably innate,
might be expressed as varying levels of desire to be immersed in nature as an alternative to other forms of tourism during leisure experiences.

The following sections discuss the concepts of ecotourism and the so-called ecotourist, as a consumer of ecotourism experiences. Firstly, a definition of ecotourism is presented, together with a description of the differences between ecotourism and other forms of tourism. Secondly, what is currently known about ecotourists and their characteristics are detailed, including their relationship with nature.

2.9 Ecotourism as Authentic Nature Experiences with Ethical Implications

Ecotourism has been defined in many different ways, but most recent definitions suggest that it is more than simply enjoying and appreciating nature through leisure (Ceballos-Lascurain, 1996; Weaver, 2001a, 2001b). According to Weaver (2001a, 2001b), while experience in nature is a central feature of ecotourism, it is not simply nature-based tourism. Ideally ecotourism is also explicitly concerned with minimising the environmental and cultural impacts of tourist activity, as well as contributing to ecological sustainability through support for conservation and preservation of natural and cultural environments (Ceballos-Lascurain, 1996).

Thus, ecotourism has been conceptualised as tourism where the focus of the experience is the natural environment and sometimes the cultural environment. In turn, environmental learning and appreciation are expected outcomes of the interaction of the tourist and the environment, and environmental, socio-cultural, and economic sustainability are the goal (Page & Dowling, 2002; Weaver, 2001a, 2001b; Weaver & Lawton, 2007; Weaver & Lawton, 2002a). This conceptualisation assumes the natural environment includes cultural components and that ecological sustainability includes economic benefits to the local community and long term conservation of natural resources (Page & Dowling, 2002; Weaver, 2006; Weaver & Lawton, 2007). Most definitions then incorporate three essential elements: nature as the focus of the experience; environmental education or learning; and ecological sustainability.

Looking deeper into the ecotourism phenomenon, there are several different types of experience that can be differentiated from each other depending on the level of authenticity and depth of nature experience undertaken by the consumer. One
useful form of classification has ecotourism activities placed along a virtual spectrum ranging from hard to soft (Fennell, 2003; Weaver, 2001a, 2006; Weaver & Lawton, 2002b). Hard ecotourism emphasises an intense, personal and authentic wilderness or other experience within a relatively undisturbed natural venue (Fennell, 2003; Weaver, 2001a; Weaver & Lawton, 2002b). As such, harder ecotourism activities are described as being more specialised, focused on lower levels of consumption of resources, services and facilities, and are undertaken entirely for the purpose of ecotourism (Fennell, 2003; Weaver, 2001a; Weaver & Lawton, 2002b). Conversely, soft ecotourism emphasises relatively short-term mediated experiences with nature which are often just one component of a package of other experiences (Weaver, 2001a; Weaver & Lawton, 2002b). Softer ecotourism experiences tend not to be specialised, are usually less authentic and can be just one part of more mainstream tourism experiences, with associated tendencies for higher levels of consumption of resources, services and facilities by tourists (Weaver & Lawton, 2002b).

Building on this apparent distinction, Mueller, who is President of R.E.I. Tours based in Cedar Rapids Iowa US, said that authentic ecotourism is more “altruistic” than most mainstream tourism and that everyone, including consumers, governments, and the tour operators, tend to share a mutual desire and responsibility to be careful in working towards preservation of wildlife and sensitive habitats (cited in Beeh, 1999, p. 46). Therefore, there appears to be a strong ethical element evident in this view of authentic ecotourism and, possibly, is also evident within the minds of the consumers of such experiences. In fact, Weaver (2006) has proposed that ecotourism could become the conscience of sustainable tourism because of this ethical element.

Consumers who prefer ecotourism have been said to travel primarily to experience natural environments as ends in themselves, as well as to educate themselves about these natural area habitats (Page & Dowling, 2002; Wearing & Neil, 1999; Weaver & Lawton, 2002b). This desire to experience and learn about nature implies that the dedicated ecotourist is likely to be more interested in activities in which the natural environment itself is the focus of attention, such as in observing and studying natural fauna and flora, bird watching, studying natural features and geological formations, and practising other non-consumptive uses of wildlife and natural resources (Ceballos-Lascurian, 1991; Juric et al., 2002). Conversely, mainstream tourism experiences tend to focus more on satisfying consumers’ leisure,
pleasure, and recreation needs (Page & Dowling, 2002), even though such activities might also be undertaken in natural settings. Accordingly, mainstream tourists in nature have been understood to prefer activities in which the natural setting is merely a means to an end or as a backdrop for the activity, such as participation in water sports, sunbathing, biking, horse riding, or simply playing games in a natural setting. As a result, mainstream tourists may have more consumptive attitudes towards resource use and service expectations (Ceballos-Lascurian, 1991; Page & Dowling, 2002).

As has been argued already, ecotourism is a form of nature-based tourism which particularly emphasises direct experience in nature, environmental learning as an outcome and environmental and socio-cultural sustainability as a goal (Page & Dowling, 2002; Stronza, 2001; Weaver, 2001a, 2001b). Embedded within this concept of ecotourism is the notion that to understand and appreciate natural attractions implies an ethical desire to ensure that the integrity of those attractions is not undermined (Ceballos-Lascurian, 1996; Rolston, 1991; Stronza, 2001; Weaver, 2001a). This perspective, however, may not be shared by consumers engaged in some other forms of nature-based activity.

For example, the authentic ecotourism experience has been differentiated from other nature-based activities that are more leisure oriented such as “3S” forms of tourism - sun, sand, and sea - as well as the range of activities that are more adventure oriented in nature, such as trekking, climbing or rafting (Weaver, 2001a; Weaver & Lawton, 2002b). It has been argued that tourist motivations to engage in these latter forms of nature-based activity may have more to do with enjoying a hedonistic experience of relaxing in the sun and gaining a tan, or with seeking activities that offer memorable experiences with some degree of risk and personal challenge (Weaver, 2001a, p. 105), than with developing an appreciation of and concern for preserving the natural environment per se. Moreover, a number of researchers have stated that although the dedicated ecotourist and the so-called mainstream tourist may utilise the same natural areas from time to time, their values, attitudes and interest in the natural environment are likely to differ markedly, and their chosen activities and preferences may also differ (Blamey & Braithwaite, 1997; Ceballos-Lascurian, 1991; Juric et al., 2002).

In line with this reasoning, some researchers have suggested that regular consumers of hard ecotourism experiences, especially those who choose longer stays
and more authentic and ecologically sound experiences, are more likely to embrace the so-called green or ecological paradigm (indicative of an altruistic or ethical concern for nature) (Page & Dowling, 2002; Weaver & Lawton, 2002b). Furthermore, it has been proposed that there might also be an increased propensity among these consumers for making pro-environmental choices and engaging in environmentally sensitive behaviours than those who prefer softer less authentic ecotourism, or mainstream type tourism experiences (Page & Dowling, 2002; Weaver & Lawton, 2002b).

However, in spite of the large body of literature on ecotourism and ecotourists, market related research has often been limited to destination area markets, tour operator perceptions, the profiles of nature-based or adventure tourists, the growth in interest in ecotourism, or the markets of particular destinations, rather than identifying the deeply held psychological characteristics, preferences, and motivations of origin populations (Dolincar & Leisch, 2008; Fennell, 2003; Holden & Sparrowhawk, 2002; Wight, 2001). Moreover, Sharpley (2006) and Dolincar and Leisch (2008) have argued that academic attention directed at ecotourism to date has tended to focus on definitional debates about what constitutes ecotourism, development of conceptual frameworks for studying ecotourism, and issues related to destination management, environmental policy and protection of host communities, as well as destination case studies. Thus, much of this latter research has concentrated on a supply perspective, or as Sharpley (2006) puts it more bluntly, “the supply of nature” (p. 8).

While it has been argued that ecotourism is inherently demand-driven, there are still relatively few appropriate measures that have been used to examine the true nature of this demand in terms of identifying who environmentally sensitive tourists are, as distinct from those who are less so, and also how a pro-environmental psychological profile might influence tourist choices and behaviour, or indeed how tourists might change their views and feelings as a result of nature-based experiences (Dolincar & Leisch, 2008; Stronza, 2001). As Dolincar and Leisch (2008) have argued there is an urgent need to focus more on demand-driven approaches to the study of sustainable tourism, including ecotourism, with a view to realising an overarching goal of reducing the collective ecological footprint of tourism. The present study addresses this need for a more demand driven approach by systematic investigation of the psychology of the consumer of ecotourism - the ecotourist. - in
comparison to the mainstream tourist, with a view to developing a better understanding and explanation of tourist choices and behaviours.

To summarise the argument thus far, in spite of the growing interest in ecotourism several researchers believe that there has been minimal research into the deeply held psychological characteristics and environmentally relevant value systems of so-called ecotourists, which may help to more clearly differentiate such consumers from mainstream tourism consumers (Dolincar & Leisch, 2008; Fennell, 2001, 2003; Holden & Sparrowhawk, 2002; Page & Dowling, 2002; Stronza, 2001; Wurzinger & Johansson, 2006). In order to determine what, if any, characteristics of ecotourists are different from those of mass or mainstream tourists, it is important to examine what is already known about the so-called “ecotourist”, and this is presented in the following section.

2.10 Who is the Ecotourist?

Sharpley (2006) has suggested that there is an assumption that “true” ecotourists hold dominant pro-environmental values which affect and guide all behaviour including tourism preferences (p. 18), and that there is a potential, particularly in tourism, for personal values such as pleasure, freedom and happiness to be in conflict with social values, or those which guide the social good. The values concerned with social good to which Sharpley (2006) refers, are often termed altruistic or self-transcendent values by social and environmental psychologists (e.g. Dietz, Fitzgerald, & Schwom, 2005; Schwartz, 1977, 1992, 1994; Schultz, 2001).

A stronger pro-environmental orientation, that is, one which incorporates this element of altruism, has been proposed by several tourism researchers to be more evident in ecotourists as compared with non-ecotourists (Luzar, Diagne, Gan & Henning, 1995, 1998; Page & Dowling, 2002; Weaver, 2002; Weiler & Richins, 1995). Based on the earlier work of Ballantine and Eagles (1994), Wearing and Neil (1999) maintained that true ecotourists demonstrate eight pro-environmental psychological characteristics including:

… the possession of an environmental ethic; willingness not to degrade the resource; focus on intrinsic rather than extrinsic motivations; biocentric rather than anthropocentric in orientation; aiming to benefit wildlife and the environment;
striving for first hand experience with the natural environment; possessing an expectation of education and appreciation; and high cognitive and affective dimensions (p. 121).

However, Ballantine and Eagles (1994) have clearly acknowledged that these eight characteristics are “more of a wish list of what ecotourists should be” rather than the result of evidenced based research (p. 210). While it has been argued that in spite of the logic and intuitive appeal of this view that ecotourists might have a stronger pro-environmental orientation than mainstream tourists, there has been a lack of empirical evidence to support the claims made about ecotourists as a distinct group, and what research there has been is somewhat equivocal in its findings (Fennell, 2001; Blamey & Braithwaite, 1997; Sharpley, 2006). Sharpley (2006), for one, has remained unconvinced that ecotourists are any more concerned with environmental issues and conservation than the average mainstream tourist, in spite of the existing body of research that has investigated ecotourists and their characteristics. He argued there is no empirical evidence that the true ecotourist exists at all, and has expressed the view that ecotourism seems to be mostly a supply driven phenomenon (Sharpley, 2006). On face value this seems to be a reasonable conclusion because, as already stated, the bulk of previous ecotourism research has tended to revolve heavily around the supply side of the equation, with comparatively few studies focused on the factors underpinning demand.

In reviewing some of the available demand oriented research, most of it tends to simply focus on socio-demographic variables or on tourist preferred activities and visitation behaviour (Ballantine & Eagles, 1994; Eagles, 1992; Fennell, 1999; Sharpley, 2006; Stronza, 2001; Weaver & Lawton, 2007). In turn, ecotourists have previously been profiled as distinct segments on a number of dimensions including proposed level of environmental responsibility and impact, consumptive\(^9\) versus non-consumptive\(^{10}\) practices, or behaviors related to eco-exploitation versus environmental sustainability (Beeh, 1999; Page & Dowling, 2002). Ecotourists have also been said to vary in terms of their level of commitment and motivation to act in environmentally responsible ways (Page & Dowling, 2002). Moreover, some studies into the so-called

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\(^9\) Nature is seen as simply a resource to be used for relatively hedonistic gratification. 
\(^{10}\) The integrity of nature is seen as important and requiring protection, and thus some behaviour and personal freedoms are voluntarily controlled for that purpose.
motivations of ecotourists for engaging in ecotourism activities have focused substantially on destination pull factors or the attractive features of destinations in the minds of tourists, or on preferred activities. Such research has failed to consider personal and deeply held psychological values, beliefs, and feelings about nature among consumers, and how this might influence their choices.

Thus, research that has tended to focus on pull factors and activity profiling has led to a collation and categorisation of observations (i.e. attractive features of destinations and tourist behaviours) which, while valuable in contributing to an understanding of the market, could nevertheless be viewed as less than ideal given the degree of heterogeneity that is said to be characteristic of the ecotourist market (Fennell, 2001, 2003; Wearing & Neil, 1999; Wight, 2001). Therefore, some of the existing body of ecotourism research could be viewed as a “muddying of the waters” between the psychological motivations of the ecotourist and the characteristics or features of the ecotourism product, as there has been a plethora of studies based largely on observations of tourist behaviour (with some demographic variables), and relatively little research on the deeper psychological reasons for that observed behaviour.

While there has been some recent research which has reported that a pro-environmental orientation seems to influence consumer travel decisions (Dolincar & Leisch, 2008; Luo & Deng, 2007; Luzar et al., 1995, 1998; Uysal, Jurowksi, Noe & McDonald, 1994), it could be viewed as flawed reasoning to consider every tourist who visits an ecotourism destination at a particular time to be a true ecotourist, due to the already acknowledged observation of a distinct lack of homogeneity within the ecotourist market segment. This is one of the reasons why Sharpley (2006) has argued that the term “ecotourist”, based on the current behavioural definition alone, may not be entirely appropriate. For example, tourists engaging in ecotourism activities are likely to range from the dedicated ecotourist to the occasional tripper who is visiting a destination to experience something new or “trendy”. These latter tourists are unlikely to be concerned with broader environmental issues or the degree to which their activities might ultimately harm the environment. They probably have more in common with mainstream tourists, and may prefer somewhat more sanitised offerings of nature, with associated higher levels of services and consumption.

Relatively recently, in recognition of the need for deeper understanding of the psychology of consumers of ecotourism, there have been a few empirical studies that
have begun to look at environmentally relevant psychological motivations of tourists. These studies have included the investigation of some broad social values, as well as self reported moral obligation for protection of the environment, pro-environmental beliefs and concerns, and general pro-environmental attitudes within different types of tourists (e.g. Blamey & Braithwaite, 2007; Dolincar & Leisch, 2008; Fairweather, Maslin & Simmons, 2005; Higham & Carr, 2002; Luo & Deng, 2007; Zografos & Allcroft, 2007). Several of these studies have found evidence of a relatively stronger pro-environmental orientation in ecotourists when compared with mainstream tourists, suggesting that the argument for such an orientation in ecotourists may have some empirical support (e.g. Blamey & Braithwaite, 2007; Dolincar & Leisch, 2008; Fairweather et al., 2005; Luo & Deng, 2007; Zografos & Allcroft, 2007). For example, Zografos and Allcroft (2007), Fairweather et al. (2005), and Higham and Carr (2002) have all sought to profile tourist segments, including ecotourists, on the basis of relative pro-environmental orientation by using the New Ecological Paradigm NEP\textsuperscript{11} (Dunlap et al. 1978, 2000) as a measure of environmental values. However, even though the NEP has been substantially tested over three decades, it is considered by many social psychologists to be a suitable general measure of environmental beliefs, concerns, and attitudes, rather than being a measure of environmental values per se (Dutcher, Finley, Luloff & Johnson, 2007; Lundmark, 2007; Stern, Dietz & Guagnano, 1995; Schultz & Oskamp, 1996). Other tourism researchers have used the NEP in the traditional sense as a measure of pro-environmental beliefs and broad pro-environmental attitudes in relation to tourism motivations, and have also found some support for a stronger pro-environmental orientation in ecotourists when compared with mainstream or mass tourists (e.g. Dolincar & Leisch, 2008; Luo & Deng, 2007; Luzar et al., 1995, 1998; Uysal et al., 1994). However, it is worth noting that in spite of the widespread use of the NEP as a measure of general environmental beliefs and attitudes, and thus as an indicator of pro-environmental orientation, its continuing efficacy in its present form has been questioned (Lalonde & Jackson, 2002). Lalonde and Jackson (2002) have argued that the NEP may have outlived its usefulness, especially as a principle measure of pro-environmental orientation, due to the relatively superficial wording of some of the items included in the scale, particularly

\textsuperscript{11} The NEP includes a number of broad statements concerning some aspects of the human nature relationship. Endorsement of some items expresses an anthropocentric orientation and others a more ecocentric orientation.
in light of a growing social sophistication about environmental issues. Therefore to use the NEP as a sole measure of pro-environmental orientation seems to be potentially limiting.

In summary, the body of scientific evidence about ecotourists is both sparse and incomplete, and there has been little development of systematic and well tested theoretical models of the core psychological characteristics of consumers of ecotourism (Fennell, 2003; Sharpley, 2006). In particular, there is a paucity of cross-disciplinary work which integrates psychological models within the extant environmental (conservation) psychology literature on core values and related psychological constructs, with a view to understanding the deeper motivations of the so-called ecotourist as a consumer of more environmentally sensitive tourism products (Zografos & Allcroft, 2007). This is somewhat surprising given the stable nature of core values and their wide generalisability across contexts, together with past evidence that values are significant predictors of consumer behaviour, including travel and tourism related decisions and preferences (Ajzen, 2001; Blamey & Braithwaite, 1997; Pitts & Woodside, 1983, 1986; Stern, Dietz, & Guagnano, 1998). Thus, there appears to be a significant gap in the ecotourism literature, as social psychological research has found that beliefs and attitudes are considerably less stable than values and therefore more subject to change across different contexts. Moreover, beliefs and attitudes have also not been demonstrated to be particularly predictive of pro-environmental behaviour or choice on any consistent basis (Corraliza & Berenguer, 2000; Dolincar & Liesch, 2008).

To date there has been limited empirical research testing the proposition that so-called ecotourists exhibit a stronger pro-environmental orientation and support for environmental protection than mainstream or mass tourists, using core values as a measure of that orientation (Fennell, 2003; Sharpley, 2006). Yet investigation of tourists’ core value systems12 may be particularly valuable in understanding pro-environmental consumer choice, as core values are highly central to a person’s cognitive structure and sense of self (See Rokeach, 1973; Schwartz, 1994; Schwartz & Bilsky, 1987). Values have been argued to offer potentially more effective insights into human choice behaviour (Fennell, 1999; Rokeach, 1973; Schwartz, 1994), and particularly behaviours that incorporate an ethical quality, as core values represent

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12 As distinct from the plethora of lower order values commonly used in consumer research.
overarching and guiding principles for behaviour (Rokeach, 1973; Schwartz, 1994). Investigation of core values and their psychological correlates may be more valuable in the study of consumers of ecotourism than investigation of other types of psychological constructs, as ecotourism contains embedded within its definition both an explicit and an implicit ethical quality, and thus may activate altruistic or moral considerations. Therefore, it seems especially important to try to understand the environmentally relevant values and the nature of the emotional relationship with nature, as caring for nature, of those consumers who prefer ecotourism experiences over other forms of tourism.

2.11 Conclusion

This chapter has argued that the philosophical concept of an ecological or ecocentric worldview consists of a pro-environmental psychological orientation which is characterised by an environmental ethic of care. This worldview and associated ethic of care assign moral consideration to the whole biosphere or biotic community, including but not limited to humankind, an orientation that Leopold called the land ethic. Capra (1996) and Naess (1989) have stated that values are a defining characteristic of this worldview. Values theorists such as Rokeach (1973) and Schwartz (1994, 1996) have found evidence that self-transcendent or altruistic type values (those that are focussed on concerns for issues and ideas beyond oneself and personal self-interest) are associated with altruistic and moral behaviour, as these values, central to a sense of self, represent guiding principles and standards by which behaviour is judged. Moreover, Dietz and Stern (1995) have also argued that altruistic and moral issues, including environmentalism, are issues that are fundamentally concerned with values, and those who seek social change attempt to target underlying morally tinged values, particularly altruism versus egoism\(^{13}\).

Seminal thinkers such as Kellert (1997), Wilson (1984, 1993, 1998), Fromm (1964, 1998), and Leopold (1949/1987) are convinced that an ecological worldview and environmental ethic also necessarily incorporate the very important emotional concept of love and respect or caring for nature for its own sake as opposed to simply having

\(^{13}\) Concerned primarily with self-interest.
value for its benefit to humankind. Related concepts have been variously termed “biophilia” (e.g. Kellert, Wilson, and Fromm), or a “land ethic” (e.g. Leopold).

Opportunities for humans to interact directly with nature can be provided by nature-based leisure experiences, including ecotourism, and the seeking of these experiences may also be a manifestation of a deep-seated human need to reconnect with nature. In turn, feelings of care and emotional connection with the environment may also be one of the drivers for a preference for ecotourism type nature-based leisure choices, as these choices imply an ethical component in terms of consumers seeking both to commune with nature and simultaneously to preserve it. Therefore, differing environmental orientations, beliefs, and levels of love and care for nature, all expressions of diversity in the quality of the human relationship with nature, may be manifested by different preferences for and choices of leisure activities. Furthermore, a pro-environmental orientation including feelings of emotional connection, or love for nature, may be a significant predictor of not only preference for nature-based tourism, but also support for environmental protection amongst tourists both in a tourism setting and at home. Testing the relative influence of love and care for nature and other related psychological constructs, such as values, that are associated with an environmental ethic, within a leisure context and specifically tourism, may be helpful in discovering some of the key elements of the human relationship with nature and the effects of this on preferences and choices. This is an objective central to the overall aim of this research.

With this objective in mind, in the first instance an examination of the values which might be central to human ethical systems, including environmental ethics, and how such values are best understood, is required. Secondly, an understanding of the philosophy underpinning the emotional aspect of an ecological worldview, as love and caring for nature, is also necessary to develop a more complete picture of human nature relations and the importance of this for engendering pro-environmental behaviour. Explorations of the theories behind these two key psychological components of an ecological worldview are presented in the following two chapters.

Firstly, the theory and structure of human value systems, including environmental value systems, are discussed in Chapter Three. In the final part of Chapter Three the relevance of these value systems in the context of tourism is argued, and a number of emergent hypotheses relating to tourists’ values and their influence on choice and behaviour are presented for testing in Study Two of this
research. In Chapter Four the theories behind the emotional aspect of an ecological worldview or caring, are detailed, particularly in regard to the strength of this emotional component’s relationship with environmentally relevant value systems, and also with pro-environmental choices and behaviour among tourists. Further hypotheses relating to the relative influence of love and caring for nature with respect to values on pro-environmental choice and behaviour are offered for investigation during Study Two. Finally in Chapter Four, a case is argued for differentiation of the so-called ecotourist and the mainstream tourist on the basis of their respective psychological profiles.
CHAPTER THREE: ENVIRONMENTAL ETHICS AND THE QUESTION OF VALUES

The real voyage of discovery lies not in seeking new lands but in seeing with new eyes (Marcel Proust, cited in Suzuki & Dressel, 1999, p. 220)

3.0 Introduction

Chapter Two outlined the background to this research and described the philosophical concept of an ecological worldview emerging from an ecocentric as opposed to an anthropocentric view of human-nature relationships. This worldview, as the opening quote of this chapter says, requires “seeing with new eyes”. Moral and ethical debates about the nature of social evolution which embraces the whole biosphere in human moral concern and caring about other was discussed from the perspective of key literature within the disciplines of moral philosophy, environmental philosophy, and psychology. Two essential psychological elements of an ecological worldview in individuals were argued to be values (which are concerned with the intrinsic value of nature), and deep caring and respect for the entire biotic community. The relevance of an ecological worldview in terms of humans seeking and preferring nature-based leisure experiences, as a manifestation of both an ecological orientation and an innate need for direct contact with nature, was also described in the context of nature-based ecotourism as distinct from mainstream or mass tourism.

This chapter provides a more detailed review of the literature surrounding the key construct of values and the relevance of this within the tourism context, particularly ecotourism. The first section of this chapter starts with an exploration of the concept of core values and the structure of value systems within the human psyche. This exploration is then extended into an examination of environmentally relevant values and value systems developed within the extant environmental and conservation psychology literature, and the relationship of these to pro-environmental choice and behaviour. The environmental value systems of tourists who prefer ecotourism rather than mainstream tourism experiences are then discussed in relation to their anticipated effect on consumer preferences, choices, and behaviours. This
review of literature serves to identify a number of hypotheses that will be tested in the
empirical phase of this research – which is described in Part II of the thesis.

3.1 The Concept of Core Values

As discussed in Chapter Two, several moral theorists and social researchers
believe that values are central to human moral considerations and ethics systems
(Capra, 1996; Feather, 1994; Naess, 1989; Rokeach, 1973; Schwartz, 1970, 1994,
1996). Seminal thinkers such as Rokeach and Schwartz see values as core beliefs
which are central to a person’s self-schema. Such values are used as criteria or
standards by which evaluations are made about things, ideas, and actions, and through

Rokeach (1973), in his work on the nature of human values, defines a core
value as:

… a single belief of a very specific kind. It concerns a desirable mode of behaviour
or end-state that has a transcendental quality to it, guiding actions, attitudes,
judgments, and comparisons across specific objects and situations and beyond
immediate goals to more ultimate goals (p. 18).

Values, which determine behavioural standards, have an “oughtness”14 quality
to them, are hierarchically organised in terms of their importance to self, and while
relatively stable across the lifespan, are nevertheless subject to change (Feather, 1995;
Rokeach, 1973). Moreover, values are not affectively (i.e. emotionally) neutral
(Feather, 1995; Rokeach, 1973). That is, they have a strong emotional component and
people usually feel very strongly about the values they hold to be important in their
lives (Feather, 1995, p. 1135; Rokeach, 1973). Thus, values have three underlying
components: a cognitive component (the belief), a feeling or emotional component
(the associated affect), and a behavioural component (guide for behaviour) (Feather,
1994, 1995; Rokeach, 1973). Values which are central to an individual’s sense of self
(i.e. their self schema) are described as core values by Rokeach (1973) and Schwartz
(1994).

14 “Oughtness” is described by Rokeach (1973) as referring to the maxim that all of us should behave in
certain ways that do not harm others (p. 9). Core values thus represent guiding principles for ethical
behaviour.
3.2 Values as Distinct from Related Psychological Constructs

Several researchers who have investigated some of the psychological determinants of pro-environmentalism have confused attitudes with the concept of values (e.g. Fairweather et al., 2005; Zografos & Allcroft, 2007) and this may be because they are similar types of constructs and each has a cognitive component, an affective or feeling component, and a behavioural component (Petty & Cacioppo, 1981). However, it was argued in the previous section that core values are particularly important for understanding behaviour that has a moral or ethical quality, as in this research and, thus, it is important to clearly differentiate these two related psychological constructs. According to Rokeach (1973), human values are distinctly different to not only attitudes but also to social norms and needs. He argues that human values are relatively universal, the antecedents of which can be traced to culture, social processes, and personality, and that the consequences of human value systems (organised clusters of values) are manifested “in virtually all phenomena social scientists might consider worth investigating and understanding” (p. 3).

In differentiating a value from an attitude, an attitude refers to the organisation of several beliefs around a specific object or situation, whereas a value refers to a single belief concerning a desirable end-state which transcends context (Feather, 1995; Rokeach, 1973, p.18). According to Rokeach (1973) values and attitudes differ in three main respects (p. 18). Firstly, whereas a value is a single belief, an attitude refers to an organisation of several beliefs all focused on a particular object or situation. Secondly, a value transcends objects and situations, whereas an attitude is focused on a specific object or situation. Thirdly, a value is a behavioural standard or guiding principle, whereas an attitude is not a standard. Because of these differences, Rokeach (1973) asserts that values are likely to number in the dozens, whereas attitudes probably number more in the thousands. Values are considered by social researchers to be more central to self-concept and personality than attitudes, and therefore values are seen to underpin both attitudes and behaviour (Allport, 1961; Rokeach, 1973; Schwartz, 1977). Allport (1961) has said that attitudes actually depend on pre-existing values, which is consistent with Rokeach’s (1973) argument that attitudes have instrumentality with respect to values, meaning that attitude objects are perceived as instrumental to the attainment of one or more values or desirable end-
states and are therefore a function of underlying values. Furthermore, because core values transcend situational contexts, the number of core values that a person holds is likely to be relatively small when compared to the myriad of lesser values and attitudes learned throughout life and assigned to individual objects and things (Bilsky & Schwartz, 1994; Rokeach, 1973). Therefore, the study of a relatively small number of core values as determinants of behaviour, especially behaviour which has a moral or ethical element, may be more straightforward and generalisable across different populations of interest. Social norms, which can also influence moral and ethical behaviour, are nevertheless distinct from values, as is their respective effects on behaviour (Rokeach, 1973), and thus it is important to also differentiate values from norms.

The difference between values and social norms can be summarised in several ways. A value has been described as a mode of behaviour (i.e. behavioural standard) or a desirable end state (e.g. equality for all human beings). As argued previously, a value transcends specific situations, and thus is independent of situational contexts, is individual in nature, and is close to one’s personal and internal sense of self (Feather, 1995; Rokeach, 1973). A social norm, however, is said to only refer to a mode of behaviour which is very specific in nature in terms of particular referent social groups, such as the prescription for Christians to always demonstrate respectful behaviour in a church, or the belief that people should donate blood where possible (Rokeach, 1973; Schwartz, 1977). A social norm is also consensual in nature, rather than individual, and is external to the person (Rokeach, 1973). That is, it is developed as a result of social sanctions and collective agreements between people (Rokeach, 1973).

Furthermore, social norms can be viewed as expressions of one or more stable cognitive structures like values, and in turn individual values are seen to be the criteria for accepting or rejecting particular norms (Rokeach, 1973; Schwartz, 1977). Schwartz (1977, 1996) investigated norm based models of social altruism and argued that looking at underlying values (and value systems) may yield a deeper insight into this aspect of human behaviour than many other related psychological constructs including attitudes. When examining the relationship of values to altruism, Rokeach (1973) argued that anticipated guilt over failure to act altruistically and in accordance with one’s core values might motivate a person to then act altruistically by altering behaviour (which is not as central to self) to align with their personal and strongly
held values. Therefore, from this perspective, guilt can be viewed as a negative feeling resulting from not acting in accordance with those core values which form part of one’s self concept and one’s sense of integrity.

While values and value systems have been differentiated from personality, Bilsky and Schwartz (1994) found evidence that stable value structures and personality traits or dispositions are congruent rather than discrete concepts. “Similar motivational dynamics underlie both types of concept” (Bilsky & Schwartz, 1994, p. 178). Rokeach (1973) believed that there could be an advantage in conceiving of a person as a system of values rather than as a cluster of apparently immutable traits which constitute personality, because one could conceive of a person changing the way they behave as a result of changes in social conditions and learning that might influence a person’s underlying value systems. Therefore, values theorists believe that values can be more valuable in identifying patterns of behaviour and prediction of behaviour than personality (Bilsky & Schwartz, 1994; Rokeach, 1973; Schwartz, 1992, 1994, 1996). For example, Bilsky and Schwartz (1994) have argued that personality is typically used to describe observed patterns of behaviour, whereas values are the criteria that people use to judge the desirability of behaviour, people, and events (p. 165). Moreover, personality traits vary in terms of how much of a characteristic a person exhibits, whereas values vary in terms of the importance individuals attribute to the ultimate goal strivings associated with those values (Bilsky & Schwartz, 1994, p. 165). They have also argued that personality traits describe actions thought to flow from what a person is like regardless of their conscious intentions, whereas values refer to the individual’s intentional goals that are fully available to consciousness (Bilsky & Schwartz, 1994, p. 165). It is intentional goal strivings resulting from the importance people ascribe to their system of underlying core values which determine much of human behaviour (Bilsky & Schwartz, 1994; Klinger, 1998). This present research seeks to examine the relative importance assigned to different types of core values in order to determine the influence of this on behaviour.

Klinger (1998) saw goal strivings in human beings as fundamentally important, believing that they are central to human existence, and that goals represent “the imperative of purpose” (p. 30). According to Klinger (1998), all animals, 15 Moral values presumably represent examples of these strongly held values.
including human beings, are biologically wired for purposeful living, with life representing a virtual continuous stream of goal pursuits. The human brain cannot help but seek purposeful living and, in humans, goal strivings and perceived purpose are the source of meaning in life (Klinger, 1998). Emmons (1999) has also argued that values systems are goal strivings which represent the primary motivational systems at the centre of the organisation of behaviour, with various cognitive and affective systems, such as beliefs and attitudes, evolving to support those motivational systems (p. 17). Human motivational systems described by Klinger (1998) as an “imperative of purpose” (p. 30) suggest a collection of relatively fixed central characteristics such as traits, clusters of traits, and particularly values, which Rokeach (1973) believes also includes the concept of character. Thus, understanding those core values which a person considers to be most important and most central to their sense of self is fundamental to identifying a person’s character which can be viewed as the moral force of a person. This moral force will consistently drive a person’s moral and ethical behaviour (Hall & Lindzey, 1978; Treffry, 2000) and, presumably, also behaviour related to environmental ethics which is the particular type of behaviour that is the focus of this research.

3.3 Values and Character as the Ethical or Moral Force of a Person

Character has been variously defined as that combination of traits and qualities distinguishing the nature of a person in terms of some code of behaviour in the ethical sense, or alternatively as the moral force or integrity of a person (Hall & Lindzey, 1978; Treffry, 2000). According to Van Hooft (1995), character is also highly central to one’s sense of self, and has been strongly linked to the quality of deep caring (described in Chapter Two), which includes a commitment to act in the interests of the object of one’s care. Rokeach (1973) said that a person’s character, which, from a personologist’s perspective, is seen to be a cluster of fixed traits, could also be usefully reformulated phenomenologically as a system of values. Thus, values systems have been fundamentally embedded in the concept of character, a concept already defined as bound up in a person’s moral nature and ethical integrity (Ludowyk & Moore, 2001; Treffry, 2000).

16 a personality theorist.
17 in terms of conscious experience.
In summary, the theory of values defines core values as desirable trans-situational goal strivings, of varying importance, that act as overarching and guiding principles in people’s lives (Bilsky & Schwartz, 1994; Rokeach, 1973; Schwartz, 1996, 2007). Core values are also central to our sense of self and represent standards for moral and ethical action (Bilsky & Schwartz, 1994; Rokeach, 1973; Schwartz, 1996, 2007). Furthermore, core values, and particularly values systems, have been argued as being central to the concept of morals and ethics, including environmental ethics (Rokeach, 1973; Schwartz, 2007). Therefore, examination of these value systems, as relative value priorities, is essential for a more complete understanding of the psychology of a pro-environmental or ecological worldview, as a form of altruistic and thus moral orientation. The links between value systems and value priorities\(^\text{18}\) are considered in the following section.

### 3.4 Value Systems and Value Priorities

Schwartz and colleagues over decades of cross cultural research have built upon the work of Rokeach and argued that value systems or value structures are indicative of an individual’s set of value priorities, that is, those values that are most important to the individual (Schwartz, 1994, 1996; Schwartz & Bilsky, 1987; Schwartz & Boehnke, 2004). Schwartz (1996) and Rokeach (1973) both believed in the importance of the relative priority given to particular values in predicting behaviour by suggesting that when different values are in conflict in a specific situational context some values are more likely to enter awareness than others (i.e. become activated or salient) and, thus, will be used as the primary guiding principles for behaviour within that particular context. Furthermore, value systems, consisting of the set of relative priorities assigned to different values and values types, have been found to have more predictive power in terms of human attitudes and behaviour than single values alone (Bilsky & Schwartz, 1994; Schwartz, 1996).

For example, Schwartz (1992, 1994, 1996) reported that individuals will hold some values and particularly some types of values as being more important than others. It is the relative importance or priority of values and values types within the person’s values structure that Schwartz (1992, 1994, 1996) has said defines their

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\(^{18}\) Value priorities are the relative importance assigned to particular values and values types.
individual attitudinal and behavioural profile. This is especially evident when values are activated, and more particularly when they are in conflict, with higher priority values being more likely to predict behaviour than lower priority values (Schwartz, 1992, 1994, 1996). Moreover, this theory of values says that, in a particular situational context, there may be a number of tradeoffs among competing activated values within the individual’s values system and these tradeoffs allow us to more clearly understand and accurately predict human behaviour and attitudes (Schwartz, 1996). In this thesis, an ecological worldview has been argued as a pro-environmental orientation which assigns moral consideration to all of nature, rather than being just confined to other people and self. Therefore, understanding the tradeoffs among the relative priorities assigned to values concerned with the wellbeing of nature, the wellbeing of self, and the wellbeing of others within an environmentally relevant context, may provide a deeper insight into the psychological determinants of pro-environmental choice and behaviour, which is the primary aim of this research.

Understanding these relative tradeoffs also requires an understanding of the relationships between different types of values and, thus, the structure of value systems.

3.5 The Structure of Values Systems

As discussed in the previous section, it is through perceived competition between values in a given situation or context that values become activated or come into a person’s conscious awareness (Rokeach, 1973; Schwartz, 1996). If there is no activation of values, behaviour is likely to be driven more or less by habitual responses (Rokeach, 1973; Schwartz, 1996). Schwartz (1994, 1996), during extensive cross-cultural research into human values systems, has produced evidence of some universal consistencies in the interrelationships among the priorities assigned to individual value types. For example, the relative priority assigned to values which focus on self interest (e.g. social power and status, wealth and material possessions) have been consistently found to be in competition or conflict with the priority assigned to values which focus on the interests or wellbeing of others (e.g. being helpful, social justice, equality for all) (see for example Schwartz, 1994, 1996, 2007; Schwartz & Boehnke, 2004). Consistencies such as these allow researchers to construct a kind of two-dimensional map of the competing and congruent values and
value types, based on the systems of relative priorities assigned to each (Bilsky & Schwartz, 1994; Schwartz, 1992, 1994, 1996; Schwartz & Bilsky, 1987; Schwartz & Boehnke, 2004).

The theory of human values systems, developed by Schwartz et al, identify ten distinct types of values which appear to be consistent and recognisable across cultures, namely: power, achievement, hedonism, stimulation, self-direction, universalism, benevolence, tradition, conformity, and security (Bilsky & Schwartz, 1994; Schwartz, 1992, 1994, 1996; Schwartz & Bilsky, 1987; Schwartz & Boehnke, 2004). Table 3.1 provides a summary of definitions of the motivational goals of each of these ten value types, as well as a list of individual value items which are used to measure each of these value types (in italics) in empirical research.

Schwartz et al. examined the relationships among the different values types, and identified four higher order value types, or values clusters19, which emerged empirically through their research into groups of particular value types (Bilsky & Schwartz, 1994; Schwartz, 1992, 1994; Schwartz & Boehnke, 2004). This research revealed that some particular value types are more related to each other than they are to other value types, and these related value types form higher order value types or values clusters (Bilsky & Schwartz, 1994; Schwartz, 1992, 1994; Schwartz & Boehnke, 2004; Stern & Ditez, 1994). For example, the stimulation values type (e.g. a varied life, an exciting life) and the self direction values type (e.g. curious, freedom) (refer Table 3.1) are related to each other conceptually and empirically. Together these two values types form a higher order value type called openness to change (Bilsky & Schwartz, 1994; Schwartz, 1992, 1994). Similarly, the value types of security (e.g. family security, national security), conformity (e.g. self-discipline, honouring parents and elders) and tradition (e.g. respect for tradition, devout) are related to each other and form the higher order value type of conservation.20 In the same way, the higher order value type of self-enhancement includes both power (e.g. authority, wealth, social power) and achievement value types (e.g. ambitious, influential), and the higher order value type of self-transcendence includes benevolence (e.g. honest, loyal, responsible) and universalism value types (e.g.

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19 The term used by Stern and Dietz (1994).
20 Conservation was the term used by Schwartz et al. to mean conservatism. Stern et al (1998) renamed this higher order value type conservatism to better reflect its meaning and to differentiate it from environmental conservation.
equality, social justice, unity with nature, protecting the environment) (Schwartz, 1994; Schwartz & Boehnke, 2004).

Table 3.1.
*Definitions of value types and indicative individual value items (in parenthesis)*

<table>
<thead>
<tr>
<th>Value type</th>
<th>Definition</th>
<th>Value items associated with value type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power:</td>
<td>Social status and prestige, control or dominance over people and resources</td>
<td>(authority, social power, wealth, preserving my public image)</td>
</tr>
<tr>
<td>Achievement:</td>
<td>Personal success through demonstrating competence according to social standards</td>
<td>(ambitious, successful, capable influential)</td>
</tr>
<tr>
<td>Hedonism:</td>
<td>Pleasure or sensuous gratification for oneself excitement, novelty, and challenge in life</td>
<td>(pleasure, enjoying life, self-indulgent)</td>
</tr>
<tr>
<td>Stimulation:</td>
<td>independent thought and action – choosing, creating, exploring understanding, appreciation, tolerance, and protection for the welfare of all people and for nature preservation and enhancement of the welfare of people with whom one is in frequent personal contact respect, commitment, and acceptance of the customs and ideas that traditional culture or religion provide restraint of actions, inclinations, and impulses likely to upset or harm others and violate social expectations or norms</td>
<td>(creativity, freedom, independent, choosing own goals, curious) equality, social justice, world at peace, wisdom, broadminded, protecting the environment, unity with nature, a world of beauty)</td>
</tr>
<tr>
<td>Self-direction:</td>
<td></td>
<td>(helpful, honest, forgiving, loyal, responsible)</td>
</tr>
<tr>
<td>Traditions:</td>
<td></td>
<td>(devout, respect for tradition, humble, moderate)</td>
</tr>
<tr>
<td>Conformity:</td>
<td></td>
<td>(self-discipline, politeness, honoring parents and elders, obedience)</td>
</tr>
<tr>
<td>Security:</td>
<td></td>
<td>(family security, national security, social order, clean, reciprocation of favors)</td>
</tr>
</tbody>
</table>
Within this overall structure of higher order value types, Schwartz et al demonstrated that there are clearly identifiable congruencies and antagonisms amongst the underlying relationships between value types and their individual constituent values (Bilsky & Schwartz, 1994; Schwartz, 1992, 1994; Schwartz & Boehnke, 2004). For example, the pursuit of universalism values and benevolence values are congruent\(^{21}\), but are also antagonistic\(^{22}\) to the pursuit of power values. This example of an antagonistic relationship appears logical since the former values place emphasis on the goals of others or concerns beyond one’s self (i.e. they have a self-transcendent quality), whereas the latter place emphasis on the goals of self in competition with others (i.e. self-enhancing) (Bilsky & Schwartz, 1994; Schwartz, 1996, 2007; Schwartz & Boehnke, 2004). In contrast, the pursuit of self-direction values and stimulation values are congruent as both are identified as concerned with openness to change and with goals for self, but not in competition with others (Bilsky & Schwartz, 1994; Schwartz, 1996; Schwartz & Boehnke, 2004).

Using a technique called smallest space analysis Schwartz et al. developed a circular two dimensional model\(^{23}\) of the interrelationships between all of these values types and their corresponding higher order value types (e.g. Bilsky & Schwartz, 1994; Schwartz, 1996). A simplified version of this model is illustrated in Figure 3.1. The congruent higher order value types are represented graphically in this model as adjacent to each other, and the antagonistic or conflicting higher order value types are represented as opposite to each other in the two dimensional circular model (refer Figure 3.1). For example, stimulation and self-direction value types (i.e. higher order value type of openness to change) are presented in opposition to security, conformity and tradition value types (i.e. the conservation\(^{24}\) higher order value type). Similarly, power and achievement (i.e. self-enhancement) are in opposition to benevolence and universalism (i.e. self-transcendence) in the model (refer Figure 3.1). This underlying structure of values and higher order values types has been found by Schwartz (1992,

\(^{21}\) Positively related
\(^{22}\) In conflict with each other and negatively related
\(^{23}\) Schwartz et al. called this a quasi-circumplex model. This two dimensional circular model, illustrated in Figure 3.1, results from the particular analytical technique used by Schwartz et al. However, the body of the text in this section explains the key concepts underpinning this model.
\(^{24}\) Stern et al. who later adapted Schwartz values list for environmental research purposes changed the name of the “conservation” higher order value type, which has environmental connotations, to “conservatism” to better reflect its meaning.
1994, 1996), and recently by Schwartz and Boehnke (2004), to be highly consistent across cultures, and thus is thought to be relatively universal in nature.

![Theoretical structure of relationships among values types.](image-url)


**Figure 3.1.** Theoretical structure of relationships among values types.

The model presented in Figure 3.1 visually summarises the relationships among the four higher order value types, consisting of self-transcendence and its opposite self-enhancement, as well as openness to change and its opposite conservation (Schwartz used conservation in the sense of conservatism)\(^{25}\). The self-transcendence higher order value type, including universalism and benevolence values, is focused on the wellbeing of other and is thus other-acknowledging. In contrast, the higher order value type self-enhancement, including power, achievement and hedonism values, is focused on the wellbeing of self in competition with other. The higher order value type of openness to change, including primarily stimulation and self-direction values, is focused on open engagement in the world, creativity, challenge, and taking responsibility for self, but not in competition with others.

\(^{25}\) The spokes in the diagram in Figure 3.1 result from the type of analytical technique used by Schwartz to map the relationships between the values types in a two dimensional model.
Whereas the higher order value type conservation or more appropriately conservatism, including tradition, conformity, safety and security values, is focused on security and safety of self and community, respect for tradition and predictability.

Therefore, in terms of understanding the values basis of human moral and ethical systems, this model demonstrates the fundamental conflict between self-enhancement and self-transcendent higher order value types, which include those values found to be relevant to altruistic behaviour (Schwartz, 2007). For example, benevolence and universalism values types from the self-transcendent higher order value type are generally considered to be moral values, whereas power and achievement values types from the higher order value type of self-enhancement are not (Schwartz, 2007; Stern et al, 1998). In earlier sections of this chapter it was argued that when values are in conflict it is the relative trade-offs among the competing values that will be more likely to predict behaviour than individual values. Therefore, understanding the congruencies and antagonistic (i.e. conflicting) relationships between different types of values will be more likely to yield a deeper understanding of moral and ethical behaviour, including pro-environmental behaviour, than simply examining the influences of single values alone. This is particularly important because understanding a pro-environmental orientation including pro-environmental behaviour is central to this present research.

The patterns of congruent and antagonistic relationships amongst higher order value types and their underlying individual values are demonstrated and supported by their inter-correlations, with congruent relationships expressed by positive correlations, and antagonistic relationships expressed by negative correlations (Schwartz, 1994; Schwartz & Boehnke, 2004). Depending on how far apart, or close to each other, value types are in this circular structure, correlations vary in both magnitude and direction. Moving from a particular starting point (say benevolence values), correlations will move from stronger positive (e.g. congruent universalism values) through little relationship (e.g. stimulation values) to stronger negative (e.g. antagonistic power values), back through little relationship (e.g. security values) to positive (e.g. relatively congruent conformity values) - See Figure 3.1. Thus these value types and their individual value items form a type of motivational continuum which allows researchers to use whatever value type combinations are most suited to their topics of study (Schwartz & Boehnke, 2004). In this present research, the focus
is on determining those value types and combinations which are the most important influences on environmental altruism and ethics.

As previously discussed, Schwartz (2007) argued that it is the self-transcendent cluster\textsuperscript{26}, including \textit{benevolence} and \textit{universalism} value types (see Figure 3.1), which incorporates most of humanity’s moral and ethical concerns. This can be seen by examining the value items that form part of this higher order value type because these values consist of standards or guiding principles for behaviour which go beyond mere self-interest (e.g. equality, social justice, protecting the environment, unity with nature, honest, loyal). Moreover, Schwartz (1992) stated that some value types are conceptually broader than others. For example, \textit{universalism}, as part of the self-transcendent values cluster, has a broad motivational goal of understanding, appreciating, and protecting the welfare of all people on the one hand, and nature on the other (Schwartz, 1992; Schwartz & Boehnke, 2004). Thus, there are two separate sub-types within the \textit{universalism} value type, one focusing on social concern and one on concern for nature. Empirical support for the validity of two sub-types within universalism has been consistently found in previous research (Schwartz, 1994; Schwartz & Bilsky, 1994; Schwartz & Boehnke, 2004). For this reason, Schwartz and Boehnke (2004) proposed that separate indices for each of these different subtypes (i.e. world at peace, equality, social justice for the \textit{social concern} sub-type; and, protecting the environment, unity with nature, world of beauty for the \textit{nature} sub-type) might be useful for particular circumstances such as investigating environmental issues (p. 252). Since part of this research seeks to determine the influence of core values on tourists’ choice and behaviour, especially in relation to pro-environmental behaviour, the use of the nature index of the universalism value type is considered particularly relevant for the empirical phase of the research, which is described in Part II of this thesis.

A group of psychologists, working in the field of environmental or conservation psychology has used Schwartz’s theory of values to investigate the determinants of environmental altruism (e.g. Stern & Dietz, 1994; Stern, Dietz, & Kalof, 1993; Stern, Dietz, Kalof, & Guagnano, 1995; Stern et al., 1998). They extended and applied the theory of the structure of values systems and also a model of social altruism developed by Schwartz and colleagues to predict pro-environmental

\textsuperscript{26} Higher order value type
behaviour and intentions (Dietz et al., 2005; Dietz, Stern, & Guagnano, 1998; Stern & Dietz, 1994; Stern, Dietz, Abel, Guagnano & Kalof, 1999; Stern et al., 1998). Stern, Dietz, and colleagues found evidence that the \textit{self-transcendent} higher order values type and the \textit{self-enhancement} value type were those that were closely related, albeit in opposite ways, to pro-social ethical and moral considerations, including environmentalism (Dietz et al., 2005; Stern & Dietz, 1994; Stern et al., 1999; Stern et al., 1998). They used both Schwartz’s social concern and nature values sub-types of universalism, together with values from the self-enhancement higher order value type, to develop a theory of environmental values and value orientations. This theory proposed the core value determinants of environmental altruism and pro-environmental behaviour as outcomes of human moral consideration (e.g. Stern & Dietz, 1994; Stern et al., 1999; Stern et al., 1998). Higher order values types openness to change and conservatism have been found to have no relationship with environmental altruism (e.g. Stern et al., 1998). The next section of this chapter examines the theory of environmental values and value orientations in more detail.

\subsection*{3.6 Values and Environmental Altruism}

As previously stated, core values have been defined as those that represent important guiding principles for an individual’s behaviour (Rokeach, 1973). These values are central to our sense of self and have been demonstrated to predict context specific attitudes and behaviours (Rokeach, 1973; Schwartz, 1994). Values have been useful in predicting human behaviour over a range of contexts and situations and, therefore, value systems which have strong valency or perceived importance within an individual’s motivational schema will be better predictors of behaviour, including pro-environmental behaviours and choices, than those with weak valency (Rokeach, 1973; Feather, 1995). It is for these reasons that values are considered particularly useful for understanding altruistic behaviour that is norm based, including environmental behaviour that is driven by ethical concerns (Dietz & Stern, 1995). Feather (1995) has signalled the importance of values in understanding environmental ethics, and has argued that strong pro-environmental values, that is, those that are given high priority, are better predictors of pro-environmental behaviours and choices than either environmental knowledge and beliefs, or pro-environmental attitudes.
Stern et al. have also supported this view that values are fundamental to understanding pro-environmental altruism, and therefore, over more than a decade, they have investigated a values basis for environmental concern, attitudes, and behaviour (Stern & Dietz, 1994; Stern et al., 1993; Stern et al., 1995; Stern et al., 1998). They developed a theory of environmental values which is an extension of Schwartz’s (1977; 1994) theory of universal value systems within the context of environmental issues. These environmental values and value orientations have been substantially tested in relation to their relative predictive power for pro-environmental beliefs and concerns, as well as attitudes and behaviours, as manifestations of environmental altruism (Schultz & Zelezny, 1998, 1999; Stern & Dietz, 1994; Stern et al., 1999; Stern et al., 1998; Stern et al., 1993; Stern et al., 1995). Stern, Dietz and colleagues have become convinced that environmental concern and resulting behaviour, as expressions of environmental ethics, are very firmly rooted in an individual’s value system and value orientation (Stern & Dietz, 1994; Stern et al., 1998; Stern et al., 1993; Stern et al., 1995). A person’s value orientation, in turn, is expressed by those values to which a person gives priority or considers relatively more important in relation to the other core values within their individual values system (Schwartz, 1994, 1996).

Values influence emotional attachment to choices because some value based rules have a strong moral or emotional component (Dietz & Stern, 1995). For example, Dietz and Stern (1995) have argued that individuals may be willing to make significant personal sacrifices when faced with moral issues. Furthermore, they will not deliberate over alternative choices of action once they have identified an action together with an expected outcome that triggers a moral value (Dietz & Stern, 1995, p. 270). In other words, when an individual cares about a particular moral issue, then they are more likely act decisively in accordance with that moral value. Deliberations about alternative choices of action (i.e. constant evaluations of the relative trade-offs) are more likely to occur when there is a situation which involves important value conflicts (Bilsky & Schwartz, 1994; Dietz & Stern, 1995; Schwartz, 1994, 1996). The more strongly held these conflicting values are, and the more conflict that is experienced between them, then the more deliberation there will be about alternative choices of action (Bilsky & Schwartz, 1994; Dietz & Stern, 1995; Schwartz, 1994, 1996). Conversely, if there is little or no conflict experienced, or there are clear value priorities in a given situation, there will be less deliberation concerning choices and
appropriate action. As argued by Dietz and Stern (1995), in these situations the resulting sense of obligation makes the choice a clearly moral one. In other words, the person must care about the valued object and the likely outcome, and how that outcome might affect the valued object (Dietz & Stern, 1995). That valued object may include nature. Therefore, it seems that when particular values are given more importance or assigned a higher priority within an individual’s values system, then this is a good indication of the issues that the individual cares most strongly about.

This research project seeks to examine the influence of environmental values, as an important aspect of an ecological worldview, on pro-environmental choice and behaviour. Therefore, examination of the relative priorities assigned to environmentally relevant values will be useful in developing an understanding of the determinants of environmental altruism.

### 3.7 Value Priorities and Environmental Altruism

Evidence from much of the research in this area has suggested that a pro-environmental orientation is based on the priority assigned to universalism values (Dietz et al., 2005; Stern et al., 1998). As previously discussed, these values are part of Schwartz’s self-transcendence higher order value type and comprise those values that are expressions of concern for issues beyond mere self-interest (Schwartz, 1996; Schwartz & Boehnke, 2004). Conversely, relative priority assigned to values within Schwartz’s self-enhancement higher order value type focusing on concerns for self-interest, is associated with less altruism, including environmental altruism (Dietz et al., 2005; Stern et al., 1998). This theory, as proposed by Stern Dietz and colleagues, suggests the existence of *three* environmentally relevant value orientations: biospheric, socio-altruistic, and egoistic.

The biospheric value orientation assigns high priority to the nature sub-type of the self transcendent universalism values type (Schwartz, 1992, 1994; Schwartz & Boehnke, 2004), described in earlier paragraphs. This nature sub-type has been termed *biospheric* values by Stern and colleagues. Some of the individual values included in the biospheric values type are: “unity with nature”, “protecting the environment”, “preventing pollution”, “respecting the earth”, and “a world of beauty” (Stern & Dietz, 1994; Stern et al., 1995; Stern et al., 1998). “Preventing pollution” and “respecting the earth” were added to the original nature sub-type of Schwartz’s
self-transcendence cluster and was empirically tested by Stern et al. in their research into values as predictors of pro-environmental attitudes, beliefs, behavioural intentions, including willingness to sacrifice, and behaviour. The socio-altruistic value orientation, as theoretically distinct from the biospheric value orientation, reflects a higher level of priority or importance being assigned to values in the social concern sub-type of the self-transcendence cluster (Schwartz, 1992, 1994; Schwartz & Boehnke, 2004), which Stern and colleagues termed socio-altruistic values (Stern & Dietz, 1994; Stern et al., 1995, Stern et al., 1998). Socio-altruistic values include individual value items such as: “equality”, “social justice”, “being helpful”, “being loyal”, and belief in “a world at peace” (Schwartz, 1994; Stern & Dietz, 1994). In contrast to both the biospheric and socio-altruistic value orientations, Stern et al.’s (1994, 1995) egoistic value orientation is derived from a high level of priority being assigned to values from Schwartz’s self-enhancement cluster. Stern and colleagues called these values egoistic values, and some of the associated individual value items include: “authority”, “social power”, “wealth”, and “being influential”.

The theory of environmental values, as developed by Stern and colleagues, is therefore seen to include three distinct value orientations as being relevant to a pro-environmental orientation and pro-environmental behaviour (Stern & Dietz, 1994; Stern et al., 1993; Stern et al., 1995). The two altruistic values sub-types, namely biospheric values and socio-altruistic values, have been associated with higher degrees of environmental altruism (Stern & Dietz, 1994; Stern et al., 1993; Stern et al., 1995). In contrast, stronger egoistic values have been associated with less environmental altruism (Stern & Dietz, 1994; Stern et al., 1993; Stern et al., 1995). However in much of the previous empirical research on environmental altruism, the first two orientations tend to be combined to represent a single prosocial altruistic value orientation, while the latter represents the self-enhancement or egoistic orientation (Stern & Dietz, 1994; Stern et al., 1993; Stern et al., 1998). In line with social psychological models of altruism, the altruistic value orientation predicts more pro-environmentally responsible behaviour than the egoistic orientation (Cameron, Brown, & Chapman, 1998; Stern & Dietz, 1994; Stern et al., 1993; Stern et al., 1998). However, due to this tendency of combining biospheric and socio-altruistic values into a single altruistic values type in much of the previous research, there has been a paucity of empirical evidence to support a differentiation between the biospheric and socio-altruistic values in respect to environmental issues, in spite of the theoretical
argument that distinguishes the former from the latter (Schultz, 2001; Steg, Drejerinke & Abrahamse, 2005; Stern, 2000b; Stern et al., 1995; Stern et al., 1999).

The theoretical argument for a distinction between these two altruistic type values is supported, in part, by the wording of the individual value items within these two values types. For example, if theoretical perspectives from environmental philosophy and environmental ethics (see Chapter Two) are applied to value statements, the biospheric values (e.g. unity with nature, respect for nature) imply a view consistent with the ecocentric or ecological perspective, whereby nature is seen as having intrinsic value and humans and nature are conceptualised as being interconnected. On the other hand, socio-altruistic values (e.g. equality, social justice) are more concerned with the wellbeing of humankind and make no specific mention of nature or human-nature relations per se. Moreover, in some of the previous research it has been possible to distinguish between biospheric and socio-altruistic types of concerns and beliefs, with the former predicting stronger pro-environmental attitudes and behaviour than the latter (Hansla, Gamble, Julissosn & Garling, 2008; Milford, Duckitt & Cameron, 2006; Schultz, 2001; Snelgar, 2006; Stern & Dietz, 1994; Stern et al., 1993; Stern et al., 1995). This distinction between the different types of environmental concerns and beliefs also lends support for the argument that the two corresponding underlying values types are distinct as well.

Both nature and social concern values sub-types originate from the universalism higher order value type as indicators of a self-transcendent worldview, and thus are congruent with each other. Conversely, the egoistic values originate from the self-enhancement higher order values type, and thus represent a worldview where priority is focused on self-interest over the interests of other. Therefore, a general self-transcendent value orientation27 is logically and empirically associated with altruism, and presumably also environmental altruism, and the reverse is associated with a self-enhancement or egoistic value orientation28. However, if Schwartz is correct in believing that the tradeoffs among relative priorities assigned to different values are better predictors of behaviour than individual values, then it could be that examining the relative priorities assigned to the socio-altruistic values separately from the priorities assigned to the biospheric values may produce a clearer picture of a values basis of environmental altruism. For example, in most cultures

27 Self-transcendent values are assigned relatively higher priority within an individual’s set of values.
28 Egoistic values are assigned relatively higher priority within an individual’s set of values.
people tend to hold values associated with the wellbeing of humanity as very important (i.e. they have relatively high priority). Yet, in regard to the importance of the wellbeing of nature, there are some who believe nature has intrinsic value and should be protected for its own sake (i.e. an ecocentric view). Others believe that it should be protected primarily because of its benefit to them personally or for humankind (i.e. an anthropocentric view). In a circumstance in which a person is asked to make some personal sacrifice in order to protect the environment (e.g. pay higher prices, or use public transport), those who believe nature should be protected because of some benefit to themselves or its worth to humans, would be likely to experience some conflict within their values system and, therefore, may require considerable cognitive deliberation before being willing to accept any personal sacrifice. Conversely, a person who feels more strongly about the wellbeing of nature for its intrinsic worth may experience little or no conflict in the same circumstances and, thus, may be more willing to make personal sacrifices in order to protect the environment with little or no deliberation involved. In other words, they may be more willing to do whatever it takes to ensure the protection of nature because of the high importance they place on its wellbeing.

Recent work by Nordlund and Garvill (2003) has reported that altruistic values and ecocentric attitudes influence the degree to which reduction of personal car use is perceived as a moral obligation to protect the environment. However, anthropocentric attitudes did not result in the same perceived moral obligation. Once again, this suggests a likely distinction between the ecocentric orientation and the anthropocentric orientation with respect to environmental altruism. However, Nordlund and Garvill (2003) did not assess these two separate orientations using separate measures of biospheric values as opposed to socio-altruistic values. Instead they used Thompson and Barton’s (1994) measure of environmental attitudes as a measure of ecocentrism versus anthropocentrism in determining these two environmental orientations. They also used value items from the Schwartz’s self-transcendent values cluster\textsuperscript{29} to determine a pro-environmental orientation, but none of these were from the nature index or sub-type (i.e. the biospheric values). Thus, Nordlund and Garvill (2003) have not tested for a differentiation between the biospheric and socio-altruistic values per se, in assessing environmental orientation,

\textsuperscript{29} Higher order value type.
but rather they used a surrogate of the two types of orientation in Thompson and Barton’s (1994) attitude scale. Amerigo, Aragones, de Frutos, Sevillano and Cortes (2007) took a similar approach and also used a modification of Thompson and Barton’s attitudes scale in their research. They, too, found some evidence that anthropocentrism, which they argued consisted of egoism and social altruism, was independent of biospherism and, therefore, they presumed also of ecological behaviour. However, as argued in section 3.2 of this chapter, values and attitudes are very different psychological constructs. Values have been argued to be more important for moral and ethical behaviour than attitudes. Therefore, using a measure of environmental attitudes as a surrogate for environmental value orientation seems inadequate for investigating the values basis of pro-environmental moral obligation and altruism, and for clearly differentiating between the biospheric orientation and the socio-altruistic orientation.

In contrast to Nordlund and Garvill (2003) and Amerigo et al. (2007), Steg et al. (2005) used four values items as indicators of each of the biospheric, socio-altruistic, and egoistic values types from Schwartz’s (1992) original values list in order to investigate the values basis of environmental beliefs, norms, and environmental judgements. Steg et al. (2005) found some evidence for differentiation between the biospheric values and the socio-altruistic values based on their respective predictive ability for pro-environmental beliefs. They found that biospheric values were more important for environmental beliefs than socio-altruistic values. Moreover, they found no significant relationship between socio-altruistic values and pro-environmental beliefs and concerns (Steg et al., 2005). Steg et al. have argued that these results support the relevance and importance of distinguishing between biospheric values and socio-altruistic values and suggest that future research confirming their differential relationships with pro-environmental beliefs and particularly behaviour would be of value. Therefore, during the empirical phase of this present research both the biospheric values and the socio-altruistic values of the self-transcendent or altruistic cluster are assessed separately in order to clearly determine their respective influences on pro-environmental choice and behaviour.

In contrast to the lack of clarity about the relative contribution of biospheric and socio-altruistic values to environmental altruism, there has been clear and consistent evidence in the literature that egoistic values are negatively related to both biospheric and socio-altruistic values and also to pro-environmental beliefs and
behaviour (Dietz et al., 2005; Schultz, 2000, 2001; Steg et al., 2005; Stern, 2000b; Stern et al., 1998). Thus, an egoistic value orientation appears to be an opposite worldview to a pro-environmental or ecological one.

In the previous sections of this chapter it was argued that core values, as those that represent guiding principles for behaviour are at the centre of human moral and ethical behaviour, including environmental ethics (see for example Rokeach, 1973; Schwartz, 1994, 2007). Moreover, in regard to the expression of environmental ethics through a pro-environmental psychological orientation, the so-called “environmentally relevant” values are thought to be the most significant values for predicting choice and behaviour (e.g. Stern et al., 1998). As previously discussed, according to the values basis theory of environmental orientation there are three basic environmental value orientations: the biospheric, the socio-altruistic, and the egoistic (e.g. Stern & Dietz, 1994; Stern et al., 1993; Stern et al., 1998). To date, the biospheric and socio-altruistic value orientations have not been empirically differentiated in any convincing way, even though the theory suggests that they are distinct from each other (e.g. Stern & Dietz, 1994; Stern et al., 1993; Stern et al. 1995). In much of the previous research that has been cited, when these two sets of values have been combined into a single altruistic or self-transcendent value type, stronger altruistic values have been found to be associated with more pro-environmentalism. In contrast, the egoistic value orientation has been associated with less pro-environmentalism. In an attempt to provide support for differentiation between the two types of altruistic values, Steg et al. (2005) tested biospheric and socio-altruistic values separately to assess their respective relationships with pro-environmental beliefs, and found some evidence that it is possible to distinguish between them empirically. However, this evidence for empirical differentiation was not extended to considering their respective influence on pro-environmental choice and behaviour (see Steg et al., 2005).

The empirical component of this research project extends this process of differentiation further by seeking to identify the particular importance of biospheric values as distinct from socio-altruistic values in determining the core psychological components of an ecological worldview, as one which places particular importance on protection of the natural environment. In turn, this research also aims to link tourists’ environmental value orientation with their choices and behaviour. As argued in Chapter Two the level of concern for preservation of the natural environment may be
dependent on the importance placed on biospheric values, as those concerned with the wellbeing and value of nature for itself. Tourists who are more morally and ethically conscious about environmental protection (i.e. hold stronger biospheric values) may also be more likely to seek out environmentally sensitive and responsible tourism experiences such as ecotourism. Lansing and De Vries (2007) have recently argued that so-called eco-friendly tourist offerings may be particularly attractive to consumers with pro-environmental values because of a clearly implied environmental ethics message inherent in those offerings. Moreover, Tao, Eagles and Smith (2004) reported that a pro-environmental orientation was one of the primary reasons for tourists to identify themselves as “ecotourists”. Thus, values segmentation using environmentally relevant values may be most useful in determining what drives tourists’ choices and preference for ecotourism versus mainstream or mass tourism, and also their propensity for pro-environmental attitudes and behaviour. The next section of this chapter examines the ways in which environmentally relevant values can best be measured so that such a measure can be used in the empirical phase of this research. Tourists’ values and the influence of these on their choices and behaviour will be examined as part of the second empirical study of the research which is described in Part II of this thesis.

3.8 Measurement of Environmentally Relevant Values

An important barrier to the wider use of Schwartz’s theory of values in social psychology has been the impracticality of administering the full 56 item instrument in survey research (Stern et al., 1998), particularly when looking for relationships between these values and other variables. This barrier has been addressed by Stern et al who sought to develop a more parsimonious instrument which also yields reliable and valid scores for each of the four major value clusters or higher order value types. They argued that the development of such an instrument was likely to result in more empirical studies into the role of values in social psychological processes (Stern et al., 1998, p. 986). To that end, Stern et al developed a shortened version of Schwartz’s individual values list so that there was sufficient brevity and reliability to make it more widely applicable. They considered this brevity to be especially important for research into the relationship of these values and values clusters to beliefs, behaviours, and other psychological phenomena of interest (Stern et al., 1998). A
short summary of the development of this Brief Inventory of Values (BIV) is outlined in the following paragraphs.

As indicated briefly in the foregoing paragraph, the Brief Inventory of Values (BIV) developed by Stern et al. (1998) is based on Schwartz’s (1992, 1994) value types and their corresponding higher order value types within his original values list (see section 3.5 and Figure 3.1). This shorter version of the values list consists of 15 items representative of each of the four major higher order value types or clusters, namely: self-transcendence, openness to change, self-enhancement, and conservation (Stern et al renamed conservation as conservatism to better reflect its meaning). This Brief Inventory of Values has been demonstrated to be a useful predictor of criterion variables such as consumer behaviour, political behaviour, and willingness to sacrifice (i.e. willingness to pay to protect the environment) (Stern et al., 1998). A list of these value items and the corresponding higher order values types or clusters is outlined in Table 3.2 below.

Table 3.2.

<table>
<thead>
<tr>
<th>Brief Inventory of Values (BIV) – Stern et al. (1998)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Protecting the environment, preserving nature (self-transcendent biospheric values)</td>
</tr>
<tr>
<td>2. Unity with nature, fitting into nature (self-transcendent biospheric values)</td>
</tr>
<tr>
<td>3. Respecting the earth, harmony with other species (self-transcendent biospheric values)</td>
</tr>
<tr>
<td>4. A world at peace, free of war and conflict (self-transcendent altruistic values)</td>
</tr>
<tr>
<td>5. Social justice, correcting injustice care for the weak (self-transcendent altruistic values)</td>
</tr>
<tr>
<td>6. Equality, equal opportunity for all (self-transcendent altruistic values)</td>
</tr>
<tr>
<td>7. Honoring parents and elders, showing respect (conservatism or traditional values)</td>
</tr>
<tr>
<td>8. Family security, safety for loved ones (conservatism or traditional values)</td>
</tr>
<tr>
<td>9. Self-discipline, self-restraint, resistance to temptation (conservatism or traditional values)</td>
</tr>
<tr>
<td>10. Authority, the right to lead or command (self-enhancement or egoistic values)</td>
</tr>
<tr>
<td>11. Influential, having an impact on people and events (self-enhancement or egoistic values)</td>
</tr>
<tr>
<td>12. Wealth, material possessions, money (self-enhancement or egoistic values)</td>
</tr>
<tr>
<td>13. A varied life, filed with challenge, novelty, and change (openness to change values)</td>
</tr>
<tr>
<td>14. An exciting life, stimulating experiences (openness to change values)</td>
</tr>
<tr>
<td>15. Curious, interested in everything, exploring (openness to change values)</td>
</tr>
</tbody>
</table>

Throughout the rest of this thesis “conservatism” is the name used for this higher order value type or cluster according to Stern et al.’s (1998) recommendations.
Stern et al. (1998) have suggested that researchers who wish to investigate environmental issues or to distinguish biospheric from altruistic values, such as in this present research project, may find it useful to include six items, three biospheric and three socio-altruistic, in the self-transcendence cluster (as specified in Table 3.2). Through empirical testing of their respective psychometric properties, Stern et al. (1998) settled on three particular items: “a world at peace, free of war and conflict”; “social justice, correcting injustice, care for the weak”; and “equality, equal opportunity for all”, to represent the socio-altruistic value sub-type, and the three items: “protecting the environment, preserving nature”; “unity with nature, fitting into nature”; and “respecting the earth, harmony with other species”, to represent the biospheric value sub-type of the self-transcendence cluster.

Figure 3.2 illustrates the relationships between the 15 items in the Brief Inventory of Values (BIV) and where they fit in Schwartz’s values structure with respect to the higher order value types or clusters (see also Figure 3.1).


Figure 3.2. Theoretical structure of the relationships between the 15 items of the BIV in terms of Schwartz’s higher order value types.
As argued in the earlier sections of this chapter, values are not dependent on situational context (Rokeach, 1973), and have been found to be strong motivators for most behaviours and choices (Rokeach, 1973; Schultz et al., 2005; Schultz & Zelezny, 1998; Schwartz, 1996), including leisure pursuits such as travel and tourism (Pitts & Woodside, 1986; Blamey & Braithwaite, 1997). Moreover, Kortenkamp and Moore (2001) and also Deng, Walker, and Swinnerton (2006) have argued that people’s dominant environmental value orientations significantly influence environmental concerns and reasons for decision making and choices pertaining to environmentally relevant issues. However, as discussed in Chapter Two, the extant literature from the disciplines of social and environmental psychology, and the well grounded theoretical models of the values basis for human decisions and behaviour, have not been applied to the study of environmentally sustainable tourism, particularly ecotourism. This is surprising considering the relevance of environmental conservation and protection to the viability of ecotourism and thus the importance of understanding the psychology of the consumer of those experiences. Ecotourism has been previously defined as a form of nature-based tourism which emphasises direct nature experiences, during which the tourist expects to learn more about nature through immersion in the natural environment (Kimmel, 1999; Page & Dowling, 2002; Stronza, 2001; Weaver, 2001a, 2001b). Furthermore, as argued in Chapter Two, the concept of ecotourism implies that consumers who prefer to engage in nature-based experiences of this type, and seek to understand and appreciate them, might also embrace an ethical commitment to protect the natural environment (Rolston, 1991; Stronza, 2001; Weaver, 2001a). The following section of this chapter presents an overview of what is currently known or assumed about the ecotourist in comparison to the mainstream or mass tourist in terms of their respective psychological profiles. Some inferences are also drawn about their respective underlying environmental value systems as determinants of their choices, attitudes and behaviours, and these will be tested during the empirical phase of this research.

3.9 Environmental Value Systems of Tourists

Tourism scholars have previously characterised some of the motivations of particular types of tourists including ecotourists, but, while the findings have been
useful, there has been minimal empirical evidence to support or refute many of the claims made (Dolnicar & Leisch, 2008; Fennell, 2003; Sharpley, 2006; Tao et al., 2004). However, researching the psychological characteristics of ecotourists is neither simple nor clear cut, because of the diversity of experiences sought by different types of tourists within a particular setting at a particular point in time (Wearing & Neil, 1999). Therefore, there may be different value systems (i.e. value priorities) evident within different tourist market segments, including the ecotourist market segment (Page & Dowling, 2002). Wheeller (2005) has argued that the observed heterogeneity within the ecotourist market is likely, at least in part, to be the result of mixing the “true” ecotourist, as a consistent consumer of environmentally responsible tourism, with the “occasional” consumer of ecotourism who is simply looking for a novel or ego experience (e.g. the so-called “ego-tourist”).

Ego-tourists have been defined as having commonalities with mass or mainstream tourists, in that they tend to travel to satisfy leisure, pleasure, and recreational needs, as well as to fulfil a desire for escape and novelty (Page & Dowling, 2002; Wheeller, 2005). Furthermore, these tourists may feel that since they have paid a premium for a tourism experience they have a right to use the resources in any way they see fit (Page & Dowling, 2002; Wheeller, 2005). Conversely, so-called “true” ecotourists have been said to travel primarily to experience unspoilt natural environments, seem more tolerant of relatively primitive conditions and unfamiliar territory, as well as demonstrate more concern about their impact on natural environments (Fennell, 2003; Page & Dowling, 2002). Therefore, some researchers have proposed that tourists with a stronger pro-environmental psychological orientation may be more likely to choose destinations and show preferences consistent with authentic (i.e. harder) ecotourism such as visiting national parks, as well as preferring fewer man-made facilities, more wildlife and vegetation, and fewer people (Eagles, 1992; Uysal et al., 1994; Weaver, 2002). These types of tourists are also thought to oppose attitudes of human domination over nature, and to be more concerned about the balance of nature (Eagles, 1992; Kimmel, 1999; Uysal et al., 1994). Some previous investigations of these types of tourists have revealed that many seem to have more distinct and probably stronger travel motivations than mass or mainstream tourists and also have strongly held views on what is desirable in travel (Eagles, 1992; Page & Dowling, 2002). Most have been reported as showing more interest in nature in its own right, and in learning about nature in wilderness settings.
They also do not seek luxurious accommodations, food, or nightlife, but are happy to accept and appreciate local conditions, culture and food (Eagles, 1992). Such preferences appear less consumptive in nature, which suggests a more altruistic or self-transcendent orientation (i.e. beyond mere self-interest) when making travel decisions.

Furthermore, so-called “ecotourists” have been found to be less interested in gambling, amusement parks, nightlife, big cities, watching sports, doing nothing, indoor sports, shopping and resort areas than mainstream or mass tourists (Eagles, 1992; Juric et al., 2002). The converse is said to be true of mainstream tourists (Eagles, 1992; Juric et al., 2002). The apparent lack of interest of ecotourists in gambling, shopping, nightlife and similar tourism activities suggests that ecotourists may be particularly uninterested in pursuing activities that simply promote hedonism or egoistic concerns. This structure of preferences for certain activities and relative disinterest in others provides some evidence that those who are more interested in ecotourism may hold stronger self-transcendent value orientations and weaker self-enhancement or egoistic value orientations than tourists who are more interested in mainstream type tourism experiences.

While it has been proposed that ecotourists may hold stronger pro-environmental values and attitudes than the general population, including those who prefer more mainstream tourism (Ballantyne & Eagles, 1994; Luzar et al., 1995, 1998; Weaver & Lawton, 2002a; Tao et al., 2004), empirical support for this hypothesis using well-grounded psychosocial theoretical models of value systems is lacking (Dolincar & Leisch, 2008; Fennell, 2001; Sharpley, 2001, 2006; Singh, Slotkin, & Vamosi, 2007; Stronza, 2001). Therefore, examination of environmentally relevant core values systems and other related pro-environmental psychological characteristics of the tourist consumer will contribute to a more complete understanding and better differentiation of those who are positively disposed towards responsible and environmentally sensitive tourism consumption (Fennell, 2003; Sharpley, 2006; Singh et al., 2007; Winter, 2007). While both the biospheric and socio-altruistic values are those most associated with an altruistic orientation, and thus presumably environmental altruism, it is important to determine whether or not biospheric values are more influential in this regard than socio-altruistic values.

As discussed previously, there has been limited empirical evidence for the differentiation of the two related altruistic value orientations (i.e. biospheric and
socio-altruistic) in spite of these values sub-types being considered separate in theoretical terms (Milfont et al., 2006; Schultz, 2001; Stern et al., 1998). Stern et al. proposed that the biospheric value orientation may emerge as distinct from a socio-altruistic value orientation in different populations, one of which might be those who care about and are more interested in the natural environment. Such populations could include consumers who are more interested in authentic ecotourism type experiences as one manifestation of their psychological orientation. If the so-called “true” ecotourists are defined by their particular interest in learning about and experiencing nature directly, as well as their commitment to protection of the natural environments, as demonstrated by their lower consumption patterns and lower demand for facilities, then an implied ethical or altruistic quality to their motivations seems emergent. This also parallels the ethical attribute of many authentic and accredited ecotourism providers who commit to principles and practices which support environmental and socio-cultural preservation and sustainability. Thus, it seems reasonable to assume those who place higher value on environmental protection for its own sake (i.e. stronger biospheric values) will be more interested in and have a greater desire for contact with nature, and their corresponding motivation to engage in nature-based leisure experiences, including ecotourism, is likely to be stronger.

The primary research question of this research involves determining whether or not an ecological worldview, which includes pro-environmental values (as well as feelings of love and care towards nature), significantly influences pro-environmental behaviours and choices. Therefore, one of the main research objectives is to determine the relative influence of pro-environmental values (as compared with other environmentally relevant values) on tourists’ behaviours and choice, including preferences for ecotourism over mainstream tourism experiences. However, to date there has been no empirical link made between environmental value orientations and the motivations of ecotourists when compared with mainstream or mass tourists. This present research seeks to redress this gap in the literature and proposes that those consumers who are more interested in authentic and accredited ecotourism type experiences may hold a distinct biospheric value orientation, as an expression of their environmental ethics, when compared with those who are more interested in mainstream type tourism experiences. Moreover, tourists who assign particular importance to biospheric values may also express stronger pro-environmental
attitudes, engage in more pro-environmental behaviours, and be more willing to make personal sacrifices to protect the environment than those who consider biospheric values to be less important. This leads to the first hypothesis of this research that will be addressed in the second empirical study discussed in Part II of this thesis (see Chapter Eight):

**Hypothesis 1 (H1):** Stronger biospheric values will have a positive relationship with tourists’ pro-environmental attitudes, behaviours, willingness to pay, and choices including interest in ecotourism.

As discussed previously, past research has tended to argue that all altruistic type values are associated with pro-environmental attitudes and behaviours (e.g. Schultz et al., 2005; Schultz & Zelezny, 1999; Stern et al., 1995; Stern et al., 1998), as a result of their having been tested primarily as a single altruism values type. However, as discussed previously there has been a paucity of evidence differentiating between biospheric values and socio-altruistic values as two distinct types of values in relation to their respective importance in influencing pro-environmental behaviour. Very recent research has presented some indication that socio-altruism, in terms of concerns and attitudes, has little or no relationship with pro-environmental beliefs, and possibly also little or no relationship with ecological behaviour (e.g. Amerigo et al., 2007; Deng et al., 2006; Snelgar, 2006; Steg et al., 2005). Yet there is still no systematic investigation of the role, if any, of socio-altruistic values in determining ecological behaviour and intentions. Indications for a lack of effect of socio-altruistic concerns and attitudes on pro-environmental beliefs, and possibly also behaviour, could be viewed as signalling a similar lack of relationship between corresponding underlying values and environmentally relevant behaviour and intentions. This leads to the second hypothesis of this research, which will be addressed in the second empirical study discussed in Part II of this thesis (see Chapter Eight):

**Hypothesis 2 (H2):** Stronger socio-altruistic values will have little or no relationship with tourist pro-environmental attitudes, behaviours, willingness to pay, and choices including interest in ecotourism.
Over more than a decade of research into environmentally relevant values, egoistic values have been found to be consistently associated with weaker environmental beliefs and attitudes, lesser propensity for pro-environmental behaviour and less willingness to pay to protect the environment. That is, these values are negatively associated with a pro-environmental orientation (e.g. Schultz et al., 2005; Schultz & Zelezny, 1998, 1999; Stern et al., 1998). However, no empirical research has investigated whether egoistic values are associated with particular types of tourism choices and preferences, or tourism specific attitudes (e.g. consideration of personal impact, or resource use in tourism activities). If, as argued previously in section 3.9, tourists who are more interested in ecotourism also report less interest in hedonistic pursuits such as gambling, shopping, and nightlife, and are less demanding of services, then they also seem to be exhibiting less egoism. Therefore, it might be assumed that greater interest in ecotourism might be associated with a lower priority being assigned to egoistic values. In turn, because of the findings of previous research (not associated with tourism), it could also be expected that egoistic values are also related to weaker pro-environmental beliefs, attitudes, and behaviours, both within a tourism context as well as day to day life. Similarly, relative priority assigned to egoistic values would also be expected to be associated with less willingness to make personal sacrifices to protect the environment. This leads to the third hypothesis to be tested during the empirical phase of this research (see Chapter Eight for the results):

**Hypothesis 3 (H3):** Stronger egoistic values will have a negative relationship with tourist pro-environmental attitudes, behaviours, willingness to pay, and choices, including interest in ecotourism.

Figure 3.3 presents a graphical representation of the hypothesised relationships proposed in Hypotheses one, two and three, which will be tested during Study Two of the empirical phase of this research.
3.10 Conclusion and the Affective Counterpart of Environmental Values

This chapter has presented a case for the importance of values and value priorities as determinants of moral and ethical behaviour. In particular, environmentally relevant values are argued to be the most important to understanding the psychology of an ecological worldview. Ecotourism, with its emphasis on direct experiences in nature and commitment to environmentally sensitive and responsible offerings, is a context which is seen to be pertinent for identification of the influence of environmental values on tourists’ choices for particular types of tourism experiences as well as their commitment to environmental protection. Moreover,
biospheric values that are specifically concerned with the wellbeing of nature are proposed to have the most significant influence on pro-environmental commitment, choice and behaviour. In contrast, relative stronger egoistic values are considered to be associated with less interest in ecotourism type experiences and with less commitment to environmental protection expressed through tourists’ beliefs, attitudes, and behaviour.

However, in Chapter Two it was argued that an ecological worldview consists of two key components: pro-environmental values and their emotional correlate, love and caring for nature. Several researchers have sought to understand the more cognitive aspects of a pro-environmental orientation, including values, beliefs, and concerns and also the behavioural aspects (e.g. Schultz, 2000, 2001, 2002; Schultz & Zelezny, 1998; Stern et al., 1995; Thompson & Barton, 1994). However, the affective or emotional component of a pro-environmental orientation has been the subject of limited research. In particular, there has been little systematic investigation of the relationship between environmental values and value systems and the emotional aspect of a pro-environmental orientation, expressed as empathy towards nature, wonder, fascination or awe, and a sense of deep caring about the natural world.

There has also been little research into how to most effectively measure the emotional or affective component of an ecological worldview, and also how it influences behaviour. This is surprising considering several environmental educators and philosophers have suggested that the feelings generated as a result of interaction with the natural environment, or even when simply thinking about the environment, can be drivers of transformational change (Kellert, 1997; Kellert & Wilson, 1993; Miles, 1991; Roszak, 1995). Moreover, some argue that feelings have a more powerful effect on behaviour than strongly held beliefs (Kals, Schumacher & Montada, 1999; Schultz, 2002). It may be that feelings are what make an issue more personally relevant (Miles, 1991) and, therefore, more worthy of concern, care and action. Investigating not only environmentally relevant values systems in tourists but also extending existing theoretical social psychological models of a pro-environmental orientation to include the influence of love and caring for nature on tourist choices and behaviours will further deepen our understanding of the consumer. The next chapter reviews the literature surrounding the concept of love and care for nature, described extensively in environmental philosophy.
CHAPTER FOUR: AN ECOLOGICAL WORLDVIEW AND THE ELEMENT OF LOVE

… in the quest for a sustainable world, it doesn’t take long before even the most hard-boiled, rational, and practical persons, even those who have not been trained in the language of humanism, begin to speak with whatever words they can muster, of virtue, morality, wisdom and love [italics added] (Meadows et al., 1992, p. 232)

4.0 Introduction

The previous chapter examined the theory of core values and the importance of values for human moral and ethical behaviour. The environmentally relevant values were defined as those values types which are considered to be particularly important for environmental issues, including biospheric, socio-altruistic, and egoistic values types. The nature specific biospheric values were argued to be the most relevant to an ecological worldview which recognises the intrinsic value of nature and, thus, also influences pro-environmental altruism31 and ethics. The three environmental value orientations, biospheric, socio-altruistic, and egoistic, were discussed in relation to pro-environmental commitment, behaviour, and tourist choices, including preferences for particular types of tourism experiences such as ecotourism.

However, as argued in Chapter Two, an ecological worldview is also related to the human emotional bond with nature and deep caring about nature. The importance of love and deep caring for moral action, including environmental ethics, was also introduced in Chapter Two in relation to the philosophy literature. Moreover, many environmental philosophers believe that strong emotional feelings of closeness and connection as well as love and compassion for nature are generated by direct experiences in the natural environment. This chapter builds upon the introduction to the concept of love and deep caring for nature outlined in Chapter Two and now presents a more detailed review of the literature. It is argued that this emotional

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31 Indicators of pro-environmental altruism include pro-environmental attitudes, beliefs, behaviours and behavioural intentions.
aspect of an ecological worldview, love and deep caring for nature, is a key component of such a worldview and, thus, is also a determinant of pro-environmental altruism and environmentally related choice. The first two sections of this chapter investigate the concept of “biophilia” and deep caring in the philosophy literature and also its relationship to an ecological worldview and, thus, environmental altruism and ethics. The construct of love and deep caring for nature is then examined from a psychological perspective including its association with psychological concepts of interconnectedness with nature and inclusion of nature within a person’s self-concept. The link between feelings of love and deep caring for nature and the human innate desire for direct contact with the natural environment, including participation in nature based leisure experiences such as ecotourism, is also argued. In the last section of this chapter a case for differentiation between so-called “true” ecotourists and mainstream or mass tourists on the basis of their respective psychological profiles is presented. This review of literature concerning the construct of love and caring for nature yields a number of hypotheses which will be tested during the empirical phase of this research presented in Part II of this thesis.

The chapter begins in the following section with an outline of the importance of the human emotional affinity with nature for development of an ecological worldview, as the foundation of environmental altruism.

4.1 An Ecological Worldview and Emotion

As discussed in Chapter Two, human beings are thought to have a deep seated need to feel a relation with nature, and it has been argued that direct contact with nature tends to immediately reconnect humans with a submerged world of sympathy long forgotten or ignored and to a life that connects us with all life (Kaplan & Kaplan, 1989; Rolston, 1993; Rosenblatt, 2000; Wilson, 1984). Furthermore, this emotional affinity with nature, also termed biophilia, has been argued as being fundamentally innate in humans (Fromm, 1964; Kellert & Wilson, 1993; Naess, 1989; Wilson, 1993), although responsiveness to this innate disposition may be increasingly difficult with rising levels of urbanisation which can alienate people from nature (Naess, 1989). In spite of this, it has been reported that 70% to 90% of the general population in highly urbanised Europe and the United States express some aspect of biophilia or affinity with nature, and believe that nature has a right to exist irrespective of its use
to humans (Van den Born, Lenders, De Groot, & Huijsman, 2001). As a manifestation of this innate emotional connection, people’s emotion-laden values towards different natural environments can play a distinct role in motivating political and other support to reduce the destruction of natural ecology and the extinction of living things (Ulrich, 1993).

This view has been supported by Callicott (1993) who believed, like his predecessor and philosopher, Hume, that ethical systems and morality are based primarily on feelings, and not on reason. Callicott (1993) asserted that Leopold’s land ethic, as an expression of environmental ethics, is the next stage of human moral evolution in which sympathy and “fellow-feeling” extend to fellow members of the biotic community (p. 10). Orr (1993, 2004) also believes that this fellow-feeling and extension of one’s moral concern towards nature is expressed through an all encompassing affinity for life, or biophilia. Orr (1993) goes on to argue that this extension of moral concern and fellow feeling has now become more of a deliberate choice for human beings, unlike in previous times when it was very much unconscious and necessary for survival. Moreover, he stated that in this modern era we must now “choose between biophobia and biophilia because science and technology have given us the power to destroy so completely as well as the knowledge to understand the consequences of doing so” (Orr, 1993, p. 417). The following section examines in more detail the concept of biophilia and its relationship with environmental ethics.

4.2 The Biophilia Hypothesis

The concept of biophilia was introduced in Chapter Two as a term first coined by Fromm (1964) to describe a psychological phenomenon of being attracted to all that is alive and vital. Simply put, it refers to a deep love of nature. Fromm (1964) said that biophilic ethics defines “good” as “a reverence for life, all that enhances life, growth, unfolding” (p. 47). The concept of biophilia is considered to be central to humanitarian ethics, with a creative and caring attitude toward all life being the pinnacle of human striving (Fromm, 1998). In Fromm’s (1998) description of the ideal “new man”, among the key qualities to be encouraged are:

32 Orr (2004) defines “biophobia” as aversion to nature, and is the culturally acquired urge to affiliate with technology, human artefacts, and solely with human interests regarding the natural world.
… love and respect for life in all its manifestations… (and) … sensing one’s oneness with all life, hence giving up the aim of conquering nature, subduing it, exploiting it, raping it, destroying it, but trying, rather, to understand and cooperate with nature (pp. 171-172).

Wilson (1984) uses the term biophilia in a similar sense when he says that biophilia is the “innate tendency to focus on life and life-like processes” (p. 1), and is forged by the interconnections or relationships, particularly emotional relationships, human beings subconsciously seek with the rest of life. Furthermore, he has argued that humans must “look at the very root of motivation and understand why, in what circumstances and on which occasions, we cherish and protect life” (Wilson, 1984, pp. 138-139). Wilson (1993) later proposed the possibility that the deep affiliations humans have with nature are rooted in our biology and that we are truly kin to other organisms. This concept of innate connectedness, including caring, and the seeking of a deep and intimate relationship with nature is what Wilson (1993) has termed the “biophilia hypothesis” (p. 31). According to Rolston (1993) an ethics based on the concept of biophilia is one based on “love for all forms of life” (p. 381).

Seamon (1984) has also advocated the importance of learning to develop emotional feelings and, specifically, a love for nature when he noted that: “love and responsibility for the earth cannot only be thought about cerebrally; they must be felt emotionally, with the heart” (p. 769). Seamon (1984) also maintained that the attribute of an environmental or land ethic in humans is best achieved by fostering more emotional contact and connectedness with the natural world. Several prominent environmental philosophers, including Leopold, believe that it is deep caring about the environment which may be the key to effecting change, as it represents an expansion of the individual’s circle of concern or compassion to encompass identification with all of humankind as well as nature (Clayton, 2003; Leopold, 1949/1987; Orr, 1993; Seamon, 1984; Wilson, 1993, 1994). It has been argued that this sense of deep caring also requires a commitment to act in the interests of both humankind and nature, a pledge for the protection of any or all when under threat (Leopold, 1949/1987; Orr, 1993, 2004; Seamon, 1984; Wilson, 1993, 1994). As Fien (2003) reminds us, we have to care enough to want to act.
According to Leopold (1949/1987), to truly effect an environmental or land ethic we need to fundamentally change our individual and collective psychology—“our intellectual emphasis, loyalties, affections [italics added], and convictions” (p. 210). Similar arguments have been made by Naess (1989) and Roszak (1995) who also believe that we need to extend our sense of community and caring to the natural world. If the conviction that caring is the essential element in the development of an environmental ethic is supported, it could be that caring may make the debate about the so-called “tragedy of the commons” in environmental issues redundant. The tragedy of the commons has been described by Hardin (1968) as the belief that the rational man’s primary actions of individual self-interest are in constant and necessary conflict with the resultant diminishing resources of the commons (which includes all of nature). In contrast to the values theory of moral altruism put forward by Rokeach and Schwartz, in a “tragedy of the commons” view, rational humans tend to focus primarily on self-interest, or egoism, and the commons is viewed merely as a means to an end rather than being of value as an end in and of itself. However, if this so-called “tragedy” can be mitigated by deep caring, then those who care about issues beyond mere rational self-interest, including concern for the environment, may be more willing to make personal sacrifices for the good of all including the whole biosphere.

Even though the construct of caring as correlate of a pro-environmental orientation is considered to be important in the ongoing quest for precursors and predictors of pro-environmental choices and behaviours (Kals & Maes, 2002; Miles, 1991; Schultz, 2002), investigation of this specifically emotional aspect of psychological connectedness to nature has been the subject of little empirical research. In contrast, cognitive manifestations of an environmental ethic in the form of pro-environmental values, beliefs, concerns and attitudes have been measured and empirically investigated by environmental psychologists over many years of research (Stern & Dietz, 1994; Stern et al., 1993; Stern et al., 1995; Dunlap & Van Liere, 1978, 1984; Dunlap et al., 2000). As previously mentioned, Schultz (2002), Schmuck and Schultz (2002), and Oskamp (2002) have all argued that a complete understanding of the psychology of the human emotional bond with nature is very important but nevertheless remains wanting. This deficiency is especially evident in regard to the influence of love and caring for nature on personal environmental ethics and behaviour as compared with the influence of more cognitive aspects of a pro-
environmental orientation such as beliefs. Moreover, Schmuck and Schultz (2002) believe that the lack of complete understanding of the emotional bond with nature significantly limits our knowledge of the psychological determinants of pro-environmental action in people’s daily lives. The next two sections review literature from psychology concerning the emotional aspects of a human sense of connectedness with nature.

4.3 The Psychology of Connectedness and Love for Nature

As discussed in Chapter Two, Leopold (1949/1987), in his seminal work “A Sand County Almanac”, saw the relationship between human love and respect for nature in the following terms:

When we see land as a community to which we belong, we may begin to use it with love and respect. … That land is a community is the basic concept of ecology, but that land is to be loved and respected is an extension of ethics (p. viii).

Leopold (1949/1987) maintained that all ethics, whatever the type, are founded on the premise that “the individual is a member of a community of interdependent parts” (p. 202). He goes on to argue that the individual’s ethics prompt cooperation rather than competition within that community, and entail the limitation of individual freedom of action to ensure the long term survival of this community. As discussed in Chapter Two, Leopold’s (1949/1987) “land ethic” extends this idea of community to include plants, animals, soils, waters, and also humans, or collectively as he calls it “the land” (p. 204). Therefore, the human sense of community with all of nature, including love and respect for the natural environment, are the basis of environmental ethics in Leopold’s view.

Concepts related to this sense of community with nature have recently been the subject of research by some environmental and conservation psychologists (Frantz, Mayer, Norton & Rock, 2005; Kals et al., 1999; Mayer & Frantz, 2004; Schultz, 2000, 2001, 2002) and are considered next. For example, Kals et al. (1999) have attempted to operationalise affinity for nature as a construct thought to be related to a sense of community, and have developed a scale measure which consists of subscales of love of nature, feelings of freedom, feelings of safety, and feelings of...
oneness with nature. This measure was found to be useful in identifying the relative contribution of affinity, as defined by Kals et al. (1999), to nature protective behaviour. However, on the face of it two of the subscales that form part of their instrument seem to measure relatively self-serving aspects of emotional affinity, namely: feelings of safety, and feelings of freedom. Both these subscales seem to be dependent on positive experiences in nature, or even on the perceived worth of nature to humans in terms of generating feelings of comfort and wellbeing. Without diminishing its value, perhaps this scale may be, at least in part, measuring an anthropocentric orientation rather than an ecocentric orientation.

However, the development of an ecocentric orientation, as opposed to an anthropocentric orientation, has already been argued to be crucial in embracing Leopold’s ideal of a land ethic (Callicott, 2001; Leopold, 1949/ 1987) or ecological worldview (Capra, 1996; Naess, 1989; Roszak, 1995) (refer Chapter Two). Furthermore, Leopold’s concept of the land ethic is more than simply affinity with nature; and requires something extra from us as human beings (Frantz et al., 2005; Leopold, 1949/ 1987). According to Leopold (1949/ 1987), development of an ecocentric orientation also requires the development of a deep love, respect, admiration, and high regard for nature’s intrinsic value. Such an orientation is based on a profound sense of community, on an explicitly emotional level as well as cognitive level, and must include a sense of responsibility to preserve and protect that community. Environmental psychologist Schultz (2002) has presented a conceptual model of this sense of community and connectedness with nature as a psychological determinant of an individual’s strength of commitment to protect nature through their day to day actions.

4.4 Theory of Inclusion of Nature in Self: Connectedness, Caring and Commitment

Schultz (2000, 2002) proposed a conceptual model of what he called human inclusion of nature in self as a predictor of pro-environmental attitudes and behaviour. In attempting to operationalise this construct, Schultz developed the Inclusion in Nature Scale (INS) as an adaptation of the work on interpersonal relationships and Inclusion of Self in Other (single item ISO scale), developed by psychologists Aron, Aron and Smollan (1992). Aron et al. (1992) presented evidence that the degree to
which a person’s cognitive self-concept includes their significant other predicts the strength and closeness of their relationship, as well as deep feelings of love and care towards that other. Building on this idea from the psychology of interpersonal relationships and extending it into the environmental psychology field, Schultz (2002) argued that the degree to which a person’s cognitive self-concept includes nature also predicts the strength and closeness of the relationship with nature, as well as feelings of caring about nature. Schultz’s model of psychological inclusion of self in nature, which is represented in Figure 4.1, comprises three core elements: connectedness (to nature), caring (about and for nature), and commitment (to act to protect nature).

Specific empirical investigation of the construct of psychological inclusion of self in nature, and the relationships between this construct and pro-environmental orientations, including values, and behaviours has been the subject of some recent and ongoing research (Schultz, 2000, 2002; Schultz, Shriver, Tabanico & Khazian, 2004).

Figure 4.1. Connectedness, caring, and commitment as core components of psychological inclusion of nature in self. Source: Schultz, 2002, p. 69.
Many of the elements of Schultz’s model share commonalities with the philosophical concept of deep caring espoused by Noddings (2003), Van Hooft (1995), Seamon (1984), Leopold (1949/1987), Orr (1993) and others (see discussion in Chapter Two). The commonalities between Schultz’s construct of inclusion of self in nature and the philosophical concept of deep caring include the following elements: a conceptual and emotional understanding of other (the element of connectedness); deep positive regard and respect for other (caring); and the motivation to act to protect other, which represents the element of commitment (Noddings, 2003; Schultz, 2002; Van Hooft, 1995). The environmental philosophy literature already cited in Chapter Two and earlier in this chapter has consistently emphasised this feeling or emotional component as being essential to developing a true environmental ethic (Capra, 1996; Carson, 1965; Kellert & Wilson, 1993; Leopold, 1949/1987; Orr, 1993, 2004; Rolston, 1993; Roszak, 1995; Seamon, 1984).

In recognition of a need for ongoing empirical research into the construct of human connectedness with nature, Mayer and Frantz (2004) recently developed the Connectedness to Nature Scale (CNS). This scale is a multi-item instead of a single item scale designed to measure “connectedness” and is similar to Schultz’s (2002) concept of inclusion in nature. This scale (CNS) purported to measure the affective aspect of this construct and sought to complement the body of empirical work conducted by Schultz, who had been concentrating on the cognitive aspects of this construct (Mayer & Frantz, 2004; Schultz, 2002, 2000). Evidence for the CNS’s construct validity has been demonstrated by its moderately high relationship to Schultz’s single item INS (Frantz et al., 2005; Mayer & Frantz, 2004). However, many of the 15 individual scale items in the CNS appear to be more cognitive in nature than emotional, and some of the items seem to express very similar concepts to those of the well established New Ecological Paradigm (NEP) (Dunlap & Van Liere, 1977; Dunlap et al., 2000).

The New Ecological Paradigm (NEP) is a list of items representing cognitive beliefs about human-nature relationships and the NEP has been used most frequently as a measure of general environmental beliefs and concerns. This measure has also been regarded as a surrogate measure of environmental attitudes, or a sort of folk environmental impact assessment whereby respondents are more or less aware of the consequences of ecological degradation and humanity’s responsibility for this (Dunlap & Van Liere, 1977; Dunlap et al., 2000; Lundmark, 2007; Stern et al., 1995;
Stern et al., 1998). When comparing individual items included in the two scales, the CNS item: “When I think of my place on earth, I consider myself to be a top member of a hierarchy that exists in nature” is similar in concept to the NEP items: “Humans were meant to rule over the rest of nature” and “Humans have the right to modify the natural environment to suit their needs”. In addition, the CNS items: “My personal welfare is independent of the welfare of the natural world” and “I have a deep understanding of how my actions affect the natural world” are very similar in concept to the NEP items: “Humans will eventually learn enough about how nature works to be able to control it” and “When humans interfere with nature, it often produces disastrous consequences”.

Therefore, without reducing its potential efficacy in terms of measuring a more personal sense of connectedness with nature than the NEP, the CNS could be viewed as inadequate as a measure of the explicitly emotional aspects of connectedness for two reasons. Firstly, it does not appear to primarily focus on emotional language and wording in describing connectedness, and secondly, it also does not incorporate the care and commitment aspects of Schultz’s (2002) inclusion of nature in self construct. Yet, all three aspects, interconnectedness, caring, and commitment to protect nature, have been argued as important for an ecological worldview and environmental ethics within much of the environmental philosophy literature already cited (especially Kellert & Wilson, 1993; Leopold, 1949/1987; Rolston, 1993; Roszak, 1995).

More recently, Dutcher et al. (2007) have also sought to develop a scale to measure what they term connectivity to nature, as an indicator of environmental values. The measure they developed was also found to be related to Schultz’s inclusion of self in nature construct, however, Dutcher et al. (2007) have acknowledged that they conducted their research separately from the work of Schultz and colleagues and thus did not seek to extend his model of inclusion. Furthermore, Dutcher et al. (2007) did not address the issues of psychological aspects of caring about or commitment to protect nature in their work.

It seems that most of the work undertaken so far, including recent research, has been focused primarily on the cognitive aspects of connectedness (e.g. Dutcher et al., 2007; Frantz et al., 2005; Mayer & Frantz, 2004; Schultz, 2002). As a result, the affective or emotional component of connectedness to nature remains under-investigated yet is acknowledged as a crucial object of psychological research into the
determinants of environmental altruism (Oskamp, 2002; Schmuck & Schultz, 2002; Schultz, 2000, 2002). Emotional dimensions of the human relationship with nature, specifically deep love and care for nature, have been consistently theoretically linked to pro-environmental ethics, behaviours and human wellbeing, at least in the philosophy literature (Capra, 1996; Kellert & Wilson, 1993; Rolston, 1993; Roszak, 1995; Wilson, 1984, 1993). Systematic empirical research to gather evidence to support these philosophical links will aid in better understanding of the construct of an environmental ethic as a whole (Fredrickson & Anderson, 1999), especially the relative influence of the emotional components as opposed to the cognitive components on pro-environmental behaviour.

Direct nature experiences, including nature-based leisure activities, have been argued to generate positive feelings of love and care for nature through experiential learning and a growing sense of interconnectedness with nature (Horwitz, 1996; Millar & Millar, 1996; Reynolds & Braithwaite, 1999). Thus, an examination of the relationship of love and care for nature and human participation in nature-based leisure activities, including tourism, may contribute to a better understanding of the influence of consumer psychological profiles and environmentally relevant attitudes on preferences and behaviour. The following section considers the deep emotional response to nature that humans can experience particularly in nature-based leisure, with a view to identifying the relationship of this to an increased sense of caring about nature and desire for more direct contact with nature.

4.5 Leisure in Nature: Indicator of Our Emotional Relationship with Nature?

Nature and nature settings are contexts to which people are drawn by their symbolic and affective meanings (Stokols, 1990). Recreational experiences with nature and, particularly, in wilderness and pristine natural environments, can enrich the lives of participants, with the potential for emotional, physical and spiritual growth being a beneficial outcome of this type of activity, often as a result of feelings of transcendence (Fredrickson & Anderson, 1999; Suedfeld, 1991). When human beings are at work they use and consume natural resources in order to produce human artifacts and food or shelter in order to live. However, when humans are at leisure and not tied to work in transforming resources, they are more truly themselves and free to just be (Borrie & Roggenbuck, 2001; Korpela et al., 2001; Rolston, 1991). It
has been said that natural resources “used” in leisure are not really used at all, nor are they converted to anything else as they are during human labour (Korpela et al., 2001; Rolston, 1991). Rather, natural resources are loved and appreciated for their own sake in leisure activities; we participate in nature rather than utilise it (Korpela et al., 2001; Rolston, 1991).

According to some environmental theorists, in unspoilt nature people experience a profound emotional sense of relatedness or interconnectedness, a union with something that is enduring, which is perceived as something much greater than the individual self, and which we also intuitively know surrounds and supports us (Fredrickson & Anderson, 1999; Kaplan & Kaplan, 1989; Rolston, 1991). For example, Fredrickson and Anderson (1999) have reported that during wilderness experiences this sense of interconnectedness may be felt by an "intense and pressing recognition of one's insignificance in the larger cosmos and a heightened recognition of the interrelatedness of all life-forms, ultimately leading to feelings of peace and humility" which has been described as a "manifestation of the sacred power", a feeling of self-transcendence (p. 37). Furthermore, a sense of relatedness and “at-homeness” with all of nature is often spontaneously felt in wilderness settings because nature is experienced so directly and immediately, and somehow this touches the experiencer at a deep personal level (Fredrickson & Anderson, 1999, p. 37). In other words, people feel an emotional bond with the natural environment when immersed therein and develop a strong feeling of being part of it as opposed to being apart from it. Albert Schweitzer encapsulated an aspect of this sentiment when he said “if you study life deeply, its profundity will seize you suddenly with dizziness” (cited in Orr, 1993, p. 423). Schweitzer’s observation typifies the human propensity for a reverence for life, a sense of wonder and awe in the face of the complexity of the natural world, a profound emotional affinity (Callaghan, 2001; Carson, 1965; Rosenblatt, 2000).

Opportunities for humans to interact directly with nature can be provided by nature tourism experiences, including ecotourism, the seeking of which may also be a manifestation of a deep-seated human need to reconnect with nature. Such direct experiences in nature tend to sometimes encourage strong emotional responses to the natural world and a genuine feeling of closeness with all living things (Rolston, 1993; Rosenblatt, 2000). Nature experiences have been said to contribute to a deepening feeling of care and positive emotional regard towards the environment (Callaghan, 2001; Reynolds & Braithwaite, 1999), as well as provide greater understanding and
reflection about environmental issues (Finger, 1994; Naess, 1989). For example, Hartig, Kaiser, and Bowler (2001) and Finger (1994) report that positive emotional experiences in nature tend to promote ecological behaviour. Furthermore, Hartig et al. (2001) assert that people who engage in appreciative rather than consumptive type outdoor recreation are more likely to behave pro-environmentally, as their recreation choices are more closely tied to interest in and concern for the natural environment itself. Clayton and Opotow (2003) believe that the emotional connection with nature developed during direct nature experiences, including leisure activities, can change people’s self identity to incorporate the whole of nature within the person’s circle of concern. They have also argued that this change in self-identity to one of increased environmental identity tends to become activated by any perceived threat to the environment, resulting in more pro-environmental choice and action (Clayton & Opotow, 2003).

Therefore, a feeling of care and emotional connection with the environment may be one of the drivers for a preference for ecotourism type experiences which is both nature-based tourism and a form of environmentally responsible tourism. Furthermore, if Clayton and Opotow (2003) and Hartig et al. (2001) are correct in believing that feelings of emotional connection with nature are associated with pro-environmental behaviour, then love and care for nature may be a significant predictor of willingness to pay for environmental protection amongst tourists both in situ and at home. This suggests that the consumer of nature-based tourism, and particularly ecotourism, may be making their leisure choices on the basis of their interest in and love for nature as well as their desire to be immersed in nature as a counterpart to urban life. Moreover, these choices may be based not only this desire to commune with unspoilt nature, but also the desire to preserve it. The next section reviews one of the central themes of this thesis, that the need for and feelings of emotional connection with nature may be related to the popularity of ecotourism experiences.

4.6 Love and Care for Nature in Tourists

Fennell (2003) has argued that the emergence and continued evolution of ecotourism may be bound up in the efforts of society to become more ecologically minded (p. 19). Therefore, this form of tourism may well reflect greater interest in and concern for nature among those who prefer these experiences, as well as fulfilling
a human need for direct contact with nature. For example, Suzuki (1997) cites Wilson’s views about the place of biophilia in our modern lives:

In urban environments, our genetically programmed need to be with other species is usually thwarted, leaving us yearning. These days, biophilia has to be satisfied with sadly diminished opportunities – gardening, pets, visits to zoos. It is not an accident, Wilson says, that more people visit zoos than attend all major sports events combined (Suzuki, 1997, p. 177).

Ecotourism is a form of freely chosen leisure activity which emphasises a focus on the wonders of nature and an educative experience about nature (Page & Dowling, 2002; Weaver, 2001a). Positive or even profound emotional experiences may be expected as a result of that experience (Bragg, 1996; Fredickson & Anderson, 1999; Horwitz, 1996; Rolston, 1991; Roszak et al., 1995). However, there has been minimal research into tourists’ feelings about their experiences in nature, especially a sense of love and caring towards nature, and also how these feelings might influence their attitudes, preferences and behaviors in both the tourism setting and outside that setting (Horwitz, 1996; Stronza, 2001). Yet, as discussed in Chapter Two, a number of environmental social scientists, educators and philosophers have already proposed that it is a sense of deep caring, the emotional connection with nature, which may hold the key to effecting a more pro-environmental worldview in people (Allen & Ferrand, 1999; Fien, 2003; Horwitz, 1996; Kellert, 1996, 1997; Noddings, 2003; Roszak, 1995), and that such an ethic of care not only motivates pro-environmental behaviours but also influences pro-environmental choices (Fien, 2003; Hughes, 2001; Naess, 1989; Van Hooft, 1995).

It seems reasonable to suppose that the stronger the feelings of love and care towards nature, the higher would be the values placed on environmental protection, and the deeper the perceived emotional self-nature relationship would be. Perhaps this yearning to be with nature and the associated feelings of love and care for nature may be one reason for the apparently growing demand for ecotourism in our increasingly urbanised world. Ecotourism type nature-based experiences, as intense exposures to unspoilt nature, may also be associated with a deepening affect or feelings of care towards the natural environment. This in turn could result in both increased preferences for ecotourism type nature-based experiences and also pro-
environmental behaviour, as the influence of feelings on attitudes and behaviour has been reported to increase with experience (Ajzen, 2001; Feather, 1995; Finger, 1994; Horwitz, 1996; Merchant, 1992; Millar & Millar, 1996; Stronza, 2001). Moreover, many social scientists, educators, and environmental philosophers have proposed that feelings of love and caring towards nature, may be significant predictors of pro-environmental ethics and behaviour in their own right (e.g. Fien, 2003; Johnson, 1991; Macy, 1991; Naess, 1989; Pooley & O’Connor, 2000; Roszak et al., 1995; Wilson, 1984).

As previously discussed the primary research question for this project involves identifying whether or not an ecological worldview, including not only pro-environmental values but also deep love and caring for nature, influences tourists’ pro-environmental orientation. Therefore, a second major research objective is to determine the specific contribution of love and care for nature, as the second component of an ecological worldview, in terms of its influence on environmentally relevant attitudes, behaviour, and choices. If the theoretical argument that feelings of emotional closeness and care towards nature increase both the desire for direct contact with nature and also pro-environmental altruism, is accepted, then two propositions may be drawn. Firstly, it could be assumed that people who express stronger levels of love and care for nature may also express stronger interest and motivation to engage in nature-based leisure activities, including ecotourism type experiences. Secondly, they may also demonstrate a greater propensity for pro-environmental behaviours and attitudes, including greater willingness to pay to protect the integrity of nature, as manifestations of their commitment to environmental protection. This leads to a fourth hypothesis that will be addressed in the second empirical study discussed in Part II of this thesis (see results in Chapter Eight):

**Hypothesis 4 (H4):** Love and care for nature will have a positive relationship with tourist pro-environmental attitudes, behaviours, willingness to pay, and choices including interest in ecotourism (Figure 4.2 illustrates the relationships specified in this hypothesis).
As argued previously, care and compassion are seen as being central to human ethical behaviour and belief (Fien, 2003; Van Hooft, 1995; Leopold, 1949/1987; Noddings, 2003). Many environmental philosophers believe that if the emotional connection with nature can be re-discovered from within, and actually nurtured and encouraged, it will lead to the ecological worldview that facilitates a more deeply held environmental ethic of care (Johnson, 1991; Macy, 1991; Naess, 1989; Roszak et al., 1995; Wilson, 1984). Furthermore, Gould (1991) believed that we will only fight to protect what we love, a belief that supports Van Hooft’s (1995) and Nodding’s (2003) proposition that ethical behaviour is largely driven by love and deep caring. If this argument is accepted, then it may be that love for nature is a better predictor of pro-environmental behaviour than either cognitive based values or pro-environmental beliefs when greater levels of effort and personal sacrifice are required. Greater willingness to make sacrifices implies a more deeply held environmental ethic. This leads to a fifth hypothesis which will be addressed in the second empirical study discussed in Part II of this thesis (see results in Chapter Eight):

**Hypothesis 5 (H5):** Love and care for nature will be a better predictor of tourist pro-environmental willingness to sacrifice than values and beliefs as the level of sacrifice or effort required increases. (Figure 4.3 illustrates the relationships specified in this hypothesis)
Those who choose to participate in nature based ecotourism experiences have more opportunity than others to immerse themselves totally in the natural environment, and may therefore acquire knowledge and sensitivity to the natural and cultural environments which could transform at least some of them into keen conservationists (Ceballos-Lascurian, 1991; Horwitz, 1996). Consistent preferences to engage in ecotourism then, with its emphasis on the study of life and the environment, may be both a manifestation of that deep seated human need to reconnect emotionally with the natural environment and also of strongly held pro-environmental values. The following section discusses some of the possible differences in psychological profile between ecotourists, as those who prefer ecotourism type experiences, and mainstream or mass tourists.

### 4.6 Differentiating Ecotourists from Mainstream Tourists

The combination of environmental education and direct experience of nature which is central to the authentic ecotourism experience suggests that ecotourism could also have a critical role in social education (Higham & Carr, 2002a). Previous research into the development of pro-environmental attitudes and their association with a long lasting environmental ethic has linked these to environmental education and to positive feelings and intimate awareness generated by direct experiences in
nature (Carson, 1965; Horwitz, 1996; Kals et al., 1999). Thus, greater understanding and
reflection about the environment produced by direct experiences in nature might be associated with a stronger ecological worldview including biospheric values, pro-environmental beliefs and concerns, as well as love and caring for nature. If both interest in nature and commitment to ecological sustainability can be discerned in the so-called “true” ecotourist (i.e. those that demonstrate greater interest in and preference for ecotourism over other forms of tourism), then they might also demonstrate stronger love and care for nature as well. Ecotourists who have a more ecocentric orientation towards nature have been reported to prefer businesses that are environmentally friendly, and expect knowledgeable personnel who instil a sense of trust and confidence in their expertise (Page & Dowling, 2002, p. 92). Presumably this type of tourist would also consider sustainability and environmentally responsible policies and practices to be an important factor when choosing a destination. They might also be careful to minimise their impact on the destinations they choose to visit. Extending this argument further, it is reasonable to suppose that the true ecotourist, as differentiated from the mainstream tourist on the basis of preferences as well as psychological profile, might also consider issues of sustainability and environmental responsibility in terms of many of their behaviours and consumer choices, both inside and outside the tourism setting.

However, as has been argued in Chapter Three, consumers of nature tourism will be likely to range from the dedicated ecotourist to the occasional tripper who is visiting a destination for a new experience or “trendy” social encounter. This latter type of tourist, who is focused on seeking novel experiences, may be less likely to be concerned with longer-term issues or the consequences of their actions on natural environments than those who prefer ecotourism type experiences. Consumers of ecotourism have been profiled previously as distinct segments on some of these dimensions, including level of environmental responsibility and impact, consumptive versus non-consumptive practices, or behaviours related to eco-exploitation versus environmental sustainability (Beeh, 1999; Page & Dowling, 2002). It has been suggested that consumers of ecotourism also vary in terms of their level of commitment and motivation to act in environmentally responsible ways (Beeh, 1999; Page & Dowling, 2002; Stronza, 2001). This may be a result of the different psychological orientations of different types of consumers of ecotourism. For example, a pro-environmental orientation may be particularly strong in consumers of
so-called “extreme” ecotourism, whereby such tourists pay to do volunteer work to help with scientific research and conservation projects (Page & Dowling, 2002; Weiler & Richins, 1995). These tourists have been characterised by their motivations and behaviour which places them at the extreme hard end of an ecotourism continuum, and have also been reported as seeking intellectual and physical challenge while engaging in volunteer activities that are designed to actually enhance the natural environment (Page & Dowling, 2002; Weiler & Richins, 1995). Previous research has shown that this type of ecotourist reports consistently high overall levels of participation in nature based leisure activities such as camping, bushwalking, bird watching, as well as high levels of activity in environmental and special interest organisations (Page & Dowling, 2002; Weiler & Richins, 1995). Thus, these tourists and those like them with similar pro-environmental psychological profiles might be differentiated from tourists who have a more egoistic profile on the basis of their preferences for particular leisure and tourism experiences.

In contrast to those who prefer ecotourism, it has been argued that tourists who express preferences for mainstream type or mass tourism experiences, such as shopping, gambling, luxury resorts and so on, tend to travel primarily for leisure and pleasure, to get away, just have fun, and pursue other hedonistic type activities (Page & Dowling, 2002; Sharpley, 2006; Weaver, 2001a, 2001b). Tourists who consistently prefer mainstream type tourism experiences, with its greater focus on the hedonistic pursuits, may reflect relatively stronger levels of egoism, and therefore less concern for, and commitment to, the wellbeing of nature, with correspondingly lower levels of love and care for nature. Following this reasoning, the mass or mainstream tourist may also be less willing to make personal sacrifices in terms of restrictions on personal freedoms and resource use, or consideration of their impact when making travel decisions. Moreover, they may be less willing to pay higher prices for services or goods in order to protect the environment.

However, it is important to consider whether or not those consumers who prefer ecotourism type nature experiences are really any more environmentally sensitive and aware consumers than mainstream tourists, as there have been some arguments that suggest that they are not (see for example Sharpley, 2006). It would

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33 Hard ecotourism emphasizes an intense, personal and authentic wilderness or other nature based experience. Harder ecotourism activities are more specialised and focused on lower levels of consumption of resources, services and facilities, and are undertaken entirely for the purpose of ecotourism (see Chapter Two).
also be useful to determine if tourists who prefer ecotourism experiences are more likely to demand not only genuine ecotourism type products with associated environmental and social sustainability assurances, but the same green credentials of general consumer goods and services. In fact, if this is found to be the case, the term “ecotourist” may not be entirely appropriate when describing such consumers. Sharpley (2006) argues that if the true ecotourist considers environmental issues important for all goods and services, then it might be more valid to describe them simply as environmentally aware and responsible consumers, rather than label them merely as ecotourists. Core psychological variables such as values have been argued to exert a strong influence on behaviour, including choices for travel and tourism. If so-called “true” ecotourists are defined by their interest in learning about and experiencing nature, as well as their commitment to the sustainability of the natural environments that provide the focus for leisure (Page & Dowling, 2002; Weaver, 2002), then stronger pro-environmental values, and particularly biospheric values, may be more evident in those who prefer these experiences when compared with those who prefer mainstream tourism experiences. Conversely, those who prefer mainstream or mass tourism experiences may have stronger egoistic orientations when compared with ecotourists.

Fennell (2003) has previously argued that one important variable worth studying in regard to the differences between nature tourists and other types of tourist is “the degree to which one subscribes to a strong or weak sense of what might be considered as ‘biological or preservationist affect’ (the emotional tie that one has with plants, animals or nature as a whole)” (p. 26)34. This leads to a sixth hypothesis that will be addressed in the second empirical study of this research, which is discussed in Part II of this thesis (see Chapter Eight for results).

**Hypothesis 6 (H6):** Tourists who prefer ecotourism type experiences can be differentiated from those who prefer mainstream type tourism experiences on the basis of value orientation, love for nature, pro-environmental beliefs, and support for responsible and sustainable tourism (Figure 4.4 illustrates the relationships specified in this hypothesis).

34 This “biological or preservationist affect” might be appropriately conceptualized as love and care for nature.
Figure 4.4. Hypothesised relationships between psychological profile and preferences for type of tourism experience.

If empirical evidence can be found for a stronger ecological worldview in those tourists who prefer ecotourism type experiences when compared to mainstream tourists, this may indicate that these preferential consumers of ecotourism may be examples of an emergence of the environmentally sensitive responsible tourist. Conversely, if empirical evidence cannot be found for a stronger ecological worldview in ecotourists when compared to mainstream tourists, then it could be inferred that ecotourist choice and behaviour are influenced more by eco-sell or a somewhat superficial greening of the marketplace (Wight, 1993; Sharpley, 2001), than by a pro-environmental orientation.
4.7. Conclusion and Description of the Empirical Phase of the Research, Part II of the Thesis.

In view of the gaps in the literature discussed in previous chapters of this thesis, this present research, in part, aims to provide empirical evidence for the hypothesised pro-environmental value orientations of consumers who prefer ecotourism, as one form of responsible and sustainable tourism. It also aims to provide evidence for the link between pro-environmental values and a stronger emotional connection and deeper sense of caring towards the natural environment. Thus, this research is focused on the demand aspect of the ecotourism system, as described in section 2.9 of Chapter Two.

The results of this research will extend existing theoretical models of a pro-environmental orientation and its influence on behaviour by incorporating the emotional component of love. Furthermore, extension of the theoretical model within a tourism context will help to address limitations in current understandings of the psychological motivators, behaviours, and choices of consumers who prefer and choose ecotourism products and services over other forms of tourism. Without this understanding and with growing levels of visitation, preservation and conservation of the natural assets on which the burgeoning ecotourism industry depends will become increasingly problematic.

Part II of this thesis describes two empirical studies undertaken in order to answer the primary research question, and thus accomplish the overall aim of this research. The main research question presented in Chapter One of this thesis is: Does an ecological worldview, comprised of pro-environmental values, and especially feelings of love and care towards nature, significantly influence pro-environmental behaviours and choices? From the literature reviews presented in Chapters Three and Four a number of hypotheses have emerged which will be tested during the empirical phase of this research. These hypotheses propose the particular importance of biospheric values for an ecological worldview and also tourists’ particular interest in ecotourism over mainstream type tourism experiences. Love and care for nature is also proposed to be strongly associated with an ecological worldview or pro-environmental orientation and more interest in ecotourism. The influence of love and care for nature is argued to increase as the levels of personal sacrifice or effort required in order to protect the environment also increases. Moreover, it has been
argued that so-called ecotourists and mainstream or mass tourists, as defined by interests and preferences, can be differentiated on the basis of their respective psychological profiles, with the former exhibiting a more ecological worldview and the latter exhibiting a more egoistic one. Table 4.1 summarises the six hypotheses which will be tested in the second empirical study of this research (Study Two).

Table 4.1.
*List of hypotheses for testing in Study Two*

<table>
<thead>
<tr>
<th>Number</th>
<th>Hypothesis</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1</td>
<td>Stronger biospheric values will have a positive relationship with tourist pro-environmental attitudes, behaviours, willingness to pay, and choices including interest in ecotourism.</td>
</tr>
<tr>
<td>H2</td>
<td>Stronger socio-altruistic values will have little or no relationship with tourist pro-environmental attitudes, behaviours, willingness to pay, and choices.</td>
</tr>
<tr>
<td>H3</td>
<td>Stronger egoistic values will have a negative relationship with tourist pro-environmental attitudes, behaviours, willingness to pay, and choices including interest in ecotourism.</td>
</tr>
<tr>
<td>H4</td>
<td>Love and care for nature will have a positive relationship with tourist pro-environmental attitudes, behaviours, willingness to pay, and choices including interest in ecotourism.</td>
</tr>
<tr>
<td>H5</td>
<td>Love and care for nature will be a better predictor of tourist pro-environmental willingness to sacrifice than values and beliefs as the level of sacrifice or effort required increases.</td>
</tr>
<tr>
<td>H6</td>
<td>Tourists who prefer ecotourism type experiences can be differentiated from those who prefer mainstream type tourism experiences on the basis of value orientation, love for nature, pro-environmental beliefs, and support for responsible and sustainable tourism.</td>
</tr>
</tbody>
</table>

However as previously discussed, attempts to measure the explicitly emotional aspect of an ecological worldview, conceptualised in this thesis as love and deep caring for nature, have been inadequate despite this construct’s theoretical importance in the environmental philosophy and environmental ethics literatures. In order to be able to assess the relative importance of the emotional or feeling component of a pro-
environmental orientation in terms of its influence on environmental choices and altruism, it is necessary to develop a psychometrically sound measure. This measure will then be used to test the relationships between love and caring for nature and related psychological constructs such as environmentally relevant values, beliefs, and attitudes, as well as pro-environmental choices and behaviour. Therefore, the first empirical study (Study One) – outlined in Chapter Six – describes the development of a scale to measure love and care for nature, which seeks to operationalise Wilson’s (1984) construct of “biophilia” also conceptualised as the emotional component of Leopold’s (1949/1987) “land ethic”. This scale is then used in the second empirical study (Study Two) which tests the hypotheses (see Table 4.1) that have emerged during the literature review in order to answer the primary research question.

The following chapter outlines the epistemological and ontological assumptions that underpin the research approach used for the two empirical studies, and this chapter will conclude the first part of this thesis (Part I). Part II of the thesis then considers the empirical component of this research. Study One, scale development method and results, is presented in Chapter Six. The method for Study Two Hypothesis Testing is outlined in Chapter Seven, and the results of Study Two are detailed in Chapter Eight. Finally, the results of Study One and Study Two are discussed in Chapter Nine in the context of existing literature, and then some overall conclusions are drawn in terms of the overall aim of this research.
CHAPTER FIVE: THE CRITICAL RATIONALISM PARADIGM AND QUANTITATIVE METHODOLOGY

Science starts only with problems … it is only through a problem that we become conscious of holding a theory. It is the problem which challenges us to learn; to advance our knowledge; to experiment; and to observe…

(Popper, 1989, p. 222)

5.0 Introduction

The thesis, thus far, has outlined the background to the research problem and presented a cross-disciplinary review of the literatures relevant to the concept of an ecological worldview and its influence on pro-environmental choice and action, as a manifestation of environmental ethics. An argument for the relevance of an ecological worldview in the context of tourism, particularly ecotourism, has also been made. The previous two chapters presented a review of the pertinent literatures from psychology, philosophy, and ecotourism. The multi-disciplinary empirical research findings and philosophical theories outlined have yielded a number of hypothesised relationships between environmental value orientations, the emotional dimension of human relations with nature, and pro-environmental attitudes, choices and behaviours.

Most of the variables of interest can be measured using previously validated scales and quantitative measures which have been used extensively in previous empirical research. These measures can be used to determine the interrelationships between the variables of interest and assess their relative predictive power in terms of pro-environmental choices and behaviour, both in situ and outside the tourism setting. However, there currently exists no measure of the emotional relationship with nature, as love and care for nature. Therefore, there is a need to develop a psychometrically sound scale that measures this construct, and this is undertaken in the first empirical study of this research which is described in Chapter Six (Study One).

In terms of the second empirical study (Study Two), testing the hypothesised interrelationships between two or more theoretically related constructs, is suited to a hypothetico-deductive research design based on the logical paradigm of Karl Popper’s
Critical Rationalism. This strategy is particularly appropriate for uncovering regularity in phenomena and for developing an argument or model to explain that regularity or theory. With this approach, one or more hypotheses can be deduced from the theory, and data collected to test hypotheses against this theory, which is then either supported and therefore strengthened, or modified, or rejected (Blaikie, 2000). In other words, the research approach undertaken in the second empirical study of this project is one of theory testing (Study Two).

This chapter, which completes Part I of this thesis, presents a justification for the epistemological and ontological assumptions that underpin theory testing research which is used to guide both empirical studies of this research. These two empirical studies are described in the second of this thesis (Part II). The arguments for the use of a quantitative methodology for this particular project are also outlined. The first part of this chapter discusses the research paradigm for theory testing research. This is then followed by a comparative review of the Critical Rationalism Paradigm and the Positivist Logical Paradigm with a view to clarifying the differences in epistemology and methodology (terms that are often used interchangeably and sometimes inappropriately), as well as justifying the methodology chosen for this particular study.

5.1 Research Paradigm for Theory Testing.

Karl Popper (1989) has stated that: “if we respect truth we must search for it by persistently searching for our errors: by indefatigable rational criticism, and self-criticism” (p.16), and has argued that: “if we are doubtful about an assertion, then the normal procedure is to test it … and if we find independent corroboration, then we shall often accept the assertion without bothering at all about sources” (p. 23).

Popper’s (1989) philosophical stance can be summed up by his assertion that:

The more we learn about the world, and the deeper our learning, the more conscious, specific, and articulate will be our knowledge of what we do not know, our knowledge of our ignorance. For this, indeed, is the main source of our ignorance – the fact that our knowledge can be only finite, while our ignorance must necessarily be infinite (p. 28-29).
Popper describes a way of acquiring knowledge through theory testing and his view is also one which clearly acknowledges the usual imperfections that are inherent in this process. Further examination of Popper’s view of the nature of reality and the way in which knowledge is acquired will provide a deeper understanding of this perspective and its relevance for the research approach undertaken for the empirical component of this research.

Ontology is the philosophy of the nature of being and reality; whereas epistemology is the philosophy of knowledge, related to its methods of development and validation (Ludowyk & Moore, 2001; Tillich, 1954). Popper was the so-called “father” of the Critical Rationalism paradigm which shares some of its ontological assumptions with Positivism in that nature and social reality are regarded as consisting of essential uniformities (i.e. truths). However the epistemological assumptions that underpin Critical Rationalism are radically different from those of Positivism (Blaikie, 2000; Popper, 1989), and these differences are discussed in the following section.

5.2 Critical Rationalism versus Positivism

The epistemological assumptions of Positivism include the premise that accurate knowledge can be acquired by so-called “objective” data collection using “objective” procedures, and also that scientific laws about the nature of truth can be developed through the regularities observed (Blaikie, 2000). The causes of human behaviour are considered external to the individual and can only be ascertained through what we can see or measure through our senses (Blaikie, 2000, p. 102). Conversely, the logical paradigm of Critical Rationalism asserts that all knowledge is tentative, that all observation and data involves interpretation by the observer, is theory laden, and that objectivity is something we often miss by “a wide margin” (Popper, 1989, p. 16). Therefore our “truths” must always be subject to critical evaluation and refutation (Blaikie, 2000, p. 105; Popper, 1989). Popper (1989) goes on to argue that our understanding of truth must always be imperfect and that:

there are no ultimate sources of knowledge … and all we can do is grope for truth even though it be beyond our reach … there is no authority beyond the reach of criticism to be found within the whole province of our knowledge (p. 30).
The epistemological assumption that underpins Critical Rationalism is that knowledge is built through scientific investigation which begins with a problem or series of problems (Blaikie, 2000; Popper, 1989). In terms of these problems, reality or truths are the ideals which, while never fully achievable, are nevertheless the fundamental goals of scientific enquiry (Blaikie, 2000; Popper, 1989). According to Popper theories are units of knowledge that are built, modified and enhanced or refuted, depending on their relative usefulness in solving problems and their richness in terms of explaining observed phenomena. The main goal of moving the development of knowledge forward is to arrive at better and better approximations of the truth (Popper, 1989). The aim is to “test theories to eliminate false ones and corroborate the survivor” by matching them with data (Blaikie, 2000, p. 101). As Popper (1989) reminds us: “Scientific theory – an explanatory theory – is, if anything, an attempt to solve a scientific problem, that is to say, a problem concerned or connected with the discovery of an explanation” (p. 222).

The main aim of this research is to present evidence that an ecological worldview consisting of pro-environmental values and love and care for nature, influences tourists’ choices and behaviour, including their preferences for ecotourism as compared with mainstream tourism experiences. The empirical component of this research, in which data are collected and analysed in order to address this aim, requires a theory testing approach. Therefore the epistemological and ontological assumptions underpinning Critical Rationalism seem most appropriate for this kind of research. The next section reviews the relative merits of quantitative versus qualitative methods used for data collection and analysis in empirical research.

5.3 Qualitative Versus Quantitative Methodology

Researchers sometimes confuse methodology with epistemology and may talk about quantitative versus qualitative “paradigms”. However the term “paradigm” is appropriate to the underlying logic of enquiry rather than to the means of data collection and analysis (Bryman, 1984; Blaikie, 2000). As previously stated, epistemology is the philosophy of knowing, or the logic of enquiry. On the other hand, methodology is simply the means by which data are collected and analysed in
the pursuit of knowledge (Blaikie, 2000, p.275), which is a more practical or technical issue than an epistemological or philosophical one.

Trow’s dictum from the 1950’s asserts that research problems should determine the appropriate methods used to gather information, which implies that neither quantitative nor qualitative methods are inherently superior to the other (cited in Bryman, 1984, p. 80). Onwuebguzie and Leech (2005) have argued that irrespective of the research paradigm from which the world of social phenomena is viewed, or the methodology employed, the goal is the same; it is an attempt to understand human behaviour. Some methods are simply more useful in particular contexts than others and several different methods can often be used within the perspective of different ontological and epistemological assumptions (Blaikie, 2000; Bryman, 1984; Henwood, 1996). However, interpretation of data will be driven by the underlying assumptions of the particular approach to social enquiry and not by the type of method used (Blaikie, 2000).

Furthermore, methodological choice can be considered an imperfect one, and more often than not in reality represents the “least worst” choice for researchers given both time and resource constraints associated with research projects (R. Rickson, personal communication, August 25, 2006). In turn, each particular methodological strategy, quantitative or qualitative, has its own individual strengths and weaknesses. The nature of the problem or problems is the most important factor. For example, Cresswell (1994) has stated that for quantitative studies the problem typically evolves from the literature where there is a substantial body of research in existence and the variables are known. The researcher can then build upon this body of work by expanding and testing previous theories for verification or refutation (Cresswell, 1994, p. 10). However, for qualitative studies there is usually little information available on the topic, any theory base is either non-existent or inadequate or incomplete, and variables are largely unknown (Blaikie, 2000; Cresswell, 1994; Henwood, 1996). As a result, researchers tend to focus on the context which is central to understanding the phenomenon of interest, and then theories emerge or are constructed from the data (Blaikie, 2000; Cresswell, 1994; Henwood, 1996).

The primary concerns of quantitative methods in the social sciences include how to best define concepts or constructs for measurement, how to operationalise a concept to turn it into a variable, counting and measuring aspects of social life through those variables, and then assessing the generalisability of measurements from
individuals to the broader social context in an attempt to better predict, explain and understand social phenomena (Blaikie, 2000; Cresswell, 1994). Quantitative researchers typically attempt to remain outside the research situation, control for bias, with objectivity being an important concern (Cresswell, 1994; Smith, 1989). Self-administered questionnaires or surveys or structured interviews are used extensively in quantitative research (Blaikie, 2000; De Vaus, 1995). A deductive form of logic is usually employed to make sense of the data that are gathered by these methods. In terms of process, theories and hypotheses are chosen before the study begins, and are then tested in an attempt to contribute to theory, in order to better predict, understand and explain the phenomenon of interest in a generalisable way (Cresswell, 1994).

Conversely, the primary concerns of qualitative methods include identification of emergent meanings and interpretations assigned by people to social processes within particular contexts (Blaikie, 2000; Cresswell, 1994; Henwood, 1996). Such research is interpretive in nature and is usually value-laden, with the biases, values, and judgements of the researcher openly acknowledged as part of the research process (Blaikie, 2000; Cresswell, 1994). Qualitative researchers might use a range of techniques to gather data including participant observation, in-depth and focused interviews, ethnography, focus groups, content analysis of documents, and narratives – which tend to emphasise the production of discursive descriptions and exploration of meanings given to social processes, situations, and contexts by social actors (Blaikie, 2000, p.232). Inductive logic is employed where categories emerge from the informants as social actors, rather than a priori from the researcher (in the form of theories to be tested), where information is highly context-bound (Cresswell, 1994; Henwood, 1996).

This present research is theory testing and involves the analysis and interpretation of data collected using existing measures of the known variables of interest, and therefore quantitative methods are the most appropriate for this kind of empirical research. Data collected in this manner are interpreted within the ontological and epistemological assumptions of Critical Rationalism.

5.4 Measurement within the Context of a Critical Rationalism Paradigm

In order to test the theoretical relationships emerging from the literature reviews in Chapters Three and Four, it is necessary to gather appropriate data.
Science has been said to have two languages which are concerned with conceptualisation and operationalisation. Conceptualisation is the language used to communicate theory, ideas, and research findings (Blaikie, 2000). Operationalisation is the means used to transform theoretical concepts into empirical concepts or measurements, that is, the data that provide a representation of the theoretical in the real world (Blaikie, 2000). Nunnally and Bernstein (1994) have argued that “a key principle of science is that any statement of fact by one scientist should be independently verifiable by others” and this necessitates the development of an agreed upon measure of any attribute in question (p. 6).

Social necessity has led to the development of many agreed upon measurements well before science emerged, and evaluation and measurement have formed part of the history of humankind and social processes since prehistoric times (Caws, 1989; De Vellis, 2003; Wright, 1999). Nunnally and Bernstein (1994) believe that, because a theory can only be tested to the extent that its hypothesised attributes can be adequately measured, and in a standardised way, the question of measurement is a key psychological problem, as good measurement can take much of “the guess work out of scientific observation” (p. 6). The development of standardised measures used on multiple and sizeable samples is essential to obtaining clearer and more consistent results in social scientific research (De Vaus, 1995; Hinkin, 1995; Nunnally, 1978). Standardised measures make it easier to compare research findings, and therefore can be useful in facilitating the development and testing of theories (Hinkin, 1995, p. 983), within the context of the hypothetico-deductive logical paradigm.

The following section summarises the relevance of the hypothetico-deductive paradigm intrinsic to Critical Rationalism, the issue of measurement, and the appropriateness of quantitative methodology for the two empirical studies of this research.

5.5 Conclusion and Broad Directions for the Empirical Research

The primary aim of this research project is to determine the influence of an ecological worldview on tourist choices and behaviour, including preferences for ecotourism type experiences over other forms of tourism. This involves testing the environmental value orientation and feelings towards nature of different types of
tourists, and determining the influence of these on tourists’ preferences, attitudes, and self-reported behaviours. Therefore the empirical research necessary in achieving this aim requires a theory testing approach within the hypothetico-deductive model of social enquiry. The final stage of the empirical research (Study Two), involves hypothesis testing within a tourism context, and adopts a quantitative methodology using a number of established measures of the variables of interest.

One of the key hypotheses to be tested in Study Two concerns the relative influence of love and care for nature, as compared with values, on pro-environmental choices and behaviours. However, as argued previously there is as yet no adequate measure for this emotional dimension of an ecological worldview. This construct has emerged primarily from the environmental philosophy literature and as such has not been the subject of systematic attempts at measurement (refer Chapter Four). In the environmental psychology field, Schultz (2002) and Oskamp (2002) have argued that the emotional bond with nature is a complex construct which will require substantial effort in precise operationalisation. However, Oskamp (2002) and also Schmuck and Schultz (2002) believe that persistence in trying to resolve the problem of operationalisation of this construct is a problem well worth pursuing. Therefore, the first stage of the empirical research component of this project involves scale development in order to create a psychometrically sound measure of this emotional bond or relationship with nature, identified as love and care for nature (Study One). While Popper (1989) warns that there can be no measurement without theory, the theoretical foundation from the philosophy literature reviewed in Chapter Four provides enough information about the construct of love and caring for nature to enable suitable scale items to be generated.

This chapter has concluded Part I of the thesis. Part II of the thesis, covered in Chapters Six to Nine, describes the two separate empirical studies conducted in order to answer the research question and address the overall aim of this research (i.e. Study One and Study Two). The next chapter, Chapter Six, outlines in detail the first empirical study which is the scale development process for creating a measure of love and care for nature (Study One). This newly developed scale is then used in Study Two, the second empirical study, which is the hypotheses testing phase of the research. The method for Study Two is presented in Chapter Seven, and the results of hypothesis testing are reported in Chapter Eight. Chapter Nine, which concludes the second and final part of this thesis, discusses the key themes which have emerged
from the empirical findings of this research in terms of previous research, together with the implications of these for knowledge.
PART II

THE EMPIRICAL PHASE OF THE RESEARCH

- STUDY ONE: SCALE DEVELOPMENT
- STUDY TWO: HYPOTHESIS TESTING
CHAPTER SIX: STUDY ONE - SCALE DEVELOPMENT

If you can perceive it, you can measure it … Perfect measurement exists only in fantasy: we do the best we can (Keller, 2006, p. 11).

6.0 Introduction

The previous chapter, which concluded Part I of this thesis, discussed the epistemological and ontological assumptions which underpin the empirical phase of this research. As previously stated, the aim of this research is to determine the influence of an ecological worldview on tourists’ attitudes, choices and behaviour within a tourism setting and also in their daily lives. This requires the testing of a number of hypotheses concerning tourists’ environmentally relevant values and also their feelings towards nature as psychological determinants of interest in ecotourism and environmental altruism. People’s feelings towards nature represent their emotional relationship with the natural environment.

However, as argued previously, there is as yet no adequate measure for this human emotional relationship with nature, conceptualised as love and care for nature. Chapter Four discussed how this construct has largely emerged from the environmental philosophy literature and how it is considered by several environmental philosophers to be a crucial aspect of human environmental ethics and altruism. Some attempts have been made by environmental psychologists to operationalise somewhat similar constructs, but these are inadequate for measuring love and caring for nature as the explicitly emotional aspect of the human nature relationship. For example, the Connectedness to Nature Scale (CNS) developed by Mayer and Frantz (2004) was purported to measure the affective aspects of the construct of connectedness which is related to the concept of the human nature relationship. The development of this scale was undertaken as an extension of Schultz’s (2002) work on the cognitive aspects of psychological inclusion of nature in self-concept. However, as discussed in Chapter Four, the CNS scale does not focus on emotional language and wording, and also does not incorporate the care and commitment aspects of Schultz’s inclusion of nature in self construct. Yet Schultz has argued that the care and commitment aspects of this construct are very important
for understanding environmental ethics. Other researchers examining constructs that are concerned with a sense of connectedness have also focused primarily on the cognitive rather than the emotional dimension of the human nature relationship (e.g. Dutcher et al., 2007; Frantz et al., 1995). Thus, the affective or emotional dimension has as yet been under-investigated, even though it is considered by many philosophers to be one of the most important determinants of pro-environmental altruism and pro-environmental commitment (e.g. Capra, 1996; Kellert & Wilson, 1993; Rolston, 1993; Roszak, 1995; Wilson, 1984, 1993). In view of the lack of a suitable measure of the emotional construct of love and care for nature, as a key element of a pro-environmental orientation (or ecological worldview), it was necessary to develop such a measure as the first stage of the empirical research before hypothesis testing could be undertaken in order to answer the primary research question. While Popper (1989) warns that there can be no measurement without theory, the theoretical foundation from the philosophy literature reviewed in Chapter Four provides some background to the construct of love and caring for nature to enable suitable scale items to be generated.

This chapter, which begins Part II of the thesis, describes Study One which is the scale development process to measure the construct of love and care for nature, as the first of two empirical studies of this research. The aim of Study One is to develop a psychometrically sound measure of love and care for nature, which seeks to operationalise Wilson’s (1984) construct of “biophilia” as similar in concept to the care and compassion element of Leopold’s (1949/1987) “land ethic”. This scale is then used in Study Two to test the hypotheses generated from the literature review in Chapters Three and Four. The hypothesis testing process of Study Two is described in Chapters Seven and Eight.

The scale development process undertaken for Study One involved three main phases. These three phases were primarily conducted in accordance with the recommendations for effective development of new scale measures as outlined by De Vellis (2003), Churchill (1979), Nunnally and Bernstein (1994) and Hinkin (1995, 1998). The key stages of scale development are: definition of the construct (specify domain of the construct), generation of suitable items, purification of the items, evaluation of the items, and the development of norms (Churchill, 1979; De Vellis, 2003; Hinkin, 1995, 1998; Nunnally & Bernstein, 1994). These recommendations have been adopted where appropriate during Study One. It should be noted that the
development of stable and representative norms for this scale (the last stage of the process) is not within the research scope of this project.

The following sections outline the specific scale development process undertaken for Study One. The first part describes Phase One comprising the first three general stages of the scale development process including defining the construct of love and care for nature and specifying its domain, generation of a suitable pool of items, and some purification of the item pool. It should be noted that purification of a scale represents an ongoing process, and therefore the evaluation and purification stages of scale development represent iterative steps in the process. For example, purification should also occur as a result of the evaluation of scale items after administration to a pilot sample and also after each field trial of the scale. Ideally there should be a number of field trials using the new scale across a range of different contexts before stable and representative norms can be established (Churchill, 1979; De Vellis, 2003; Hinkin, 1995, 1998; Nunnally & Bernstein, 1994). The second part of this chapter describes Phase Two of the scale development process which involved the major pilot study. As a result of the pilot study further evaluation and purification of the scale occurred. Following this, Part Three of this chapter outlines Phase Three which consisted of the field trial, and includes evidence for differentiation of the scale from other scales measuring similar constructs, together with an evaluation of its reliability and validity. The field trial also resulted in further purification and shortening of the scale for use in hypothesis testing in Study Two. The last section of this chapter then presents the overall summary and conclusions drawn from the outcomes of Study One.

**Ethics Clearance Statement**

This first stage of the empirical component of this research was granted ethical clearance (Protocol Number MKT/16/04/HREC)\(^{35}\), and the research was conducted in accordance with University guidelines and the approved protocol. The University ethics guidelines and procedures are based on the National Statement on Ethical Conduct in Research Involving Humans.

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\(^{35}\) The scale was originally called the “Environmental Ethic of Care” scale, but the name was changed to the Love and Care for Nature scale during the course of development of the scale to simplify and more accurately reflect the meaning of the construct being measured.
6.1 Measurement of Psychological Phenomena

“We develop scales when we want to measure phenomena that we believe to exist because of our theoretical understanding of the world, but that we cannot assess directly” (De Vellis, 2003, p. 9). Therefore, a scale or measure is developed in an attempt to determine a latent variable in terms of its unobservable true value (magnitude or strength), under particular conditions and for particular individuals, by assessing the observed value of the manifest variable as an estimate of the true value of the latent variable (Churchill, 1979; De Vaus, 1995; De Vellis, 2003; Gregory, 1996).

Sometimes single item scales have been used to measure psychological constructs mainly because they are simple and easy to administer and do not involve lengthy scale development processes (e.g. INS Schultz, 2002; Inclusion of Other in Self IOS, Aron et al., 1992). However, single item scales have been argued to be less reliable than multi-item scales for measuring psychological phenomena because each successive administration of a scale is unlikely to be checked at the same response point which may result in higher rates of measurement error (De Vellis, 2003; Churchill, 1979). Single item scales are thus highly vulnerable to this source of error, whereas for multi-item scales this measurement error tends to be averaged out by combining the responses of all items on the scale (De Vellis, 2003; Churchill, 1979). Moreover, individual items on a scale tend to have a particular idiosyncrasy or specificity in what aspect of the construct they measure, so a multi-item scale will also average out all these individual idiosyncratic measurements producing a kind of composite score (Churchill, 1979; De Vellis, 2003). In addition, single item scales can only differentiate respondents on a limited number of levels of an attribute (e.g. seven levels on a 7-point scale), whereas multi-item scales can differentiate people on multiple of levels of an attribute because the limited levels assessed by any one particular item are compounded by the total number of items in the scale (Churchill, 1979). Multi-item scales are therefore seen to have some advantages over single-item scales when measuring psychological constructs, especially more complex ones (De Vellis, 2003; Churchill, 1979). Therefore, because the construct of love and care for
nature is a complex one, development of a multi-item scale measure was considered most appropriate for the purposes of this study.

The major task in quality procedures for scale development is to continually increase validity of a scale measure while reducing any corresponding measurement error. Over the past few decades, many researchers have reported recommendations for quality procedures in multi-item scale development designed to maximise construct validity and minimise measurement error (Churchill, 1979; De Vaus, 1995; De Vellis, 2003; Hinkin, 1995, 1998; Nunnally, 1978). While there are some minor differences in processes described in the literature, there are several major consistencies around the broad phases of: specification of the domain of the construct of interest (i.e. a clear definition); generation of sample of items; purification of the sample of items (including the use of pilot studies); evaluation of the items including assessing validity and reliability (i.e. item analysis); and determination of generalisability of the scale items (i.e. developing norms) (Churchill, 1979; Hinkin, 1989, 1995; Nunnally & Bernstein, 1994; Sin, Tse & Yim, 2005). De Vellis (2003) outlines a number of key steps necessary in the development of valid and reliable scales which are designed to measure “elusive” phenomena that cannot be observed directly (p. 60). An overview of the main stages of scale development commonly recommended by scale development researchers (e.g. Churchill, 1979; De Vellis, 2003; Hinkin, 1995, 1998; Nunnally & Bernstein, 1994) is presented in Figure 6.1.

Figure 6.1. Overview of the scale development process
Each stage of the process for development of a multi-item scale to measure the construct of love and care for nature is outlined in the following sections of this chapter. This scale development process has been conducted in accordance with the guidelines recommended by several scale development researchers, notably Churchill (1979), De Vaus (1995), De Vellis (2003) and Hinkin (1995, 1998).

6.2 Creating a Measure of Love and Care for Nature

According to De Vellis (2003) measurement is a means of attempting to make an unobservable latent psychological construct (i.e. the latent variable) manifest and observable. Researchers can then look at the relationships between these manifest variables, being scores on particular measures, and infer that these relationships are reasonable estimates of the relationships between the corresponding underlying latent variables (i.e. the constructs). The inferences and any associated conclusions will be more or less useful depending on how well we develop those measures ultimately designed to measure the true scores of the unobservable or latent constructs of interest. The quality and usefulness of any such measure of an underlying construct of interest depends almost entirely on how well that construct is defined (De Vaus, 1995; De Vellis, 2003). The following section describes the first stage of the scale development process.

Definition of the Construct

It is essential to determine a definition of the construct to be measured which is grounded in a thorough theoretical understanding of that construct including the level of specificity\(^36\) required (Churchill, 1979; De Vaus, 1995; De Vellis, 2003). This stage of the process provides the framework, limitations, and scope for the development of the new measure, that is, the domain of content (De Vellis, 2003; Nunnally & Bernstein, 1994), and is therefore considered the most important step in the process (De Vaus, 1995; De Vellis, 2003). Therefore the first task is to adequately

\(^{36}\) For example, is the scale to be a more general measure of the construct wanted (e.g. a measure of general wellbeing), or a specific sub-dimension of the construct (e.g. a measure of physical wellbeing versus a measure of psychological wellbeing), or a context specific aspect of the construct (e.g. a measure of wellbeing in a family unit)?
define the construct of love and care for nature, variously termed a nature ethic, a land
ethic, or biophilia.

The construct of love and care for nature is defined in this study as deep love
and caring for nature which includes a clear recognition of nature’s intrinsic value
and a personal sense of responsibility to protect it from harm. This definition
incorporated the following three main theoretical dimensions:

(1) feelings of wonder and interest in nature (the sustained emotions which seem
to evoke feelings of care) (e.g. Carson, 1965; Fromm, 1998; Wilson, 1993;
Leopold, 1949/1987),

(2) feelings of love, emotional closeness and interconnectedness with nature,
including a spiritual aspect largely neglected in the social science literature (e.g.
Kellert, 1997; Wilson, 1993; Lalonde & Jackson, 2002; Naess, 1989; Rolston,
1993; Roszak, 1995; Schultz, 2002), and

(3) feelings of care and responsibility or commitment towards nature (e.g. Fien,

These three theoretical dimensions of the construct of love and care for nature
emerged from a synthesis of the following key philosophical concepts and ideas.
Firstly, the definition of the construct of love and care for nature emanates largely
from the work of (Leopold, 1949/1987) on the land ethic, and that of Fromm (1998),
Wilson (1984, 1998) and Naess (1989) on the nature of biophilia and deep love for
nature. Furthermore, the definition also includes elements from the philosophical
literature on deep caring as outlined by Van Hooft (1995) and Noddings (2003),
which are described in Chapter Four. As caring and commitment towards nature are
considered to be important parts of this construct some of the philosophical elements
of environmental ethics were also considered in the definition of the construct (e.g.
Hay, 2002; Rolston, 1993; Roszak, 1995; Seamon, 1984). The three components of
Schultz’s (2002) theoretical construct of psychological inclusion of nature in self were
also taken into account in the definition of love and care for nature, with an emphasis
on the specifically emotional and caring aspects.
In addition, the concepts encapsulated in the philosophy and intentions behind the Earth Summit, and the principles expressed in the Earth Charter document, were also considered in the definition of the construct. For example, The Earth Charter states:

we must decide to live with a sense of universal responsibility, identifying ourselves with the whole Earth Community as well as our local communities” … "the spirit of human solidarity and kinship with all life is strengthened when we live with reverence for the mystery of being, gratitude for the gift of life, and humility regarding the human place in nature (The Earth Charter Commission, 2007).

This concept of “reverence” mentioned in the Earth Charter is akin to Carson’s (1965) sense of awe and wonder. Klinger (1998) has argued that these emotions have been largely ignored in psychological research into emotions and their connections to goal strivings as primary motivational systems. Taking into consideration the emotion of wonder in forming a complete definition of the construct of love and care for nature was thought to be important. Wonder has been conceptualised as a long lasting emotion which incorporates an innate feeling for the high intrinsic value (i.e. an ecocentric worldview) of something and a sense of moral responsibility towards that something (Carson, 1965; Hepburn, 1984; Orr, 1993). The essence of the emotion of wonder has been succinctly described by Hepburn (1984):

The attitude of wonder is notably and essentially other acknowledging. It is not shut up in self-concern or quasi-solipsistic withdrawal (p. 145).

Awe and wonder provide a fertile ground for evoking feelings of transcendent awareness of something beyond the boundaries of human existence and of sympathy, pity, compassion, admiration and love of nature (Carson, 1965). Wonder is an emotion which has a lifelong durability and also recognises something beyond the boundaries of human existence (Carson, 1965; Orr, 1993). It is a healing and strengthening force, fostered by an intense love of life, nature, and the cosmos, and is strongly related to biophilia and the conservation or land ethic which flows from it (Carson, 1965; Orr, 1993). It is, therefore, considered to be an essential element of deep love and caring for nature.
The following section describes the process of item generation which is founded on the foregoing conceptualisation of the construct of love and care for nature and the philosophical ideas that influenced this conceptualisation, and thus also its definition.

**Generation of the Item Pool**

The item generation stage consists of identifying a large number of items from the infinite pool of all possible items which are thought to measure the construct of interest and which might be included in the final scale, while keeping in mind the scale’s ultimate purpose (Churchill, 1979; De Vaus, 1995; De Vellis, 2003). Each item should be considered to be a mini-test of the underlying latent variable, or construct, as well as capturing as many different ways of expressing that construct as possible (De Vellis, 2003). There should also be a clear and explicit link between items and their theoretical underpinnings (Churchill, 1979; Hinkin, 1995). Included in the process of generation of suitable items are decisions concerning scale format, including scale of measurement, item wording, and also whether or not items should include some negatively worded statements (De Vellis, 2003).

The initial aim of this stage of scale development is to generate a larger number of items than the final number required, ideally many times the desired number (De Vellis, 2003; Hinkin, 1995). This is undertaken so that there is sufficient redundancy within the initial item pool. Redundancy in the early stages of scale development is an asset rather than a liability (De Vellis, 2003), as this will ensure that the internal consistency (i.e. reliability) of the final item set will be as high as possible. Internal consistency is a function of how well the items are related to each other and to the scale as a whole (De Vellis, 2003; Gregory, 1996; Kline, 1998). Part of the scale purification process is to ensure that there are a number of useful items which strongly correlate with each other in the final instrument. Therefore, the more items generated for the initial item pool, then the more likely it will be that there will be a suitable number of strongly related items remaining as a result of the purification processes (De Vellis, 2003; De Vaus, 1995; Gregory, 1996; Kline, 1998).

In the first instance it was thought that 20 to 25 items in the final scale to measure love and care for nature might be a suitable number. In order to ensure adequate redundancy for scale development purposes approximately 100 items (i.e.
four times 25) were generated incorporating the three theoretical dimensions, namely: interest and wonder, love and emotional connectedness, and care and responsibility towards nature. Particular care was taken to avoid items too similar in wording to the New Ecological Paradigm (NEP) (Dunlap & Van Liere, 1978, 1984; Dunlap et al., 2000), because the NEP was thought to measure a separate, although related, cognitive construct of general environmental beliefs about human nature relations (Stern et al., 1995). The items for the love and care for nature scale were generated to reflect specifically emotional dimensions of the human nature relationship which were compatible with, but not the same as, concepts reflected in the NEP. Moreover, there was a deliberate focus on the use of wording in item statements which had clear emotional connotations.

**Scale Format: Scale of Measurement**

The next step in the item generation process involves determining the format for measurement (De Vellis, 2003). While a number of response format options are available, the use of a Likert-type scale is common and has been successful in a wide variety of applications, especially in behavioural research including the measurement of opinions, beliefs, and attitudes (De Vaus, 1995; De Vellis, 2003; Hinkin, 1998). There has been some criticism in the literature of the validity of using Likert type scales to measure a variety of psychological constructs (Blaikie, 2000), but it appears that there may be preliminary evidence for the special value of using response formats that incorporate an array of numbers as a sort of mental number line such as those used in these types of scales (De Vellis, 2003). For example, some recent neuroscience research has argued that the mental number line is “more than simply a metaphor”, in that the brain seems to process mental number lines in a functionally similar way to the spatial processing of physical number lines (Zorzi, Priftis & Umilta, 2002, p. 138). De Vellis (2003) argues that this new research provides some “tantalizing” evidence of the special value of Likert scales as mental number lines in terms of neural processing mechanisms within the human brain (p. 84). This suggests that representation of the relative strengths of opinions about an issue by numbered segments on a sequenced array such as from “strongly disagree” to “strongly agree” might be a more valid process for assessing beliefs, attitudes, and feelings in people than previously thought by some of the critics of Likert scales. Moreover, most of the
existing scales used for validation of this new scale in Study One, and for hypothesis testing in Study Two, have also used the Likert scale format. Therefore, this format was considered to be appropriate for items in the new scale to measure love and care for nature. The next issue to be considered in finalising the item generation stage is item wording.

Scale Format: Item Wording

An important consideration in deciding the format of a new scale is the manner in which the actual item statements are written. When writing statements for items in Likert type scales the relative strength of a statement in positive or negative terms also needs to be considered (De Vellis, 2003). Neutral or very mild statements do not typically produce a useful range in strength of agreement, and may actually represent an absence of belief or opinion (De Vellis, 2003, p. 80). Conversely if a statement is overly strong, people holding anything but extreme views might find themselves in disagreement with an extremely strong statement (De Vellis, 2003). A good Likert type item then should make a clear statement of opinion, attitude or belief one way or another and the response choices should represent the range of relative strength of agreement with that statement (De Vaus, 1995; De Vellis, 2003).

Given the general principle of writing clear statements in positive or negative terms for Likert type scales, there is some debate about the usefulness or otherwise of negatively worded items (De Vellis, 2003; Hinkin, 1995). In the past there has been a broad recommendation made by some psychometricians of the merits of including some negatively worded items (i.e. those which represent the absence of the construct) in measuring a construct of interest as well as positively worded items (i.e. those which represent the presence of the construct), in order to avoid an acquiescence or agreement bias (Nunnally, 1978; Nunnally & Bernstein, 1994). However, over the past decade the inclusion of negatively worded items has come under some strong criticism by scale development researchers (e.g. De Vellis, 2003; Hinkin, 1995; Jackson, Wall, Martin & Davids, 1993; Marsh, 1996; Schriesheim & Eisenbach; 1995). A number of researchers have reported the adverse effects of negatively worded items in survey instruments, citing possible fatigue and carelessness, differing education levels, and confusion amongst respondents, for response discrepancies, inconsistencies, and poor item performance in those scales.
with a mixture of negatively and positively worded items (Cordery & Sevastos, 1993; De Vellis, 2003; Jackson et al., 1993; Marsh, 1996). Schmitt and Stults demonstrated that with as few as ten per cent of respondents answering negatively worded items the wrong way, some real problems can emerge (cited in Jackson et al., 1993). In a review of scale development practices, Hinkin (1995) reports that reverse scored (i.e. negatively worded items) can reduce the validity of scales and exacerbate any systematic error. In addition, when factor analysis is undertaken as part of the scale development process, negatively worded items often have lower loadings than positively worded items on the same factors (Hinkin, 1995, p. 971). Therefore the use of negatively worded items as an attempt to control for response bias may create more problems than benefits by introducing systematic error, and poor item performance, which adds nothing to the interpretation of an instrument (Cordery & Sevastos, 1993; De Vellis, 2003; Hinkin, 1995; Jackson et al., 1993; Marsh, 1996).

Due to the problems with negatively worded items reported in the literature (De Vellis, 2003; Hinkin, 1995; Jackson et al., 1993; Marsh, 1996) most of the items generated for this new scale to measure love and care for nature had positive wording. However, because some notable psychometricians (e.g. Nunnally, 1978; Nunnally & Bernstein, 1994) recommend at least a few negatively worded items to assist with avoidance of acquiescence bias, a small number of these were included as an experiment in the item pool in order to determine their relative usefulness or otherwise.

Approximately 100 item statements resulted from this stage of the process. The next stage of scale development involves the process of purification, and two preliminary purification steps were undertaken in order to reduce the pool of useful items for the major pilot study (Phase Two). The first step in the purification process was achieved as a result of recruiting a small panel of experts to review the entire pool of items and offer advice on their relevance and usefulness for measuring the construct of interest.

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37 Low loadings on individual factors means that the items have little relationship with the other items on that particular factor.
38 Positive wording indicates the presence rather than the absence of the construct of interest.


Purification: Review of Item Pool by Experts

In accordance with the recommendations of De Vellis (2003) on multi-item scale development, a small group of 10 interdisciplinary experts were recruited and asked to comment in writing via email on each of the items in the item pool. This group included three academics, one in social marketing, one experienced in scale development, and one statistician. The group of experts also included one doctoral student with extensive relevant industry experience, a senior government official involved in environmental sustainability, a Professor of Sociology, a Professor of Environmental Education, a Professor of Social and Environmental Marketing, a Professor of Management, and a psychologist. Each member of this group was given a working definition of the construct of interest including its underlying theoretical dimensions, and was asked to comment on each item’s clarity and conciseness of wording, and whether it had high, medium or low relevance to the construct (see Table 6.1). Provision was also made for general comments to be recorded after each item. As a result of this feedback, items were re-worded or eliminated from the item pool, and the remaining 93 items were then ready for further testing. The experts’ opinions on the remaining pool of items provided some support for the content validity of the items to be used in a pre-pilot survey, an additional purification process, which is described in the following section.
Table 6.1.
Example extract of survey for written comments of experts

<table>
<thead>
<tr>
<th>Item and comments' suggestions</th>
<th>Clarity &amp; conciseness?</th>
<th>High relevance</th>
<th>Medium relevance</th>
<th>Low relevance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Love or emotional closeness – sub-dimension</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. I feel a deep love for nature.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comments:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. When I am in nature, I often feel a sense of oneness with even mountains, rivers, oceans, and other features of the natural environment.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comments:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Purification: Pre-Pilot Testing of Items

The 93 items remaining as a result of the expert opinion survey process described in the previous section were subjected to additional purification testing using a convenience sample, as a small scale pre-pilot study (see Appendix A for a list of the 93-items used in the pre-pilot survey). The aim of this exercise was to reduce the item pool to around 40 items that could be used in the major pilot study in Phase Two of this study. Fifty-three volunteer academics and associates, 44% male and 56% female, completed the 93 item pool as if they were respondents, and were also encouraged to make written comments, as appropriate, on each individual item and on the scale as a whole. Participants rated the items on a 7-point Likert scale from 1 (strongly disagree) to 7 (strongly agree). The individual item responses were then analysed using the SPSS statistical software package in terms of item response distributions, means, standard deviations, and inter-item and item-total correlations.

Part of the purification process involves evaluation of individual items in terms of their means and variances or standard deviations. For example, relatively central means are important, because if means are near to one extreme or other of the
scale, the items may not be detecting certain values of the construct (De Vaus, 1995; De Vellis, 2003). High variances in items are also valuable attributes of scale items as a primary function of scale development is to create a measure which will discriminate between respondents in terms of different levels of the underlying construct of interest (De Vaus, 1995; De Vellis, 2003). If variances are too low or non-existent then those scale items fail in their function (De Vaus, 1995; De Vellis, 2003). In view of this, descriptive analyses were conducted first, and those items which had both very high means ($M \Rightarrow 6.00$) and little variability ($SD < 1.00$) were eliminated as being less useful items (De Vellis, 2003). Examples of items that were eliminated in this process included “I feel that we humans need natural surroundings for our wellbeing”, “I feel that I must not waste or degrade natural resources”, “Pollution of air and water is unacceptable”. These items seem to represent current social values to which most people might respond strongly in the affirmative, in the current context of global environmental concerns. Social value type items, while clearly indicative of the construct of interest, probably provide little or no discriminating value in the population due to a lack of variability in responses, and so are less useful additions in a scale for research purposes.

The next step of this process involved correlation and reliability analyses and those items with large numbers of low correlations with other items and low corrected item-total correlations ($r < .30$) were also eliminated (De Vellis, 2003). A group of items reflecting a non-human empathy or animal ethics theme, generated primarily from the Royal Society for the Protection of Cruelty to Animals (RSPCA) guidelines (see Table 6.2 for some examples of these), had low item-total correlations, even though they had moderate to moderately high relationships with each other. These may form a pool of items measuring a different underlying construct (e.g. non-human empathy) which will be investigated further, outside the scope of the present study and at a later time.

39 Near the extreme high end of the 7-point scale.
40 $SD$ is standard deviation which is the square root of variance. A standard deviation of less than one indicates low variability or variance in the responses to this item. That is, many people are responding in the same way.
41 Low correlations mean that items have little or no relationship with each other.
42 Item-total correlations assess how well each item is related to the scale as a whole.
43 Thus, these items did not appear to be related to the scale as a whole.
Table 6.2.
*Examples of rejected items indicative of non-human empathy*

I believe animals don’t really feel pain as we know it.
It is cruel to throw live crabs or lobsters into a pot of boiling water to cook them.
It is cruel to house chickens that are farmed for eggs in large batteries or cages.
Fish and other non-mammals don’t feel pain in any sense of the word.
I feel sorry for animals kept in stressful or unhealthy living conditions.

During a reflection on this process, it was realised that many of the items eliminated by statistical analysis techniques were also similar in concept, although not in wording, to items in the New Ecological Paradigm (NEP), such as: “I feel it is right to protect and preserve the integrity and beauty of natural ecosystems for their own sake”; “Maintaining biodiversity is important to the well-being of the whole planet, not just humans”; “In order to improve the quality of life for people we need to protect and improve the quality of Earth’s natural environments”; and “For humans to thrive, nature must also thrive”. These statements are similar in concept to items in the NEP because they have more to do with general beliefs about human-nature relations rather than with an individual’s feelings about his or her personal relationship with nature.

Items with lower item-total correlations \( (r < .50) \), and excessively redundant or ambiguous wording\(^{44}\) were also eliminated from the item pool. Some of these included very specific pro-environmental behaviour type items which, while considered useful, were removed from the scale because these were thought to be most likely measuring something different from the construct of interest. For example, it was thought that some might be representing likely outcomes or the results of stronger love and care for nature, as opposed to being actual measures of this construct. The elimination process resulted in a list of 40 of the most useful items that were included in a pool for pilot testing (see Table 6.3).

\(^{44}\) Pre-pilot survey participants were encouraged to make comments on individual items and several had indicated that some of the wording appeared very similar (i.e. some redundancy) or appeared ambiguous.
### Table 6.3. Draft item pool Love and Care for Nature scale (LCN)

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>When in natural settings I feel emotionally close to nature.</td>
</tr>
<tr>
<td>2.</td>
<td>I feel joy just being in nature.</td>
</tr>
<tr>
<td>3.</td>
<td>I enjoy learning about nature.</td>
</tr>
<tr>
<td>4.</td>
<td>Being in natural surroundings makes me feel less stressed.</td>
</tr>
<tr>
<td>5.</td>
<td>I am always curious about how things in nature work.</td>
</tr>
<tr>
<td>6.</td>
<td>I feel that closeness to nature is important for my wellbeing.</td>
</tr>
<tr>
<td>7.</td>
<td>I find nature and the natural environment fascinating.</td>
</tr>
<tr>
<td>8.</td>
<td>I feel content and somehow at home when I am in unspoilt nature.</td>
</tr>
<tr>
<td>9.</td>
<td>I feel a deep love for nature.</td>
</tr>
<tr>
<td>10.</td>
<td>I need to have as much of the natural environment around me as possible.</td>
</tr>
<tr>
<td>11.</td>
<td>I don’t really like being in wilderness areas or unspoilt nature (reverse score).</td>
</tr>
<tr>
<td>12.</td>
<td>I prefer artificial environments and advanced technology around me (reverse score).</td>
</tr>
<tr>
<td>13.</td>
<td>I often feel emotionally close to nature.</td>
</tr>
<tr>
<td>14.</td>
<td>When I spend time in unspoilt nature I feel that my day-to-day worries seem to dwindle away in the face of the wonder of nature.</td>
</tr>
<tr>
<td>15.</td>
<td>I often feel a sense of awe and wonder when I am in unspoilt nature.</td>
</tr>
<tr>
<td>16.</td>
<td>When I am in nature, I often feel a sense of oneness with the mountains, rivers, oceans, and other features of the natural environment.</td>
</tr>
<tr>
<td>17.</td>
<td>I feel that I am part of nature.</td>
</tr>
<tr>
<td>18.</td>
<td>When I am close to nature, I feel a real sense of oneness with nature.</td>
</tr>
<tr>
<td>19.</td>
<td>I feel that the natural environment and I are interconnected.</td>
</tr>
<tr>
<td>20.</td>
<td>I feel a personal sense of interconnectedness with the rest of nature.</td>
</tr>
<tr>
<td>21.</td>
<td>When I am near what appear to be very old trees in the natural environment, I often experience a feeling of wonder and respect.</td>
</tr>
<tr>
<td>22.</td>
<td>I feel that the awe-inspiring and wondrous grandeur of unspoilt nature is close to a religious/spiritual experience for me.</td>
</tr>
<tr>
<td>23.</td>
<td>I feel spiritually bound to the rest of nature.</td>
</tr>
<tr>
<td>24.</td>
<td>I feel that it is my personal responsibility to look after nature in any way I can.</td>
</tr>
<tr>
<td>25.</td>
<td>I feel that if we wear fur clothing, it should only be fake fur.</td>
</tr>
<tr>
<td>26.</td>
<td>I feel upset when I hear of large areas of ancient trees being cut down or burned to clear land for farming or logging.</td>
</tr>
<tr>
<td>27.</td>
<td>I feel it is important to buy wood products that are from plantation sources and not from old growth forests.</td>
</tr>
<tr>
<td>28.</td>
<td>I feel upset when I think about the ongoing destruction of large areas of the world’s rainforests.</td>
</tr>
<tr>
<td>29.</td>
<td>I feel sorry for wild animals in captivity.</td>
</tr>
<tr>
<td>30.</td>
<td>People who walk off the designated walking path in a national park are just irresponsible.</td>
</tr>
<tr>
<td>31.</td>
<td>I feel sorry for wild animals in captivity.</td>
</tr>
<tr>
<td>32.</td>
<td>I often feel a strong sense of care towards the natural environment.</td>
</tr>
<tr>
<td>33.</td>
<td>When in nature I feel that I must be careful so I do not upset the ecosystem balance in any way.</td>
</tr>
<tr>
<td>34.</td>
<td>I feel that I must protect nature from harm in any way I can.</td>
</tr>
<tr>
<td>35.</td>
<td>Animals should always be treated by human beings with compassion and respect.</td>
</tr>
<tr>
<td>36.</td>
<td>I feel it is important to buy environmentally friendly household products whenever possible.</td>
</tr>
<tr>
<td>37.</td>
<td>I support the closure of some wilderness areas to the public to protect them from harm due to human activity.</td>
</tr>
<tr>
<td>38.</td>
<td>I often experience a powerful sense of awe and wonder in the presence of unspoilt nature.</td>
</tr>
<tr>
<td>39.</td>
<td>I feel that where and how fishermen are allowed to catch fish should be strictly controlled to protect marine resources.</td>
</tr>
<tr>
<td>40.</td>
<td>Protecting the well-being of nature for its own sake is important to me.</td>
</tr>
</tbody>
</table>
These remaining items were seen to be still representative of the three main theoretical dimensions of the construct: (1) feelings of wonder and interest in nature, (2) feelings of love, emotional closeness and connectedness with nature, and (3) specific feelings of care and personal responsibility towards nature. This preliminary item pool was called the Love and Care for Nature scale (LCN), for the sake of clarity and simplicity, and is based on a suggestion from a highly respected Professor with an interest in the topic.

These 40 remaining items were compiled for pilot testing with a sample of over 300 participants, in accordance with recommendations of Nunnally (1978) and De Vellis (2003). Pilot testing forms part of the purification stage of scale development, and Nunnally recommends that there should be between 5 and 10 observations (i.e. responding participants) per item being tested to ensure any factor analysis component of the scale development process provides results that are as robust as possible. De Vellis (2003) also recommends the early inclusion of one or two items which may assist with early validation of the scale.

The next section describes the second phase of the scale development process which involved 307 participants in a major pilot test of the 40 item scale. The aim of this pilot test process is to reduce the scale to between 20 and 25 of the most useful items.

**STUDY ONE - PHASE TWO**

### 6.3 Purification of the Scale: The Pilot Study

**The Sample**

The pilot test involved 307 university students over the age of 18 years, and comprised 62% females and 38% males. The students volunteered to participate without any course credit. This sample was recruited by a convenience sampling method, with the sampling process timed for the end of a series of classes conducted within a university business school. Business university students were targeted because it seemed likely that they were more similar to the general population than students of specialist areas, such as for example environmental sciences, engineering,
or health and medicine. Particular classes were selected for sampling, in consultation with the lecturers who had previously agreed to provide assistance with the study, in order to minimise disruption to student learning objectives. Volunteer students were asked to complete the questionnaires and place them anonymously in the confidential envelopes provided and these were then collected by the lecturer and returned to the researcher.

**The Measures**

The 40 items that were the subject of the pilot testing included those that remained from the pre-pilot testing process and are listed in Table 6.3. These items were designed to capture the emotional or affective component of an ecological worldview, a sense of love of nature and emotional connectedness, a caring orientation, and a sense of personal responsibility and commitment. An additional item, Schultz’s (2002) single item Inclusion of Nature in Self scale INS (see Figure 6.2 below) was also included in the pilot survey as a validating item with a view to providing some evidence for the construct validity of the 40 items being pilot tested (De Vellis, 2003) (see Appendix B for pilot test survey instrument).

![Image](image.png)


*Figure 6.2. Single item Inclusion of Nature in Self (INS) scale.*

Respondents were asked to circle which of the pictures in the INS best represented their relationship with nature. Each of the pictures was coded by the
researcher from 1 to 7, with 1 indicating no sense of closeness (i.e. no overlap of the circles) and 7 indicating a complete sense of oneness with nature (i.e. complete overlap of the circles). Possible scores on the INS thus ranged from a low of 1 to a high of 7.

**Analysis and Results**

All data were entered into the SPSS statistical software package for analysis and the few negatively worded items were reverse scored before analysis of the psychometric properties of each of the items was undertaken. As previously discussed, the primary aim of this exercise was to reduce the number of items for field testing from 40 to around 20 to 25 items. Therefore, item characteristics such as means, standard deviations, item response distributions, and item-total correlations were analysed and those items which demonstrated weak performance such as high means and very low standard deviations were eliminated first, along with those with the lowest corrected item-total correlations\(^46\) (< .60). De Vellis (2003) states that the corrected item-total correlation, that is, the correlation of each item with the scale as a whole excluding itself, indicates “how representative the item is of the whole scale” (p. 93). As also discussed previously, those items with high means and low variances are less useful as discriminating items and are also unlikely to covary adequately with other items in the scale. As a consequence of this De Vellis (2003) contends that concentrating primarily on the corrected item-total correlations for each item is sufficient, with inspection of means and variances being used as a double-checking mechanism in this process (p. 94).

Items with the lowest corrected item-total correlations were removed one at a time and the analysis re-run at each point of removal. Cronbach’s alpha remained very high, in excess of .90, throughout this process. Part of the function of purification of the scale is to reduce the item pool in order to increase practicality across a wider variety of research situations, while attempting to reduce excessive redundancy. It was interesting to note that the only two negatively worded items (i.e. “I don’t really like being in wilderness areas or unspoilt nature”, and “I prefer artificial environments and advanced technology around me”) were eliminated in the

\(^{46}\) Low corrected item-total correlations indicate little relationship with the scale as a whole.
first stages of the scale reduction process. Both of these items had two of the lowest corrected item-total correlations at $r = .29$ and $r = .38$ respectively, whereas most of the other items had corrected item-total correlations of between $r = .61$ and $r = .76$. This tends to support previous reports by several psychometric researchers of the problematic nature of negatively worded items in terms of their relatively poor performance in scales (See, for example, Cordery & Sevastos, 1993; De Vellis, 2003; Hinkin, 1995; Jackson et al., 1993; Marsh, 1996; Schriesheim & Eisenbach; 1995).

A total of 23 items were selected from the initial 40-item pool for further testing in the field. These remaining items together with their corrected item-total correlations ranging from $r = .63$ to $r = .79$ are reported in Table 6.4. The revised 23-item LCN scale demonstrates very high internal reliability as evidenced by Cronbach’s alpha of .96, but the individual items themselves have only moderate to moderately high relationships with each other, between $r = .35$ and $r = .77^{47}$. These relationships only account for between 12% and 59% of the variance in any particular item pair, and therefore excessive redundancy does not appear to be an issue. However, it seemed a reasonable strategy during field testing to further shorten the scale to increase its utility for further testing and future research.

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47 With very high Cronbach’s alpha the first issue to consider is whether relationships among the individual items are too high (i.e. around .9) which would indicate high levels of redundancy. However, relationships among items in this case tended to be only moderate.
Table 6.4.
Love and Care for Nature (LCN) scale – 23 items and corrected item-total correlations

<table>
<thead>
<tr>
<th>Item</th>
<th>Corrected Item-Total Correlation</th>
</tr>
</thead>
<tbody>
<tr>
<td>When I am near what appear to be very old trees in the natural environment, I often experience a feeling of wonder and respect.</td>
<td>.65</td>
</tr>
<tr>
<td>When I am in nature, I often feel a sense of oneness with the mountains, rivers, oceans and other features of the natural environment.</td>
<td>.75</td>
</tr>
<tr>
<td>When in natural settings I feel emotionally close to nature.</td>
<td>.78</td>
</tr>
<tr>
<td>I feel joy just being in nature.</td>
<td>.73</td>
</tr>
<tr>
<td>I feel that I am part of nature.</td>
<td>.72</td>
</tr>
<tr>
<td>I enjoy learning about nature.</td>
<td>.68</td>
</tr>
<tr>
<td>I feel that closeness to nature is important for my wellbeing.</td>
<td>.79</td>
</tr>
<tr>
<td>I find nature and the natural environment fascinating.</td>
<td>.68</td>
</tr>
<tr>
<td>When I am close to nature, I feel a real sense of oneness with nature.</td>
<td>.81</td>
</tr>
<tr>
<td>I feel content and somehow at home when I am in unspoilt nature.</td>
<td>.74</td>
</tr>
<tr>
<td>I feel that the natural environment and I are interconnected.</td>
<td>.76</td>
</tr>
<tr>
<td>I feel a deep love for nature.</td>
<td>.74</td>
</tr>
<tr>
<td>I feel that the awe-inspiring and wondrous grandeur of unspoilt nature is close to a religious/spiritual experience for me.</td>
<td>.70</td>
</tr>
<tr>
<td>I feel that it is my personal responsibility to look after nature in any way I can.</td>
<td>.66</td>
</tr>
<tr>
<td>I often feel emotionally close to nature.</td>
<td>.76</td>
</tr>
<tr>
<td>When I spend time in unspoilt nature I feel that my day-to-day worries seem to dwindle away in the face of the wonder of nature.</td>
<td>.63</td>
</tr>
<tr>
<td>Protecting the well-being of nature for its own sake is important to me.</td>
<td>.64</td>
</tr>
<tr>
<td>I feel spiritually bound to the rest of nature.</td>
<td>.70</td>
</tr>
<tr>
<td>I feel a personal sense of interconnectedness with the rest of nature.</td>
<td>.77</td>
</tr>
<tr>
<td>I often feel a sense of awe and wonder when I am in unspoilt nature.</td>
<td>.72</td>
</tr>
<tr>
<td>I often feel a strong sense of care towards the natural environment.</td>
<td>.72</td>
</tr>
<tr>
<td>I feel that I must protect nature from harm in any way I can.</td>
<td>.63</td>
</tr>
<tr>
<td>I need to have as much of the natural environment around me as possible.</td>
<td>.70</td>
</tr>
</tbody>
</table>

Alpha = .96
some early evidence for validity of the 23 item lcn scale

in order to gather some preliminary evidence for validity of the new lcn scale, bivariate correlations were calculated for the relationships between each of the 23 items in the scale, and the single item inclusion of nature in self scale (ins), which has previously been shown to be related to pro-environmental altruism. each of the 23 items correlated moderately well (ranging from \( r = .41 \) to \( r = .58 \)) with the single item ins scale (schultz, 2002), demonstrating some evidence of the validity of each of the individual items in the new scale (see table 6.5 overleaf). the overall scale score also correlated moderately well with the ins scale, \( r = .67 \), which provides evidence of reasonable levels of the scale’s validity at this early stage of development.

the next stage of the scale development process was to evaluate and further test the psychometric properties of the scale using a different sample selected from a tourism context. by sampling tourists who were thought likely to be more or less interested in nature, depending on their tourism preferences, it was felt that respondents would vary considerably in their responses to the scale items on the lcn, and therefore provide evidence for the scale’s efficacy in discriminating among respondents, and thus its usefulness as a measure.
Table 6.5.  
**Correlation of the 23 items in the LCN scale with the single item INS**

| Item | INS  
|------|------|  
| 1. When I am near what appear to be very old trees in the natural environment, I often experience a feeling of wonder and respect | .41***  
| 2. When I am in nature, I often feel a sense of oneness with the mountains, rivers, oceans and other features of the natural environment. | .52***  
| 3. When in natural settings I feel emotionally close to nature | .54***  
| 4. I feel joy just being in nature. | .50***  
| 5. I feel that I am part of nature. | .53***  
| 6. I enjoy learning about nature. | .43***  
| 7. I feel that closeness to nature is important for my wellbeing. | .51***  
| 8. I find nature and the natural environment fascinating. | .43***  
| 9. When I am close to nature, I feel a real sense of oneness with nature. | .52***  
| 10. I feel content and somehow at home when I am in unspoilt nature. | .51***  
| 11. I feel that the natural environment and I are interconnected. | .54***  
| 12. I feel a deep love for nature. | .54***  
| 13. I feel that the awe-inspiring and wondrous grandeur of unspoilt nature is close to a religious/spiritual experience for me. | .45***  
| 14. I feel that it is my personal responsibility to look after nature in any way I can. | .46***  
| 15. I often feel emotionally close to nature. | .54***  
| 16. When I spend time in unspoilt nature I feel that my day-to-day worries seem to dwindle away in the face of the wonder of nature. | .44***  
| 17. Protecting the well-being of nature for its own sake is important to me. | .48***  
| 18. I feel spiritually bound to the rest of nature. | .51***  
| 19. I feel a personal sense of interconnectedness with the rest of nature. | .58***  
| 20. I often feel a sense of awe and wonder when I am in unspoilt nature. | .46***  
| 21. I often feel a strong sense of care towards the natural environment. | .51***  
| 22. I feel that I must protect nature from harm in any way I can. | .43***  
| 23. I need to have as much of the natural environment around me as possible. | .57***  

*** $p < .001$
6.4 Preamble

As previously discussed, the generally agreed stages of scale development, summarised in Figure 6.1, include: definition of the construct and specifying its domain, generation of items, purification of the scale, evaluation, and the development of norms (Churchill, 1979; De Vellis, 2003; Hinkin, 1995, 1998; Nunnally & Bernstein, 1994). Phase One and Phase Two of this study consisted of the first three stages of the scale development process to measure the construct of love and care for nature. Phase Three, the field trial, builds upon the scale development processes conducted in phases one and two, and is concerned primarily with the fourth stage of scale development, the evaluation stage.

It should be noted that the development of norms for newly created scales involves a lengthy process over a number of field trials (Churchill 1979; Hinkin, 1995, 1998). These field trials should ideally be conducted in a variety of different contexts and with sizeable samples of the relevant population of interest in order to determine the relative generalisability of a scale and its predictive power (Churchill 1979; Hinkin, 1995, 1998). This process, therefore, is usually an ongoing one. The development of appropriate norms is undertaken in the context of the intended purpose of the scale and its likely practical use, so assessment of generalisability and predictive usefulness must be based on the limitations of the population of interest (Churchill 1979; Hinkin, 1995, 1998). For example, the scale developed to measure love and care of nature is initially to be used in a field trial within a tourism context, including ecotourism, as it may prove useful for evaluation of the environmental interpretation components of many nature based tourism experiences. However, the long term aim is for the scale to be used within the general population, and it is expected to be useful in a variety of contexts such as environmental education evaluation, consumer psychology, sustainability research, and environmental ethics research. With this in mind, future empirical testing of the scale to develop stable and generalisable norms, as well as further assessment of its reliability and validity, will be necessary over a wide range of samples and contexts not confined to tourism. Therefore, development of appropriate norms for this scale, the final stage of scale
development, is beyond the scope of this present study and will be the subject of future research.

6.5 Evaluation of Scale Measures

This evaluation stage of scale development is often a lengthy process which requires careful assessment of individual item performance and the new scale’s psychometric properties including its reliability and validity (De Vellis, 2003). There are three main ways of assessing reliability of scale measures: internal consistency, test-retest reliability, and split-half reliability (De Vaus, 1995; De Vellis, 2003). Assessment of Cronbach’s alpha, or the reliability co-efficient used as a measure of a scale’s internal consistency, depends on relatively central means and good variability of items, strong inter-item correlations, and high item-scale correlations (De Vaus, 1995; De Vellis, 2003; Hair, Anderson, Tatham & Black, 1998; Hinkin, 1995). This is the first measure of reliability obtained in any evaluation of measurement scales (Nunnally, 1978, p. 230). A high alpha score in applied settings should be between .90 and .95, and in any case must be between .50, as a bare minimum, and .80 (Nunnally, 1978). Most psychometricians recommend that internal consistency of scales should be as high as possible, because then one can assume that measurement error is minimised (Churchill, 1979; De Vellis, 2003; Kline, 1998). High reliability could also indicate high levels of redundancy in a scale, however some redundancy in a multi-item scale is useful and important (Churchill, 1979; Kline, 1998). For example, Churchill (1979) and De Vellis (2003) argue that the specificity of individual items in measuring fine nuances of the underlying construct can be averaged out when several items are combined, producing a kind of composite score. This composite score results in reduction of measurement error and an increase in internal consistency and reliability of the overall measure (Churchill, 1979; De Vellis, 2003). Therefore, it seems to be logical that a certain level of redundancy is desirable and necessary for development of a scale seeking to measure as many of those fine nuances as possible of a single underlying construct of interest, while balancing the overall length and therefore practicality of the scale.

Another type of reliability assessment is the well known test-retest reliability, or the correlation between successive administrations of the same test with the same persons, separated by sufficient time for them to forget their responses on the first
administration (Burns & Harrison, 1979; Kline, 1998). The rationale of this is that if a measure reflects an underlying construct it should measure that construct in similar ways on successive occasions (De Vellis, 2003; Kline, 1998). However, differences between successive administrations could be due to instability and, therefore, unreliability of the measure itself, or due to fatigue, or to systematic changes that are natural (e.g. resulting from mood or anxiety), or to changes due to variations in the method of administration (e.g. environmental stresses), or to real changes in the underlying construct over a period of time (Burns & Harrison, 1979; De Vellis, 2003). Conversely, stability in scores could be due to either the actual stability of the underlying construct of interest, or it could be due to the nature of the items themselves, in that there may be social desirability elements as well as indicators of the construct (De Vellis, 2003). The problem with reliability assessment using test-retest reliability measures is the difficulty in determining the difference between real changes due to changes in the underlying construct, and any changes due to unreliability of the instrument (Burns & Harrison, 1979, p. 34). For this reason De Vellis (2003) argues that relying on test-retest reliability as an assessment of measurement error is less than ideal.

The third type of reliability assessment is evaluation of the split-half reliability of a scale measure (Churchill, 1979). Evaluation of split-half reliability has been used, in the past, if a test-retest reliability evaluation was impractical or too expensive (Gregory, 1996). It assesses the correlation between randomly split halves of the test and produces a Pearson’s $r$ correlation between the scores on the two halves of the test, which can result in an underestimation in the reliability of the whole test because there are fewer items in each half (Gregory, 1996). A coefficient of split-half reliability also includes an adjustment for underestimation of the true reliability which uses the Spearman-Brown formula to calculate an estimate of the reliability of the test as a whole (Gregory, 1996). However, the use of split-half reliability has been declining for many years (Burns & Harrison, 1979), and Churchill (1979) argues that Cronbach’s alpha is simply the average of all split-half reliability measures, and therefore the latter is unnecessary if Cronbach’s alpha is used to assess internal consistency. In view of the effectiveness of alpha for assessing reliability of a scale measure and some of the problems associated with test-retest and split-half reliability

48 Generally the fewer the items in a scale measure, the lower its reliability will be.
assessments, Cronbach’s alpha was used for evaluating the reliability of the new scale to measure love and care for nature.

The second process involved in evaluation of a scale is assessment of its validity. It is important to note that the issue of validity of a psychometric measure, whether it measures what it is supposed to measure (i.e. the underlying construct), is related to its reliability (Hair et al., 2006; Kline, 1998). A measure cannot be valid if it is not reliable, but it can be reliable without being valid, in other words reliability is necessary but not sufficient for validity of scale measures (Kline, 1998). Therefore, demonstrated evidence of a measure’s validity is essential in the scale development process. However, this is not as simple as testing for reliability using a single (or a limited number) statistical index (Kline, 1998). For example, validity consists of three main types: content validity; criterion-related validity (predictive validity and concurrent validity); and construct validity (convergent validity and discriminant validity) (Cronbach & Meehl, 1955; De Vellis, 2003; Kline, 1998). Each of these types of validity is considered in the following sections. While face validity, or items appearing to measure what they are designed to measure on face alone, is often reported as a form of validity, there is general agreement among psychometricians that face validity has little to do with validity at all (De Vellis, 2003; Kline, 1998).

*Content validity* is the extent to which a specific set of items seem to reflect the universal content domain (De Vellis, 2003), and is established deductively by defining the construct, and therefore the universe of items, and systematically sampling items from within this universe (Cronbach & Meehl, 1955). In the case of measuring many psychological variables, a convenient definitive listing of the universe of possible items is not available, so the use of a panel of experts to help evaluate the initial sample of items will help to maximise their appropriateness and content validity (De Vellis, 2003). This technique was employed in the early stages of scale development in this study (Phase One) for the purposes of maximising the content validity of the final scale.

In order to ensure *criterion-related validity* of a scale, items are required to have an empirical relationship with a relevant criterion or standard (Cronbach & Meehl, 1955; De Vellis, 2003; Kline, 1998). Cronbach and Meehl (1955) argue that if a scale is administered before the relevant criterion then the scale’s predictive validity is being assessed, whereas if the scale and the criterion measure are administered at the same time, then concurrent validity is being assessed. However, with respect to a
debate regarding whether empirical associations between a test and a relevant criterion represent predictive or concurrent validity, De Vellis (2003) believes that this is a moot point. He states, on the issue of criterion-related validity, that the researcher is dealing with the same issue whether the criterion variable precedes the measure (post-dictive validity), follows the measure (predictive validity), or coincides with the measure (concurrent validity) (De Vellis, 2003). Presenting evidence for an empirical association between the measure and the criterion is the key issue, and whatever name is applied to criterion-related validity does not necessarily imply causation, irrespective of the temporal order of the predictor and criterion variables (De Vellis, 2003). It is the strength of the relationship which is most important, not the time factor, so the use of the temporally neutral term of criterion-related validity, rather than concurrent and predictive validities, seems more reasonable (De Vellis, 2003).

*Construct validity* is the third major form of validity. This form seems particularly relevant within the epistemological assumptions of a Critical Rationalism paradigm, as Cronbach and Meehl (1955) state that “construct validity must be investigated whenever no criterion or universe of content is accepted as entirely adequate to define the quality to be measured” (p. 282). This echoes the assumption of Critical Rationalism that attempts to describe and theorise about the world are necessarily imperfect. Construct validity is concerned with the theoretical relationship of the particular scale measure and other variables deemed to be relevant to the underlying theory (De Vellis, 2003). De Vellis (2003) argues that construct validity can be established to the degree that a particular measure behaves the way it should behave with regard to established measures of other constructs (p. 53). For example, the measure should be positively correlated with some variables, negatively correlated with some, and have no relationship with others, all on the basis of theoretically derived assumptions and hypotheses (De Vaus, 1995; De Vellis, 2003; Kline, 1998). There is no agreed statistical standard for demonstration of adequate construct validity (Cronbach & Meehl, 1955; De Vellis, 2003), and measures can be related to each other due to more than just construct similarities; they may also have high correlations with each other due to measurement method similarities such as
scale format or interview format\textsuperscript{49} (De Vellis, 2003; Gardner, Cummings, Dunham & Pierce, 1998; Spector, 1987).

Part of establishing evidence for construct validity may include assessing discriminant validity, or the absence of a correlation between measures of unrelated constructs, and convergent validity, or a relatively high correlation between measures of similar or theoretically related constructs (De Vellis, 2003; Gregory, 1996). Including items that aid in assessing construct validity in the early stages of scale development, rather than simply when the final scale has been completed, is important, as looking at the interrelationships between different measures and various iterations of the developing scale may yield useful support for its construct validity and also provide some insight into why some items may not be performing as well as expected (De Vellis, 2003).

In summary, the evaluation of this new scale to measure love and care for nature was undertaken from the results of the field trial conducted in Phase Three of Study One. This evaluation stage of scale development involves reliability assessment, using Cronbach’s alpha (see Churchill, 1979), as well as validity assessment, including evaluation of the scale’s content validity, criterion-related validity and construct validity. Appropriate validity assessment of the scale requires the inclusion of a number of measures of theoretically related and also theoretically unrelated constructs in the field instrument. For example, the Brief Inventory of Values (BIV) (Stern et al., 1998) contains pro-environmental values, which are considered to be central guiding principles for pro-environmental altruism (as argued in Chapter Four), and thus could be considered a suitable gold standard criterion variable (See De Vellis, 2003) for evaluating the criterion-related validity of the LCN scale as well as its construct validity. Furthermore, measures of pro-environmental behaviour and willingness to make personal sacrifices to protect the environment are also considered suitable criterion variables for assessing criterion-related validity. Measures of similar constructs such as the Connectedness to Nature (CNS) scale (Mayer & Frantz, 2004) and Inclusion of Nature in Self scale (INS) (Schultz, 2002) can be used for differentiation of the new scale of Love and Care for Nature (LCN) from these related measures, and also for assessment of its validity. Measures of theoretically related constructs such as environmental beliefs, New Ecological

\textsuperscript{49} Common methods variance concerns are addressed in Chapter Seven, which describes the method used for Study Two of this research project.
Paradigm (NEP) (Dunlap et al., 2000), and environmentally relevant values from the BIV (i.e. biospheric, socio-altruistic, and egoistic values) are also considered useful means of assessment of the scale’s convergent validity as an indicator of its construct validity. Moreover, measures of theoretically unrelated constructs such as the openness to experience and conservatism type values from the BIV (Dietz et al., 2005; Stern et al., 1998) are useful for assessment of the scale’s discriminant validity (as an indicator of construct validity).

The next section describes the third phase of the scale development process which involved 261 participants in the field trial of the 23 item LCN scale. The primary aim of this stage of the process is to evaluate the scale’s psychometric properties including its reliability and validity. In addition, this stage of the process also aims to differentiate the LCN from two previously validated measures of similar constructs relating to connectedness with nature, namely the Connectedness to Nature Scale (CNS) and the Inclusion of Nature in Self scale (INS). This was considered important to confirm the unique contribution of the new Love and Care for Nature scale (LCN), and thus the practical value of ongoing development of this new measure. A further aim of this field trial was to optimise the scale length in order to increase its usefulness for future field research, without compromising its psychometric performance.

6.6 Evaluation of the LCN Scale: The Field Trial

The Sample

Two hundred and sixty-one respondents, 42% males and 58% females, were sampled from two tourism venues in the Gold Coast region. A convenience sampling approach was employed to minimise disruption to tourists’ experiences and to reduce any interference with their satisfaction. The first tourist site was a marine wildlife theme park, where nature was at least some point of interest to tourists. The second site was an accredited ecotourism venue, where the tourist environmental setting was relatively unspoilt and nature was the focus of the experience. The venues were chosen with a view to obtaining information that reflected a degree of diversity of interest in and concern for nature amongst respondents.
In terms of demographics, the respondents ages ranged from 18 to 75 years old with an average age of 41 years, and there no significant difference between males and females in terms of age profile \( t(243) = 0.24, p = .808 \). Seventy-three per cent of the respondents were Australian born, with the remaining 27% born in the United Kingdom, New Zealand, or one of sixteen other countries. Respondents’ education standards varied, with 44.5% of the sample having completed high school, a trade qualification, or some on the job training, 36.5% having undergraduate or postgraduate university education, and a further 19% reporting no high school education. Over half of the sample (59%) worked full time or had their own business, 16% worked part-time, 8% listed home duties as their work, 8% were retired, 7% were studying, and 2% were unemployed at the time of sampling.

The Measures for Validation of the LCN

Due to time and resource constraints associated with a project of this nature, practical decisions had to be made about what measures were to be included in the field trial survey instrument. By necessity, the survey instrument was quite lengthy as it was important that a number of appropriate existing measures were included in the survey to assist with the task of validating the new scale measuring love and care for nature (LCN) (See earlier discussion on evaluation of scale measures). In view of this, decisions had to be made about which validating measures were most appropriate for inclusion in the survey instrument and a number of options were considered. There were some existing measures which might have been included in the survey for validation purposes, such as the emotional affinity for nature scale developed by Kals et al. (1999), or the Environmental Identity scale (EID) developed by Clayton (2003). However, because of the need to reduce the length of the survey instrument, it was thought that the single item Inclusion of Nature in Self scale (INS) (Schultz, 2002) (see Figure 6.2), and the 14-item Connectedness to Nature Scale (CNS) (Mayer & Frantz, 2004) (see Table 6.6 following) were conceptually closer to the particular construct of interest, namely love and care for nature. Both the CNS and the INS were concerned with measuring different aspects of the human sense of connectedness with nature, as is the new LCN scale. Moreover, as discussed previously it was also considered important to differentiate the LCN from both of these existing measures of similar constructs in order to confirm its unique contribution. The following section
provides a brief justification for inclusion of the CNS and the INS, as two measures of environmental connectedness, in the survey instrument for the purpose of validation of the new scale to measure love and care for nature (LCN).

**Measuring Environmental Connectedness**

Both the Connectedness to Nature (CNS) (Mayer & Frantz, 2004) scale and the Inclusion of Nature in Self scale (INS) (Schultz, 2002) are previously tested and validated measures of the human sense of connectedness to nature, and thus are considered to be very appropriate for inclusion in the survey instrument for validation of the new LCN. Mayer and Frantz (2004) have commented that the CNS scale (see Table 6.6 below) seeks to measure the affective aspect of connectedness to nature, while Schultz’s single item INS scale (see Figure 6.2 section 6.3) focused on the cognitive aspect of the relationship. However, as previously argued in Chapter Four many of the items in the CNS, which are supposed to measure emotional aspects of connectedness, are largely devoid of emotional wording. Instead they appear to be more cognitive in nature, as illustrated by the wording of the following items: “My personal welfare is independent of the welfare of the natural world”, and “I have a deep understanding of how my actions affect the natural world”.

Respondents were asked to respond to each of the 14 items in the CNS on a 7-point Likert type scale, ranging from 1 strongly disagree to 7 strongly agree. Total scores could range from the lowest possible score of 14 (14 x 1) to the highest possible score of 98 (14 x 7), with higher scores on the CNS being indicative of stronger feelings of connectedness to nature. For the single item INS, respondents were asked to circle which of the pictures in the scale best represented their relationship with nature (see Figure 6.2). Each of the pictures was coded by the researcher from 1 to 7, with 1 indicating no sense of closeness (i.e. no overlap of the circles) and 7 indicating a complete sense of oneness with the natural environment (i.e. complete overlap of the circles). Therefore, scores on the INS ranged from a low of 1 to a high of 7.
Table 6.6


1. I often feel a sense of oneness with the natural world around me.
2. I think of the natural world as a community to which I belong.
3. I recognize and appreciate the intelligence of other living organisms.
4. I often feel disconnected from nature.
5. When I think of my life, I imagine myself to be part of a larger cyclical process of living.
6. I often feel kinship with animals and plants.
7. I feel as though I belong to the earth as equally as it belongs to me.
8. I have a deep understanding of how my actions affect the natural world.
9. I often feel part of the web of life.
10. I feel that all inhabitants of earth, human and nonhuman, share a common ‘life force’.
11. Like a tree can be part of a forest, I feel embedded within the broader natural world.
12. When I think of my place on earth, I consider myself to be a top member of a hierarchy that exists in nature.
13. I often feel like I am only a small part of the natural world around me, and that I am no more important than the grass on the ground or the birds in the trees.
14. My personal welfare is independent of the welfare of the natural world.

The next section briefly outlines the reasons for including the New Ecological Paradigm (NEP), which measures general environmental beliefs about human nature relations, to assist with validation of the new LCN scale.

Measuring Environmental Beliefs

It was considered important, as part of the validation process for the newly developed LCN scale, to include an established and reliable measure of environmental beliefs (Lundmark, 2007; Stern et al., 1995). This led to the inclusion of the 15-item New Ecological Paradigm (NEP) as developed by Dunlap et al. (2000). Although there has been some recent criticism of the NEP in light of increased knowledge and understanding of environmental issues within society (Lalonde & Jackson, 2002), the
NEP is still one of the most widely used measures of environmental beliefs, concerns, and general attitudes (Lundmark, 2007; Schultz & Zelezny, 1998; Stern et al., 1995). Because the NEP measures basic belief systems about the environment, it necessarily has a cognitive focus, and represents a useful complement to the personal and emotional aspects of human-nature relations which the LCN aims to assess. Therefore, establishment of a significant positive relationship between the NEP and the LCN would assist with providing evidence for construct validity of the LCN.

Table 6.7 lists the 15 items that constitute the New Ecological Paradigm (NEP).

Table 6.7  

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

(R) – reverse scored item.

Respondents were asked to indicate their opinion for each of the items in the NEP using a 7-point Likert type scale, ranging from 1 strongly disagree to 7 strongly agree. Some of the items of the NEP were negatively worded and were reflected before totals were calculated. Total scores could range from the lowest possible score of 15 (15 x 1) to the highest possible score of 105 (15 x 7), with higher scores on the NEP being indicative of stronger pro-environmental beliefs. The next section presents a justification for inclusion of the Brief Inventory of Values (BIV), which was discussed earlier in Chapter Three, to assist with validation of the new LCN.
Measuring Values

As discussed in Chapter Three, Stern et al. (1998) developed a shortened version of Schwartz’s (1992, 1994) original values list with a view to making it more widely applicable due to its brevity and ease of use. This Brief Inventory of Values (BIV), developed and tested by Stern et al. (1998), consists of 15 items which are representative of Schwartz’ four higher order values clusters namely: self-transcendence; conservatism\(^{50}\); self-enhancement; and openness to change. These 15 value items are listed in Table 6.8 following. The Brief Inventory of Values (BIV) has been shown to be a useful instrument for determining those values types which are significant predictors of criterion variables such as environmental beliefs and attitudes, pro-environmental consumer and political behaviour, and willingness to sacrifice (i.e. willingness to pay) to protect the environment, as well as values types which have little or no relationship with these criterion variables (Schultz & Zelezny, 1998; Stern et al, 1998). Therefore, the BIV was considered to be an important inclusion in the survey instrument for the purposes of validation of the new Love and Care for Nature scale (LCN), particularly in relation to assessing criterion-related validity and construct validity (see earlier discussion on evaluation of scale measures).

The first three items: 1. “protecting the environment, preserving nature”; 2. “unity with nature, fitting into nature”; and 3. “respecting the earth, harmony with other species” represent the biospheric values type of the self-transcendence cluster, and the next three items: 4. “a world at peace, free of war and conflict”; 5. “social justice, correcting injustice care for the weak”; and 6. “equality, equal opportunity for all”, represent the socio-altruistic values type of the self-transcendence cluster (see Table 6.8). The conservatism values cluster included the three items: 7. “honouring parents and elders, showing respect”; 8. “family security, safety for loved ones”; and 9. “self-discipline, self-restraint, resistance to temptation”. The self-enhancement or egoistic values cluster consisted of the three items: 10. “influential, having an impact on people and events”; 11. “authority, the right to lead or command”; and 12. “wealth, material possessions, money”. The openness to experience values cluster consisted of the three items: 13. “a varied life, filled with challenge, novelty, and

\(^{50}\) Stern et al. (1998) changed the name of this higher order values cluster from “conservation” to “conservatism” to better reflect its meaning as concerned with traditional values.

Respondents were asked to indicate how important each of these values are “as a guiding principle in your life, on a scale from 1 (not at all important) to 7 (extremely important)” with 0\textsuperscript{51} marked if the respondent was actually opposed to the particular value.

Table 6.8
Brief Inventory of Values (BIV) – Stern et al. (1998)

1. Protecting the environment, preserving nature (self-transcendent biospheric values)
2. Unity with nature, fitting into nature (self-transcendent biospheric values)
3. Respecting the earth, harmony with other species (self-transcendent biospheric values)
4. A world at peace, free of war and conflict (self-transcendent altruistic values)
5. Social justice, correcting injustice care for the weak (self-transcendent altruistic values)
6. Equality, equal opportunity for all (self-transcendent altruistic values)
7. Honoring parents and elders, showing respect (conservatism or traditional values)
8. Family security, safety for loved ones (conservatism or traditional values)
9. Self-discipline, self-restraint, resistance to temptation (conservatism or traditional values)
10. Authority, the right to lead or command (self-enhancement or egoistic values)
11. Influential, having an impact on people and events (self-enhancement or egoistic values)
12. Wealth, material possessions, money (self-enhancement or egoistic values)
13. A varied life, filed with challenge, novelty, and change (openness to change values)
14. An exciting life, stimulating experiences (openness to change values)
15. Curious, interested in everything, exploring (openness to change values)

Schwartz (1994) has argued that a person’s responses to particular value items are likely to also measure the importance an individual places on all the values in the values set. In other words different people will have different and characteristic response patterns for the list of values as a whole. For example, some people might

\textsuperscript{51} This was the technique used by Stern et al. (1998).
tend to respond to all values towards the high end of the scale52 (or the low end), and some might respond using the whole scale range. Therefore, the relative importance of each value in terms of the importance assigned to the whole set of values provides more useful information about the individual’s value priorities than the information provides by raw scores alone. In order to control for these variations in individual response patterns, differences between each value rating and the average value rating for all 15 value items for each respondent was calculated. This difference score then represented the relative importance that individual respondents assigned to each value in terms of the other values as a whole53. Positive difference scores indicated those values which were considered by the individual to be relatively more important as guiding principles in their lives, and negative difference scores indicated those values which were relatively less important in this respect. For example, if the average importance rating of all 15 value items for a particular respondent was 5, and if the importance rating for the “unity with nature” value item was a 7 for the same respondent, then the difference score for this value is 2. That means that “unity with nature” is rated by this respondent as more important than the other values as a set (i.e. greater than the average importance rating). If, however, this same item was rated as a 2 then the difference score (given the same average importance rating for all values) would be a -3, meaning that this item would be of much lower importance with respect to the other values (i.e. less than the average importance rating). The magnitude of the difference score determines the relative strength of importance assigned to one particular value, or to the group of related values constituting a values type.

As summarised in Table 6.8, the BIV contains the following six values types: biospheric values, socio-altruistic values, egoistic values, openness to experience values, and conservatism values. Each of these values types comprises three related items. When determining the relative importance assigned to a particular values type the difference scores for the three value items that constitute that type are calculated and amalgamated. This process was undertaken to determine an overall difference score for each of the six values types in the BIV. These amalgamated scores represented the relative importance assigned to the six different values types. For

52 These people would tend to assign high importance to all the values in the values list, and the relative importance assigned to any individual value item is just a matter of degree.
53 This controlled for each person’s average response pattern for the whole values set, as some used the whole range of the scale when assigning importance to the values and some only used a narrow range.
example, the relative importance of the biospheric values type was determined by amalgamating the three difference scores for the biospheric values (i.e. protecting the environment, unity with nature, respecting the earth) for each respondent. Those respondents with relatively higher importance ratings for this values type were considered to be demonstrating a biospheric value orientation. A similar process was used to determine the relative socio-altruistic value orientation and the relative egoistic value orientation in the respondents.

*Measuring Willingness to Pay or to Make Personal Sacrifices to Protect the Environment*

Stern et al. (1998) have empirically tested the relationships between pro-environmental orientations and respondents’ willingness to sacrifice for the environment as an indicator of pro-environmental behaviour. While willingness to act pro-environmentally could be regarded as a behavioural intention, it has nevertheless been shown in previous research to be a valid predictor of actual manifest behaviour (Kaiser, Schultz & Scheuthle, 2007; Kals et al., 1999; Kals & Maes, 2002). The following two items were used to assess respondents’ willingness to make personal sacrifices for environmental conservation and protection, and were adapted from the work of Stern et al. (1999) - “I would be willing to accept cuts in my standard of living in order to protect the environment”, “I would be willing to pay much higher prices for many goods and services in order to protect the environment”.

Respondents were asked to indicate their responses to each of these items on a seven point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree).

*Measuring Pro-Environmental Behaviour and Choice*

A number of items adapted from the work of Stern et al. (1998) and Stern et al. (1999) were included to measure general pro-environmental behaviour such as: “how often do you practice recycling?”, “how often do you use public transport to minimise your car use?”, “how often do you use energy or water efficient household devices (e.g. low flow toilet flush/ shower heads, solar hot water, low energy lighting, etc.)?”. Items measuring socio-political behaviour such as: “how often have you boycotted or avoided buying the products of a company because you felt the company
was harming the environment?”; “how often do you vote for a candidate in an election at least in part because he or she is in favour of strong environmental protection/conservation?” were also included. In addition, respondents were asked to indicate whether they belonged to an environmental organisation or not (i.e. yes / no).

Consumer pro-environmental behaviour items were also included - “how often do you make a special effort to buy paper and plastic products that are made from recycled materials?” and “how often do you make a special effort to buy products that are environmentally friendly?” For all these items, respondents were asked how often they performed the behaviour in their daily lives: “always”; “mostly”; “occasionally”; “never”; or “no opportunity available”.

All data for this research were analysed using the SPSS statistical software package. The following section presents the results of the analyses of data obtained from this field trial of the LCN. The first part of these results outlines the evidence for differentiation of the LCN from the two existing measures of similar constructs pertaining to connectedness to nature (i.e. the CNS and the INS). This was previously argued to be an important first step in determining the unique contribution of the LCN as a measure of the explicitly emotional and personal aspect of the human relationship with nature.

Analysis and Results

Differentiation of the LCN Scale from the CNS and INS Scales

There was a significant and strong positive relationship evident between the Connectedness to Nature Scale (CNS) and the 23-item Love and Care for Nature scale (LCN) \( r = .78 \) \( N = 241 \) \( p = .000 \), and also between the LCN and the single item Inclusion of Nature in Self (INS) scale \( r = .56 \), \( N = 230 \) \( p = .000 \). As expected there was also a significant positive relationship between the CNS and the INS \( r = .61 \), \( N = 223 \) \( p = .000 \). Given the strength of these relationships, it was important to determine if the CNS scale, already published by Mayer and Frantz (2004), and the LCN scale, being developed in this current study, were measuring more or less the same thing, in spite of the arguments against this presented in Chapter Four. For this reason a

\[54\) If the respondent marked “no opportunity available” or did not respond to the item, that case was deleted for analysis purposes.\]
Principal Components Factor Analysis with oblique rotation (due to high correlations between the variables and the emergent factors) was undertaken to determine if most or all the items in the CNS and the LCN loaded on a single factor. If both scales loaded on a single factor, it could be argued that in spite of the fact that there could be a reasonable expectation of strong correlations between the two scales due to their underlying theoretical relationship, there may be too much commonality to warrant continuation of the development of the new scale to measure the construct of love and care of nature, LCN, as distinct from the existing CNS.

When the CNS and the LCN were entered, together with the single item INS, into a factor analysis the emergent factors with eigenvalues greater than 1 resulted in a clear loading of the LCN almost exclusively on one factor, and the CNS and the INS almost exclusively on another factor. While the amount of variance explained for the whole factor solution was 70.81%, the first factor which contained almost all of the LCN items by itself explained most of that variance. These data are presented in Table 6.9 which lists the specific factor loadings of each of the variables (items) in the analysis.

These results suggest that while the 14-item CNS and the 23-item LCN have a moderately high relationship with each other (i.e. $r = .78$), they seem to be measuring somewhat different concepts. It could be argued that they are each measuring different sub-dimensions of a larger underlying multi-dimensional construct of connectedness to nature. The earlier suggestion that the CNS measures a more cognitive aspect of connectedness to nature appears to be supported by the loading of Schultz’s single item INS scale (also cognitive in nature) on the same factor as the CNS items (see Table 6.9).

These results confirm that the new Love and Care for Nature scale (LCN) can be differentiated from both the Connectedness to Nature Scale (CNS) and the Inclusion of Nature in Self (INS) scale, even though the underlying constructs being measured are related to each other both theoretically and empirically. This provides some evidence of the unique contribution of the LCN as a measure of a distinct and emotional aspect of the human nature relationship.

---

55 This first factor accounted for 54.51% of the variance in the factor solution.
56 Loadings of .30 or less have been suppressed
Table 6.9.
Factor analysis of LCN, CNS and single item INS

<table>
<thead>
<tr>
<th>Item</th>
<th>Factor loading</th>
</tr>
</thead>
<tbody>
<tr>
<td>When in natural settings I feel emotionally close to nature LCN</td>
<td>.91</td>
</tr>
<tr>
<td>I often feel a sense of awe and wonder when I am in unspoilt nature LCN</td>
<td>.90</td>
</tr>
<tr>
<td>When I am in nature, I often feel a sense of oneness with the mountains, rivers, oceans, and other features of the natural environment LCN</td>
<td>.89</td>
</tr>
<tr>
<td>I feel content and somehow at home when I am in unspoilt nature LCN</td>
<td>.89</td>
</tr>
<tr>
<td>When I spend time in unspoilt nature I feel that my day-to-day worries seem to dwindle away in the face of the wonder of nature LCN</td>
<td>.87</td>
</tr>
<tr>
<td>I feel joy just being in nature LCN</td>
<td>.86</td>
</tr>
<tr>
<td>When I am close to nature, I feel a real sense of oneness with nature LCN</td>
<td>.85</td>
</tr>
<tr>
<td>I often feel emotionally close to nature LCN</td>
<td>.83</td>
</tr>
<tr>
<td>When I am near what appear to be very old trees in the environment, I often experience a feeling of wonder &amp; respect LCN</td>
<td>.81</td>
</tr>
<tr>
<td>I feel a deep love for nature LCN</td>
<td>.81</td>
</tr>
<tr>
<td>I feel that closeness to nature is important for my wellbeing LCN</td>
<td>.77</td>
</tr>
<tr>
<td>I feel a personal sense of interconnectedness with the rest of nature LCN</td>
<td>.73</td>
</tr>
<tr>
<td>I often feel a sense of oneness with the natural world around me CNS</td>
<td>.73</td>
</tr>
<tr>
<td>I enjoy learning about nature LCN</td>
<td>.72</td>
</tr>
<tr>
<td>Protecting the wellbeing of nature for its own sake is important to me LCN</td>
<td>.71</td>
</tr>
<tr>
<td>I often feel a strong sense of care towards the natural environment LCN</td>
<td>.69</td>
</tr>
<tr>
<td>I feel spiritually bound to the rest of nature LCN</td>
<td>.67</td>
</tr>
<tr>
<td>I feel that the awe-inspiring and wondrous grandeur of unspoilt nature is close to a religious/spiritual experience for me LCN</td>
<td>.67</td>
</tr>
<tr>
<td>I need to have as much of the natural environment around me as possible LCN</td>
<td>.66</td>
</tr>
<tr>
<td>I feel it is my personal responsibility to look after nature in any way I can LCN</td>
<td>.65</td>
</tr>
<tr>
<td>I feel that I am part of nature LCN</td>
<td>.64</td>
</tr>
<tr>
<td>I find nature and the natural environment fascinating LCN</td>
<td>.64</td>
</tr>
<tr>
<td>I feel I must protect nature from harm any way I can LCN</td>
<td>.63</td>
</tr>
<tr>
<td>I feel that the natural environment and I are interconnected LCN</td>
<td>.61</td>
</tr>
<tr>
<td>I think of the natural world as a community to which I belong CNS</td>
<td>.56</td>
</tr>
<tr>
<td>I often feel part of the web of life CNS</td>
<td>-.37</td>
</tr>
<tr>
<td>I feel as though I belong to the earth as equally as it belongs to me CNS</td>
<td>-.85</td>
</tr>
<tr>
<td>I have a deep understanding of how my actions affect the natural world CNS</td>
<td>-.81</td>
</tr>
<tr>
<td>Like a tree can be part of a forest, I feel embedded within the broader natural world CNS</td>
<td>-.77</td>
</tr>
<tr>
<td>I feel that all inhabitants of earth, human and nonhuman share a common 'life force' CNS</td>
<td>-.72</td>
</tr>
<tr>
<td>When I think of my life, I imagine myself to be part of a larger cyclical process of living CNS</td>
<td>-.71</td>
</tr>
<tr>
<td>I often feel kinship with animals and plants CNS</td>
<td>-.65</td>
</tr>
<tr>
<td>I often feel like I am only a small part of the natural world around me and that I am no more important than the grass on the ground or the birds in the trees CNS</td>
<td>-.51</td>
</tr>
<tr>
<td>How interconnected are you with nature? INS</td>
<td>-.50</td>
</tr>
<tr>
<td>I recognize and appreciate the intelligence of other living organisms CNS</td>
<td>.32</td>
</tr>
<tr>
<td>I often feel disconnected from nature CNS</td>
<td>.38</td>
</tr>
<tr>
<td>My personal welfare is independent of the welfare of the natural world CNS</td>
<td>.85</td>
</tr>
<tr>
<td>When I think of my place on earth I consider myself to be a top member of a hierarchy that exists in nature CNS</td>
<td>.60</td>
</tr>
</tbody>
</table>

Note:  
LCN – Love and Care for Nature  
CNS – Connectedness to Nature Scale  
INS – Inclusion of Nature in Self  
Variance explained = 70.81%  
KMO = .96  
Bartlett’s = .000

159
As previously discussed one of the aims of the field trial of the 23-item LCN scale was to further reduce the number of items to 15 in order to increase its practical use in future research\textsuperscript{57}. Part of the reason for shortening the scale from 23 items to around 15 items was because of the scale’s very high internal consistency (i.e. reliability) $\alpha = .96$ (see section 6.3). Generally, when the number of items within a scale is reduced the internal consistency is adversely affected (De Vaus, 1995; De Vellis, 2003; Churchill, 1979), but with very high reliability, such as for the 23-item LCN, reduction of the scale was not considered to be problematic. The next section outlines the process used to reduce the new LCN scale to 15 of the most useful items.

\textit{Shortening the Love and Care for Nature Scale (LCN)}

An important task in reducing the number of items in the LCN scale was to ensure that there were no adverse effects on the scale’s internal consistency or its usefulness as a measure of the explicitly emotional aspect of the human nature relationship. Therefore, reliability analysis and evaluation of the wording in individual item statements were the two primary methods used for the purpose of reducing the scale. In a similar procedure to the one used for the pilot test data analysis, which was described earlier in this chapter, items with the lowest corrected item-total correlations in reliability analysis were eliminated from the scale one at a time, and the analysis re-run at each step of the elimination process. The magnitude of individual item loadings on the first factor of the factor analysis of the LCN and CNS combined\textsuperscript{58} was also considered in the elimination process (see Table 6.9 for item factor loadings). The items with lower loadings on this first factor, consisting almost entirely of items from the LCN, were most likely to be considered for elimination. Furthermore, some items contained wording that was quite similar to particular items in the CNS, and these were also considered for elimination in order to ensure that there were as much differentiation as possible between the items in the previously established CNS and those in the new LCN. For example, the item “\textit{I feel that I am part of nature}” while related quite strongly on the LCN scale as a whole, had a lower loading on the first factor of the factor analysis (see Table 6.9), and was

\textsuperscript{57} Fifteen items seemed a reasonable number as many existing scale measures in this area of research consist of around 15 items (e.g. BIV, NEP).

\textsuperscript{58} All of the original 23 LCN items loaded on this first factor in the factor analysis.
also very similar in wording to items in the CNS such as “I often feel part of the web of life” and “When I think of my life, I imagine myself to be part of a larger cyclical process of living” and was, therefore, eliminated. Other pairs of items in the LCN which appeared to have an element of redundancy\(^5\) in terms of wording were also marked for elimination (i.e. one item of the pair was eliminated).

In making decisions about which items to retain in the final version of the scale, those items that were highly related to the scale as a whole (i.e. high corrected item-total correlations) and also contained clear emotional wording or reflected a more personal relationship with nature were favoured for inclusion. For example, the item “I feel that the natural environment and I are interconnected” is similar in wording to “I feel a personal sense of interconnectedness with the rest of nature”. However, the former has a lower relationship with the rest of the scale in terms of its corrected item-total correlation (and lower loading on the first factor reported in Table 6.9), and the latter has both a higher relationship to the scale as a whole and also seemed to express a more personal concept which might be closer to an individual’s sense of self. This resulted in “I feel that the natural environment and I are interconnected” being eliminated from the scale and the similar item with the word “personal” in it was retained. In this way, as many of the items that were expressed concisely and which contained explicit expressions of emotional closeness and oneness, love and care for nature, and which were also related strongly to the scale as a whole, were retained in the final version of the scale.

The 15 items that were retained are listed in Table 6.10 including their corrected item-total correlations. Cronbach’s alpha remained very high (.97) for this scale even though all but one of the inter-item correlations range from \(r = .50\) to \(r = .79\), with 6.6% ranging from \(r = .50\) to \(r = .59\), 50% ranging from \(r = .60\) to \(r = .70\), and 43% ranging from \(r = .70\) to \(r = .80\). It should be noted that only one inter-item correlation was greater than this at \(r = .89\) (see Appendix C which lists all the inter-item correlations). Part of the reason for the high alpha score is thought to be related to the scale development process itself, whereby approximately 100 items were reduced to 15 items through a series of procedures which involved assessment of their individual psychometric properties, including their item-total correlations. This ensured from the outset that the final corrected item-total correlation scores would be

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\(^5\) Statements appeared too similar in wording.
high at >.50, in accordance with the recommendations of Hair et al. (2006) for maximising internal consistency and thus reliability of scale measures (see Table 6.10).

Table 6.10.
Corrected item-total correlations for 15 item LCN

<table>
<thead>
<tr>
<th>Item</th>
<th>Corrected Item-Total Correlation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I feel joy just being in nature</td>
<td>.78</td>
</tr>
<tr>
<td>2. I feel that closeness to nature is important for my wellbeing</td>
<td>.84</td>
</tr>
<tr>
<td>3. When I am close to nature, I feel a real sense of oneness with nature</td>
<td>.86</td>
</tr>
<tr>
<td>4. I feel content and somehow at home when I am in unspoilt nature</td>
<td>.83</td>
</tr>
<tr>
<td>5. I feel a deep love for nature</td>
<td>.85</td>
</tr>
<tr>
<td>6. I often feel emotionally close to nature</td>
<td>.86</td>
</tr>
<tr>
<td>7. When I spend time in unspoilt nature I feel that my day-to-day worries seem to dwindle away in the face of the wonder of nature</td>
<td>.79</td>
</tr>
<tr>
<td>8. Protecting the wellbeing of nature for its own sake is important to me</td>
<td>.79</td>
</tr>
<tr>
<td>9. I feel spiritually bound to the rest of nature</td>
<td>.77</td>
</tr>
<tr>
<td>10. I feel a personal sense of interconnectedness with the rest of nature</td>
<td>.84</td>
</tr>
<tr>
<td>11. I often feel a sense of awe and wonder when I am in unspoilt nature</td>
<td>.84</td>
</tr>
<tr>
<td>12. I often feel a strong sense of care towards the natural environment</td>
<td>.83</td>
</tr>
<tr>
<td>13. I need to have as much of the natural environment around me as possible</td>
<td>.79</td>
</tr>
<tr>
<td>14. When in natural settings I feel emotionally close to nature</td>
<td>.82</td>
</tr>
<tr>
<td>15. I enjoy learning about nature</td>
<td>.79</td>
</tr>
</tbody>
</table>

Alpha = .97

The following sections now present the results of the evaluation stage of the scale development process for the new 15-item Love and Care for Nature scale (LCN). This evaluation involved assessing the new scale’s reliability and validity. In the first instance, evaluation of the 15-item scale’s reliability is gauged from the results of the reliability analysis and Cronbach’s alpha score.
**Reliability Assessment**

As previously reported, Cronbach’s alpha for the 15-item LCN scale resulting from field testing phase of the study is $\alpha = .97$, which is compared with an alpha score of $\alpha = .96$ for the 23-item scale. Thus, shortening the scale from 23 to 15 items did not reduce the internal consistency and reliability of the scale. As discussed earlier in this chapter, another commonly used assessment of the reliability is a split-half reliability test using the Spearman-Brown formula, which in the past was calculated if a test-retest correlation (an assessment of temporal stability) was impractical, as it is in this case (De Vellis, 2003; Gregory, 1996). However, because Churchill (1979) says that split-half reliability is unnecessary if Cronbach’s alpha is used (as the average of all split-half reliability measures), Cronbach’s alpha was the only assessment of reliability of the LCN made for this present study.

The following sections of this chapter discuss the evaluation of the new LCN scale in terms of its validity, and specifically present the evidence for its content validity, criterion-related validity, and construct validity.

**Validity Assessment**

As discussed previously in this chapter validity consists of several major types: content validity; criterion-related validity; and construct validity (Cronbach & Meehl, 1955; De Vellis, 2003; Kline, 1998). Each of these types of validity is addressed in terms of evaluation of the new LCN scale. The procedure used in the first instance to ensure the content validity of the scale is outlined in the following section.

**Evidence of content validity**

Content validity has been defined earlier in section 6.4 of this chapter as the extent to which a specific set of items seem to reflect the universal content domain (De Vellis, 2003). Content validity of the LCN scale has already been discussed and established early in the scale development process and particularly during Phase One (Stage 2: Item generation). The use of a panel of experts to provide advice and feedback on each of the 100 plus items in terms of their content in relation to the
definition of the construct of interest was to ensure that items used in the later stages of scale development displayed appropriate content validity. This method of maximising content validity early in the scale development process is in accordance with recommendations offered by De Vellis (2003). In addition, a pre-pilot survey was conducted as an additional step in this process to obtain written feedback from a different group of individuals in terms of item suitability and relevance to the construct of interest. Both strategies sought to enhance the content validity of the new LCN scale. The next section presents the evidence for criterion-related validity of the LCN. It should be noted that because all measures used for the assessment of validity were administered with the LCN at the same time, evidence for the concurrent validity of the scale will used as support for its criterion-related validity.

Evidence of criterion related validity

De Vellis (2003) states that criterion-related validity, involves determining the relationship between a measure and some criterion variable or so-called “gold standard”. In determining a suitable “gold standard” for assessing the criterion related validity of the new scale, pro-environmental altruism was considered to be appropriate. Pro-environmental altruism could be determined through people’s inclination to engage in pro-environmental behaviour, their willingness to pay much higher prices for goods and services and their willingness to incur cuts in their personal standard of living in order to protect the environment. Therefore, criterion-related validity of the new Love and Care for Nature scale (LCN) was assessed in terms of its relationships with various pro-environmental behaviours, and its contribution for predicting people’s willingness to pay and make personal sacrifices to protect the environment.

Table 6.11 summarises the correlations between scores on the LCN and the frequency of various pro-environmental behaviours as self-reported by the respondents. Respondents who expressed stronger levels of love and care for nature also tended to self report higher frequencies of all pro-environmental behaviours. This result provides some evidence of the concurrent validity of the LCN as evidence of its criterion-related validity.
Further evidence of the criterion-related validity of the LCN, was assessed through its influence on respondents’ willingness to make personal sacrifices to protect the environment\textsuperscript{60}. Moreover, it was considered useful to determine the LCN’s unique contribution to the criterion variables with respect to the contributions of measures of related constructs such as the CNS and the INS. This allows not only a more thorough assessment of the new LCN’s validity but also provides additional evidence of its differentiation from the already established CNS and INS scales.

Table 6.11. 
*Bivariate correlations between pro-environmental behaviours and the LCN*

<table>
<thead>
<tr>
<th>Item</th>
<th>Love and Care for Nature (LCN)</th>
<th>Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>How often do you make a special effort to buy products that are environmentally friendly?</td>
<td>.42***</td>
<td>N =245</td>
</tr>
<tr>
<td>How often do you make a special effort to buy paper and plastic products that are made from recycled materials?</td>
<td>.37***</td>
<td>N =244</td>
</tr>
<tr>
<td>How often have you boycotted or avoided buying the products of a company because you felt that company was harming the environment?</td>
<td>.51***</td>
<td>N =243</td>
</tr>
<tr>
<td>How often do you vote for a candidate in an election at least in part because he or she is in favour of strong environmental protection/conservation?</td>
<td>.48***</td>
<td>N =230</td>
</tr>
<tr>
<td>How often do you sign petitions in support of promoting protection of the environment when they are presented to you?</td>
<td>.44***</td>
<td>N =232</td>
</tr>
<tr>
<td>How often do you read newsletters, magazines or other publications written by an environmental group?</td>
<td>.40***</td>
<td>N =238</td>
</tr>
<tr>
<td>Indicate if you currently belong to or donate to an environmental organisation?</td>
<td>.32***</td>
<td>N =210</td>
</tr>
</tbody>
</table>

\textsuperscript{***} \( p < .001 \)

When the Love and Care for Nature (LCN) scale was used with the INS and the CNS as combined predictors of willingness to pay much higher prices for goods and services to protect the environment, they accounted for a significant 31.9% of the variance in the criterion variable, willingness to pay \( F (3, 217) = 33.93, p=.000 \).

\textsuperscript{60} Willingness to pay much higher prices, and willingness to incur cuts in personal living standard, in order to protect the environment.
However, the LCN made the *only significant unique* contribution $\beta = .46$, $p < .001^{61}$, and is thus the most important predictor of willingness to pay to protect the environment. Table 6.12 presents a summary of the results of this regression analysis. The relative importance of each of the three predictors can be identified by the magnitudes and significance of standardised beta coefficients $\beta$ in the regression table.

Table 6.12  
*Regression predicting willingness to pay much higher prices for goods and services in order to protect the environment (N = 221)*

<table>
<thead>
<tr>
<th>Variable (predictor)</th>
<th>B</th>
<th>SE B</th>
<th>$\beta$</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Constant)</td>
<td>.21</td>
<td>.51</td>
<td></td>
</tr>
<tr>
<td>CNS</td>
<td>.01</td>
<td>.01</td>
<td>.06</td>
</tr>
<tr>
<td>INS</td>
<td>.09</td>
<td>.07</td>
<td>.08</td>
</tr>
<tr>
<td>Love and care for nature LCN</td>
<td>.66</td>
<td>.13</td>
<td>.46***</td>
</tr>
</tbody>
</table>

Note: $R^2 = .319$  
*** $p<.001$  
NB: Collinearity statistics of Tolerance and VIF were well within acceptable limits.

Similarly, when the Love and Care for Nature (LCN) scale, the INS, and the CNS were used as combined predictors of willingness to incur cuts in personal living standard to protect the environment, the three predictor variables together accounted for a significant 28.9% of the variance $F (3, 217) = 29.37$, $p = .000$. As before the LCN made the only significant *unique* contribution to respondents’ willingness to incur standard of living cuts $\beta = .43$, $p < .001$, and is therefore the most important predictor of this criterion variable. Table 6.13 summarises the results of this regression analysis.

---

$^{61}$ While there was some expected statistical overlap between the three variables due to their theoretical relationships, collinearity diagnostics, tolerance and VIF, were still within acceptable limits and multicollinearity was not considered a significant problem (Hair et al., 2007).
Table 6.13.  
*Regression predicting willingness to accept cuts in living standard to protect the environment (N = 221)*

<table>
<thead>
<tr>
<th>Variable (predictor)</th>
<th>B</th>
<th>SE B</th>
<th>β</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Constant)</td>
<td>.39</td>
<td>.52</td>
<td></td>
</tr>
<tr>
<td>CNS</td>
<td>.01</td>
<td>.01</td>
<td>.06</td>
</tr>
<tr>
<td>INS</td>
<td>.09</td>
<td>.08</td>
<td>.09</td>
</tr>
<tr>
<td>Love and care for nature LCN</td>
<td>.61</td>
<td>.13</td>
<td>.43***</td>
</tr>
</tbody>
</table>

Note: $R^2 = .289$  
*** $p<.001$  
NB: Collinearity statistics of Tolerance and VIF were well within acceptable limits.

In summary, the LCN is significantly associated with higher frequency of pro-environmental behaviours, behavioural intentions, and willingness to make personal sacrifices to protect the environment (i.e. pay higher prices and accept cuts in personal living standard). Furthermore, it is a better predictor of willingness to make such sacrifices than either the INS or the CNS. These findings provide consistent evidence of the new LCN scale’s criterion related validity, and also of its unique contribution with respect to measures of related constructs such as the CNS and the INS.

**Evidence of construct validity**

De Vellis (2003, p. 53) states that construct validity can be established to the degree that a particular measure behaves the way it should behave in regard to established measures of other constructs. Part of the process for assessing construct validity is to assess convergent validity or the degree to which a measure is highly related to other similar or theoretically related constructs, and also discriminant validity or the lack of relationship between a measure and theoretically unrelated constructs (De Vellis, 2003; Gregory, 1996).

When assessing the evidence for convergent validity of the LCN scale as evidence of its construct validity, bivariate correlations were calculated for evaluating the relationships between scores for the LCN, the CNS and the INS. Scores for the 15-item LCN had a high positive relationship with scores for the CNS ($r = .79, p = .000$
\( N = 240 \) and a moderately high relationship with the INS scores \((r = .57, p = .000)\) \( N = 229 \). Both of these scales have been previously related to pro-environmental concerns, attitudes and behaviours (Mayer & Frantz, 2004; Schultz, 2000, 2002) and these results provide some confirmation of the new LCN scale’s convergent validity. Moreover, the LCN also had a significant moderate positive correlation with scores for the NEP \((r = .41, p = .000, N = 248)\), which measures a person’s general environmental beliefs and concerns (Dunlap et al., 2000; Rideout, Hushen, McGinty, Perkins & Tate, 2005; Schultz & Zelenzy, 1998; Stern et al., 1995). As discussed previously the NEP has undergone substantial empirical testing (around 30 years), and has been shown to be significantly correlated with pro-environmental values, as well as pro-environmental attitudes, and pro-environmental behaviour (Dunlap et al., 2000; Luzar et al., 1995; Schultz & Zeleny, 1998; Stern et al., 1995). Thus, the significant moderate relationship between the LCN and the previously validated and theoretically related NEP provides further evidence of the new LCN’s convergent validity, and thus its construct validity.

Scores on the new LCN scale also had a strong positive relationship with the importance of biospheric values \( r = .60 \) \( N = 249 \) \( p = .000 \) and, to a lesser extent, with the importance of socio-altruistic values \( r = .21 \) \( N = 249 \) \( p = .001 \). Both of these values types were part of the self-transcendent values cluster and have been previously associated with altruistic behaviour (see Chapter Three). The biospheric values are explicitly concerned with the importance of the wellbeing of nature for itself, whereas the socio-altruistic values are concerned with the wellbeing of humanity and the value items do not mention nature per se. The stronger relationship between the new LCN and the biospheric values, as compared with its relationship with the socio-altruistic values, represents substantial evidence of the LCN’s construct validity, since the LCN is designed as a measure of individual’s deep love and concern for nature which is logically assumed to be related to stronger biospheric values. As further evidence of its convergent validity, LCN scores had a significant negative relationship with the importance of egoistic or self-enhancement values \( r = -.43 \) \( N = 249 \) \( p = .000 \). This means that the more a person reports love and caring for nature, the less importance they place on the self-enhancement or egoistic values. This result provides additional evidence of the construct validity of the LCN scale, as egoistic values have consistently been associated with less pro-environmental altruism in previous research (Stern et al., 1998).
As discussed earlier, discriminant validity of a scale measure is confirmed through its lack of relationship with theoretically unrelated constructs, and contributes to the evidence for a scale’s construct validity. Therefore, in addition to the evidence already gathered in support of the LCN’s convergent validity (part of its construct validity), it was considered important to also assess its discriminant validity. Previous research has found no relationship between the openness to experience values and pro-environmental behaviour or willingness to sacrifice to protect the environment (Dietz et al., 2005; Stern et al., 1998). Therefore, it could be assumed that a measure such as the LCN, which is related to pro-environmental altruism and assesses the emotional aspect of a pro-environmental worldview, would also be unrelated to openness to experience values. In support of this assumption, scores for the LCN had no relationship at all with the importance of openness to experience values in this study $r = -.02\ N = 249\ p = .697$.

While there has been some limited support for a negative association between conservatism or tradition values and pro-environmental behaviour, some research has reported no association, and therefore the evidence for any negative relationship between conservatism and environmental altruism has been inconsistent and equivocal (Dietz et al., 2005). In this study, scores on the LCN had no significant relationship with the conservatism (i.e. traditionalism) value orientation $r = -.11\ N = 249\ p = .077$. The results of this study, which confirm a lack of relationship between the importance of openness to experience values and scores on the new LCN, and also between conservatism and LCN scores, provide support for the discriminant validity of the LCN as evidence for its construct validity.

Therefore, if these results are indicative of those that might be expected in the general population, then as people place more importance on self-transcendent biospheric values (the intrinsic importance of nature) they tend to also report more personal love and care for nature (as measured by the LCN). To a much lesser extent this relationship with love and care for nature also holds true for those who place more importance on the self-transcendent socio-altruistic value orientation (the importance of wellbeing of humanity). The converse is true for people who hold the egoistic values (the importance of self over other) more important as guiding principles. People with stronger egoistic values report lower levels of love and care for nature. These results are consistent with the theoretical arguments discussed in
Chapter Two and Chapter Four in Part I of this thesis and attest to the construct validity of the new Love and Care for Nature (LCN) scale.

### 6.7 Summary and Conclusion

This chapter has presented Study One of the empirical part of this research project which involved a scale development process to measure the emotional component of an ecological worldview (or pro-environmental orientation), conceptualised as love and caring for nature. This new scale measure is used to test the hypotheses presented in Table 4.1 at the end of Chapter Four in order the answer the primary research question: Does an ecological worldview, comprised of pro-environmental values and feelings of love and care for nature, significantly influence tourists’ pro-environmental attitudes, behaviours and choices?

This new measure, called the Love and Care for Nature (LCN) scale, was developed in Study One in three main phases. Phase One involved defining the construct of interest, generation of suitable items to reflect this construct and purification of the initial pool of items to be used in pilot testing during Phase Two. Phase Two consisted of a major pilot study with over 300 university students and resulted in further purification and reduction of the scale from 40 items to 23 items which best reflected the underlying construct of love and care for nature and exhibited good psychometric properties. Phase Three of Study One involved the first field trial of the new scale which was undertaken primarily for the purposes of evaluation of its reliability and validity. During the field trial the newly developed Love and Care for Nature scale (LCN) was clearly differentiated from previously established and related measures of similar constructs, namely the Connectedness to Nature Scale (CNS) and the Inclusion of Nature in Self scale (INS). Moreover, the 23-item LCN scale was further reduced to 15 of the best items in order to increase its practicality in future field research. The 15-item Love and Care for Nature scale (LCN) was found to have good psychometric properties including strong internal consistency and thus reliability, as well as content validity, criterion-related validity, and construct validity. Figure 6.3 overleaf presents an overview of the three phases of this scale development process for the new measure of the construct of love and care for nature undertaken in Study One (See Appendix D for a list of items retained firstly as a result of the pilot test, and then as a result of the field trial).
The results of this scale development process for the LCN scale are encouraging. However, as previously argued the final stage of scale development, which is the establishment of stable and representative norms, requires extensive
additional field testing across a range of different contexts and the use of many
different samples of respondents in order to be confident of the scale’s
generalisability. This is beyond the scope of this present research project, and further
testing of the new LCN will be the subject of future research at a later time in order to
complete the scale development process. This 15-item Love and Care for Nature
(LCN) was the instrument used for the hypotheses testing stage (Study Two) of this
research project, which is covered in Chapters Seven and Eight of this thesis. The
next chapter, Chapter Seven, details the specific methods, procedures and measures
used for Study Two of this research.
CHAPTER SEVEN: STUDY TWO - METHODOLOGICAL CONSIDERATIONS

… It is recognized that research design is always a compromise between the ideal way of answering research questions and what is practical in the light of financial, time and other constraints. Good research designs are creative and professionally acceptable solutions to the problems and limitations that are encountered at the beginning and during the course of the research (Blaikie, 2000, p. 305).

7.0 Introduction

The previous chapter outlined the first stage of the empirical research. Study One consists of a scale development process employed to operationalise the emotional component of an ecological worldview, conceptualised as love and care for nature. This process resulted in a 15-item instrument which demonstrated good psychometric properties, including reliability and validity. It was also found to be appropriately differentiated from existing measures of other theoretically related constructs, thus confirming its uniqueness and value. This new measure is used in the second stage of the empirical research, Study Two, which involves hypothesis testing within a tourism context.

The overall purpose of this second stage of the empirical research is to examine the influence of the psychological aspects of an ecological worldview on tourist consumers’ environmentally relevant attitudes, behaviours, and choices. These choices include expressed interests and preferences for ecotourism type activities over more mainstream tourism activities. As argued in Chapter Five, the hypothetico-deductive logical paradigm is considered appropriate for hypothesis testing research and Study Two adopts a quantitative methodology based on the assumptions of this paradigm. More specifically, Study Two involves testing the six hypotheses generated as a result of the review of literature in Part I of this thesis and these hypotheses are listed together in Table 7.1.
Table 7.1.
Summary of hypotheses for testing in Study Two.

<table>
<thead>
<tr>
<th>Number</th>
<th>Hypothesis</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1</td>
<td>Stronger biospheric values will have a positive relationship with tourist pro-environmental attitudes, behaviours, willingness to pay, and choices including interest in ecotourism</td>
</tr>
<tr>
<td>H2</td>
<td>Stronger socio-altruistic values will have little or no relationship with tourist pro-environmental attitudes, behaviours, willingness to pay, and choices. Stronger egoistic values will have a negative relationship with tourist pro-environmental attitudes, behaviours, willingness to pay, and choices including interest in ecotourism.</td>
</tr>
<tr>
<td>H3</td>
<td>Love and care for nature will have a positive relationship with tourist pro-environmental attitudes, behaviours, willingness to pay, and choices including interest in ecotourism.</td>
</tr>
<tr>
<td>H4</td>
<td>Love and care for nature will be a better predictor of tourist pro-environmental willingness to sacrifice than values and beliefs as the level of sacrifice or effort required increases.</td>
</tr>
<tr>
<td>H5</td>
<td>Tourists who prefer ecotourism type experiences can be differentiated from those who prefer mainstream type tourism experiences on the basis of value orientation, love for nature, pro-environmental beliefs, and support for responsible and sustainable tourism.</td>
</tr>
</tbody>
</table>

This chapter outlines the specific methodological approach adopted in Study Two and describes the techniques and procedures used to gather and analyse the data from the population of interest in order to answer the primary research question, and thus address the aim of this research. The first part of the chapter discusses survey research as one of the most commonly used methods for data collection based on the assumptions of a hypothetico-deductive research strategy and quantitative methodology. The strengths and weaknesses of survey based research are examined, and a justification for the particular data collection approach used for this phase of the empirical research is presented. The next part of this chapter discusses the sampling issues that are relevant for this type of field research within a tourism context and includes specification of the sampling frame, the sampling procedure used, and the
details of the final sample of tourists obtained through this process. A description of
the specific measures which comprise the field survey instrument is presented,
together with a justification for each measure’s particular role for hypothesis testing
purposes. Some issues that were considered in regard to the survey instrument design,
scaling format and layout are also discussed. In addition, the statistical techniques
used to analyse the data and test each of the hypotheses are reviewed including error
rates and alpha levels for tests of significance. Since the field study survey instrument
contained a number of measures with similar response formats, the issue of potential
problems with common methods variance are also raised, and then addressed at the
end of this chapter. The next section discusses survey based research and its
associated strengths and weaknesses for this kind of deductive research strategy
employing quantitative methodology.

METHOD: HYPOTHESIS TESTING

7.1 Survey Based Research

The hypothetico-deductive logical paradigm and quantitative methodology
have been argued to be most appropriate for this type of hypothesis testing research
(see Chapter Five). Survey based research has been one of the most commonly
adopted data collection methods used by psychologists, including environmental
psychologists, and tourism researchers, following the assumptions of a deductive
research strategy (e.g. Dolincar & Leisch, 2008; Dunlap et al., 2000; Hansla et al.,
2008; Juric et al., 2002; Schultz, 2001; Schultz et al., 2005; Schwartz, 1992, 1994;
Stern et al., 1998).

One of the main advantages of survey based research is that surveys are
considered to be effective for describing particular characteristics of respondents in a
standardised way (De Vaus, 1995). This means that data can be collected about the
same variables or characteristics from a relatively large number of respondents or
cases. Surveys may include structured interviews, and structured observations, as
well as the more widely used interviewer administered or self-complete
questionnaires (Blaikie, 2000; De Vaus, 1995; Zikmund, Ward, Lowe, & Winzar,
2007). While De Vaus (1995) uses the term “survey” in a generic way to mean any of
the foregoing techniques, in this thesis the term “survey” will be used to mean the most widely used technique, the questionnaire.

The purpose of survey based research is to describe the characteristics of a set of cases or respondents in terms of particular phenomena or variables of interest (De Vaus, 1995). Surveys can also be used to understand the causes of those phenomena by looking at the variations across different cases or respondents, as well as across different groups of cases (De Vaus, 1995). Respondents in a sample can be compared on the basis of their similarities and differences in the variables of interest and some inferences can then be made about the characteristics, attitudes, or behaviours of the underlying population by examination of the variations in these within the sample (Cresswell, 1994; De Vaus, 1995).

Surveys have the advantage of economy and efficiency of design and data collection, since relatively large amounts of data can be obtained from significant numbers of respondents in relatively short time frames and in a standardised way (Cresswell, 1994; De Vaus, 1995). Moreover, data from surveys can be coded and analysed quantitatively to produce summary descriptive statistics about relatively large samples, and also employ inferential statistical analysis techniques to test hypotheses and draw conclusions about the respective underlying populations (Blaikie, 2000; Cresswell, 1994; De Vaus, 1995; Zikmund et al., 2007). Because survey research is a means of collecting data efficiently, and in a standardised way, the process is also easily replicable, which means that the reliability and validity of any conclusions drawn by a particular researcher can be checked by other researchers through replication of the process (Blaikie, 2000).

One of the disadvantages of surveys is that while surveys can be used to develop some insight into causal explanations about phenomena of interest, they cannot adequately establish causal connections between variables (De Vaus, 1995). Another disadvantage of surveys is related to their advantage of producing relatively large amounts of standardised data. The disadvantage with standardised data of this type is that there is limited opportunity to obtain insight into more meaningful aspects of social thought and action (Blaikie, 2000; De Vaus, 1995). In addition, survey data do not fully account for the context of those thoughts, beliefs and actions (Blaikie, 2000; De Vaus, 1995). Moreover, there are some things which simply cannot be measured by surveys such as complex social phenomena which can only be
adequately understood through the lived experiences of social actors or individuals (Blaikie, 2000; De Vaus, 1995).

However, because of the strengths of the survey as a means of collecting standardised data from larger samples as well as its ability to obtain data about many psychological phenomena including values, attitudes, beliefs, and intentions simultaneously (De Vaus, 1995; Mitchell & Jolly, 2004), the survey method was considered to be appropriate for this phase of the empirical research. Furthermore, Study Two seeks to address a number of hypotheses concerned with comparing differences in values, feelings, beliefs, attitudes, and behaviours of different types of tourists, and many of these variables have been operationalised through well established existing measures previously administered by other social researchers using a survey based approach (see for example Dolincar & Leisch, 2008; Dunlap et al., 2000; Hansla et al., 2008; Juric et al., 2002; Schultz, 2001; Schultz et al., 2005; Schwartz, 1992, 1994; Stern et al., 1998). Therefore, survey based research is thought to be the most suitable data collection method for effectively addressing the hypotheses in this type of cross-sectional research project.

**Options Considered for Survey Based Research**

Within the constraints of a survey based method, two main options were considered for data collection: the face to face or interviewer administered survey, and the self-completed paper and pencil survey. Mail surveys were not included among the options as there would be some doubt about who might complete the survey, the influence of other people may bias the data, and response rates for mail surveys tend to be poor (De Vaus, 1995). Telephone surveys, using random digit dialling, were also dismissed as an option primarily because this technique would not necessarily access tourists. The costs associated with administering telephone surveys were also seen to be prohibitive for a research project of this nature.

Of the two survey options, face to face or interviewer administered surveys are considered to be more effective than self-completed surveys in terms of their ability to increase response rates, capacity to include complex questions, and minimise item non-response, particularly for lengthy questionnaires (De Vaus, 1995). However, the limitations of face to face surveys include a lack of availability of suitably trained interviewers, social desirability bias, possible distortions in answers due to
interviewer characteristics, and their time and cost resource intensive nature in terms of time and costs (De Vaus, 1995). Furthermore, given the need to access tourists during their visits to tourism venues, interview surveys were thought to be too intrusive in terms of their inconvenience to respondents, and might also be viewed by tourists as compromising their privacy. These limitations of interview based surveys for data collection were considered to far outweigh any advantages within this particular context, and thus this option was rejected in favour of a self-complete paper and pencil survey method. This method was considered to be a more cost effective approach and the process could be managed by a single field researcher. This method was thought to yield reasonable response rates, while protecting the privacy of respondents and minimising any inconvenience to tourists who chose to participate in the survey.

7.2 Sampling Considerations

In order to investigate the psychological motivations of tourists and, thus, test the hypotheses specified in Table 7.1, it was considered important to access people who were actually engaged in tourism experiences at the time of sampling. It could then be more confidently assumed that at least some of these tourists had chosen to participate in their particular experience on the basis of their underlying psychological motivations. Therefore, a number of options were investigated to determine the most efficient and effective means of sampling tourists in tourism settings.

Venues, as providers of tourism experiences, are understandably reluctant to approve access to their patrons by social researchers conducting surveys that might impact on tourist experiences in negative ways. Mindful of the sensitivities associated with social research in this context, one of the most important considerations in developing a suitable sampling method for this field research was to keep any inconvenience for tourists to an absolute minimum. A second important consideration was the need to focus only on tourism venues whose management were supportive of this type of research.
Sampling Frame

The Gold Coast region was chosen as the location for the field study given its proximity to Griffith University, its reputation as a premier international tourist destination, and the rich diversity of tourist attractions and therefore choices for tourists that the region provides. Moreover, many of these attractions include tourism products that focus on natural environmental assets. For example, the Gold Coast Tourism brand “Very Gold Coast” markets the themes of beaches, sun and surf, boating, theme parks, luxury resorts, nightlife and excitement, and animals, wildlife and nature. “Very Gold Coast” branding also states that the Gold Coast is Australia’s theme park capital (Gold Coast Tourism, 2006).

Here's where you'll discover how all Australians would love to live. With miles of surf beach, lush green rainforest, world-class golfing greens and world-famous theme parks. With every kind of accommodation from exclusive 5-star hotels to sunny beachside apartments. Spoilt for choice? That's a Gold Coast holiday. (Gold Coast Tourism, 2006).

Therefore, tourists who visit the Gold Coast with its varied attractions could be regarded as reasonably representative of the general population of tourists. Moreover, the integrity of the natural assets of the Gold Coast region is crucial to the on-going viability of its tourism industry which is the region’s most important industry. Yet the region’s capacity to manage tourism in a sustainable way is a major issue, and is also a problem faced by tourism destinations worldwide. Increasing levels of visitation coupled with a lack of understanding of the motivators, behaviours, and choices of consumers of tourism products, puts preservation and conservation of these natural assets at risk. Therefore, the Gold Coast tourism region was thought to be an ideal context for the hypothesis testing phase of this project.

The sampling frame for this research consists of: tourists over 18 years of age who have visited a Gold Coast tourism venue. Two venues were chosen as the data collection sites and both agreed to participate in this research and to provide access to their patrons. These were Seaworld Marine Theme Park at Main Beach, and O’Reilly’s Rainforest Retreat in the Gold Coast hinterland. These two locations were
selected on the assumption that they might attract very different types of tourists based on psychological profiles and their interest in nature.

The first location, Seaworld, is an iconic theme park attraction located near to the beach, up-market shopping precincts, restaurants, luxury hotels and resorts. Given this mix of nearby attractions it was assumed that Seaworld would attract tourists who are interested in mainstream type tourism activities and experiences. While these tourists were thought to be expressing at least some level of interest in nature through their particular choice of venue (i.e. Seaworld is a marine wildlife theme park), wildlife at this attraction is experienced by visitors in a somewhat sanitised manner, through displays and shows, rather than being experienced in a relatively unspoilt natural setting.

The second location chosen was O’Reilly’s Rainforest Retreat which is situated in the World Heritage listed Lamington National Park and has advanced ecotourism accreditation status. Advanced ecotourism accreditation status is assigned by the Nature and Ecotourism Accreditation Program (NEAP) and is awarded to those venues which have achieved best practice in areas such as ecological sustainability, natural area focus and experience, providing opportunities for understanding and appreciating nature, making contributions to conservation, working with local communities, demonstrating sensitivity towards different cultures especially indigenous culture, emphasising client satisfaction, and demonstrating responsible marketing practices (Ecotourism Australia, 2008). Because of its ecotourism accreditation status and the associated assurances concerning environmental and social sustainability, it was assumed that this venue would be likely to attract tourists who had high levels of interest in nature and a psychological orientation towards the natural environment, as well as concern for nature conservation. Such tourists were also assumed to be more interested in nature based attractions and ecotourism type activities than the visitors to Seaworld.

Selecting a tourist sample from a mainstream venue and an ecotourism venue in this way was undertaken to maximise, as far as possible, diversity in the overall sample in terms of interest in nature and concern for the environment, as well as environmental value orientation, environmental beliefs, and love for nature.
**Ethics Statement**

This phase of the empirical research was granted ethical clearance by the University Human Research Ethics Committee (Protocol Number HSL/26/05/HREC) and the research was conducted in accordance with University guidelines and the approved protocol. The University ethics guidelines and procedures are based on the National Statement on Ethical Conduct in Research Involving Humans.

**General Sampling Procedure**

The constraints and sensitivities associated with research that requires engagement with tourists who are in the process of relaxing and enjoying their chosen experiences led to the adoption of a convenience sampling approach. This approach was considered to be the most practical and least disruptive option for both tourists and participating venues, and was adopted at both Seaworld and O’Reilly’s Rainforest Retreat.

In operational terms, the procedure involved the researcher, firstly approaching potential respondents to elicit interest in the research project, and then presenting a brief overview of the purpose of the research and an invitation to participate. This approach was timed to coincide with natural break areas and times, such as those for meals, or with areas and times which involved patrons waiting for shows or attractions to commence. Participants were offered complimentary drink vouchers redeemable at their chosen venue\(^{62}\) as an incentive for voluntary participation. Offering some incentive to participants is recommended as an effective strategy not only to increase response rates (Thomas, 1999), but also to increase the likelihood that respondents will feel morally obligated to complete the survey truthfully (Burns & Bush, 1995). This sampling procedure was undertaken mindful of the need to ensure there was minimum disruption and inconvenience to tourists’ holiday experiences, and also in consideration of the limited time they may have available for their chosen activities. Those who were willing to participate were then seated within the vicinity of the researcher to complete the survey at each of the tourism venues sampled.

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\(^{62}\) Vouchers were valued at between $3.00 and $3.60 on the advice of each venue.
Respondents were presented with an information sheet stating the overall purpose of the research, general instructions, assurances of confidentiality and privacy, and researcher contact details, which they could take away with them. They were also provided with a sealable confidential envelope for their completed survey, or offered a reply paid envelope if they wished to take the survey away and return it by mail. They were asked to complete the survey and return it to the researcher. This process resulted in a response rate of approximately 30% from the initial pool of tourists approached, yielding a final sample of 261 tourists.

**Study Two Participants**

This field sample of 261 tourists who responded to the survey instrument included 167 day visitors to Seaworld and 93 visitors to O’Reillys Rainforest Retreat. There were 42% males and 58% females, ranging from 18 to 75 years of age, with an average age of 41.12 years (SD = 13.48). (Further details concerning the demographic information of the sample of tourists are presented in the following chapter, Chapter Eight Results). The difference in final sample sizes between the two tourism venues is partly a reflection of their respective differences in average numbers of visitors per day. Moreover, there were similar proportions of males and females sampled from each tourism venue.

7.3 The Survey Instrument

The survey instrument included established measures of environmentally relevant values, environmental beliefs, attitudes, and self-reported behaviours, as well as the newly developed scale to measure love and caring for nature (LCN). A copy of the survey instrument and the letter of informed consent are included as appendices (see Appendix E and Appendix F). The following section describes the measures used to assess the relevant constructs of interest in this study including: environmental value orientations, love and care for nature, environmental beliefs, attitudes,

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63 Sixteen respondents chose not to indicate their age on the survey but were over the age of 18 years.
64 Of the tourists sampled from the ecotourism venue, O’Reilly’s, approximately 57% were females and 43% were males, and of those sampled at the mainstream venue, Seaworld, there were similar gender proportions of 58% females and 42% males, \( \chi^2(1, N = 254) = 0.03, p = .86 \).
willingness to pay, pro-environmental behaviour, general interest in ecotourism, and holiday preferences, as well as some demographic information.

**Measuring Environmental Value Orientations**

The shortened version of Schwartz’s (1992, 1994) original values list, the Brief Inventory of Values BIV, developed by Stern et al. (1998) consists of the 15 items (refer Table 3.2 Chapter Three) which are representative of each of Schwartz’s four higher value dimensions namely: self-transcendence; conservatism; self-enhancement; and openness to change, and have been shown to be useful as a predictors of criterion variables such as consumer behaviour, political behaviour, and willingness to make sacrifices to protect the environment65 (Stern et al., 1998). However, the only higher order value clusters which have been found in previous research to be relevant for investigating environmental value orientations, as predictors of environmentally relevant criterion variables, are the self-transcendence cluster or the altruism type values (i.e. biospheric and socio-altruistic values), and the self-enhancement value cluster, consisting of the egoistic values (Schultz, 2000, 2001; Stern, 2000b; Stern et al., 1998). Therefore, for hypothesis testing purposes in this research, the three items from the BIV: “a world at peace, free of war and conflict”; “social justice, correcting injustice care for the weak” and “equality, equal opportunity for all”, were used to measure socio-altruistic type values, and the three items: “protecting the environment, preserving nature”; “unity with nature, fitting into nature”; and “respecting the earth, harmony with other species” were used to measure the biospheric type values. The three items from the BIV: “influential, having an impact on people and events”; “authority, the right to lead or command”; and “wealth, material possessions, money” were used to measure egoistic type values. Respondents were asked to indicate how important each of these values are “as a guiding principle in your life, on a scale from 1 (not at all important) to 7(especially important)” with 066 marked if the respondent was actually opposed to the particular value.

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65 Willingness to pay higher prices for goods and services or to take cuts in one’s standard of living in order to protect the environment.

66 This was the technique used by Stern et al. (1998).
As already outlined in Chapter Six, in order to determine the relative importance of each value item in terms of the average importance for all values, the differences between each particular value rating and the mean value rating for all values were calculated for all 261 respondents\textsuperscript{67}. This produced a difference score for each value item which reflected its relative importance with respect to all other values for every respondent. As also discussed in Chapter Six, positive difference scores indicate those values that are relatively more important with respect to the other values, and negative difference scores indicate those values that are relatively less important than the other values. These difference scores were then amalgamated for each of the three value items within the environmentally relevant values types, namely, biospheric, socio-altruistic, and egoistic. The magnitude of the difference scores determines the relative strength of each particular value orientation in respondents.

A somewhat similar process was undertaken by Schultz and Zelezny (1998), but they controlled for mean values scores using partial correlation coefficients to determine the relationships between values and measures of pro-environmental behaviour. The process undertaken in this present study, using the values difference scores (from average ratings of importance for all values), is a similar approach to the one used by Schultz and Zelezny (1998), but is considered to be relatively simple to use and easily replicated in future research.

\textit{Measuring Love and Care for Nature}

The development of the 15 item Love and Care for Nature scale (LCN), as a measure of the explicitly emotional component of an ecological worldview, was presented in previous chapter (see Chapter 6 Table 6.10 for a list of items). The LCN scale, which has exhibited good psychometric properties up to this stage of its development, was used as part of the hypotheses testing process. Participants were asked to respond to each of the 15 items in the LCN on a 7-point Likert type scale, ranging from 1 strongly disagree to 7 strongly agree. Higher scores on the LCN represented stronger feelings of love and care for nature.

\textsuperscript{67} This controlled for each person’s average response pattern to all values in the set. This control for individual response patterns is necessary because some people use the whole scale range when assessing the importance of value items and some tend to cluster their responses towards one end of the scale or another.
Measuring environmental beliefs

Hypothesis five states: “Love and care for nature will be a better predictor of tourist pro-environmental willingness to sacrifice than values and beliefs as the level of sacrifice or effort required increases”. The objective of testing this hypothesis is to determine the relative contribution of love and care for nature with respect to the related constructs of pro-environmental values and pro-environmental beliefs, on willingness to sacrifice to protect the environment. Therefore, it was necessary to also use the standardised measure of pro-environmental beliefs, the New Ecological Paradigm (see Chapter Six, Table 6.7), in the hypothesis testing phase of this research. The New Ecological Paradigm (NEP) developed and tested by Dunlap et al. (2000), is a 15 item scale that has been used extensively to measure pro-environmental beliefs as well as general environmental attitudes (Lundmark, 2007; Schultz & Zelezny, 1998; Stern et al., 1998).

Respondents were asked to respond to each of the items in the NEP on a 7-point Likert type scale, ranging from 1 strongly disagree to 7 strongly agree. Some of the items of the NEP were negatively worded and were reflected\(^{68}\) before totals were calculated. Total scores could range from the lowest possible score of 15 (15 x 1) to the highest possible score of 105 (15 x 7), with higher scores on the NEP being indicative of stronger pro-environmental beliefs.

Measuring Attitudes

If the ecotourist market segment (defined by interest in and preferences for ecotourism) is a function of consumers’ pro-environmental values, beliefs and feelings about nature, then it seems reasonable to assume that ecotourists will be more likely to be committed to pro-environmental behaviours and choices than mainstream or mass tourists (defined by preferences for mainstream tourism activities). It is likely that this commitment would also include stronger support for organisations and activities that are less consumptive in nature and encompass the principles of environmental ethics and commitment to sustainability.

\(^{68}\) Scores were reversed.
In order to test these assumptions, other items included in the field instrument were items that sought to measure respondents’ propensity to reduce or curb their resource consumption patterns and control their behaviour (e.g. “As a tourist I feel I am entitled to use as much power/ water/ resources during my visit as I think fit for my own enjoyment”; “I believe I should definitely consider my impact on the earth and other cultures when I make my travel choices”; “I support the closure to the public of some national parks and wilderness areas to protect the environment from harm due to human activity”).

In addition, two items included in the survey sought to measure how respondents’ viewed the importance of green accreditation systems for tourism products, and their relative willingness to purchase green accredited tourism products over those that were not accredited (“As a tourist it is very important to me that tourism products, services and venues are part of a similar ‘green’ accreditation system to the one described above”; “I would choose a tourism product or service which adopts a ‘green’ accreditation system over one which does not if the choice is available”). A general definition of “green accreditation” was presented in the survey instrument explaining what it means and some of the key performance areas on which organisations are judged for accreditation purposes. Respondents were asked to indicate their levels of agreement with each of these two items on a Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree).

**Measuring Willingness to Pay or to Make Personal Sacrifices to Protect the Environment**

Stern et al. (1998) have empirically tested the relationships between pro-environmental value orientations and respondents’ willingness to sacrifice for the environment as an indicator of pro-environmental behaviour. While willingness to act pro-environmentally could be regarded as a behavioural intention, it has nevertheless been shown in previous research to be a valid predictor of actual manifest behaviour (Kaiser et al., 2007; Kals et al., 1999; Kals & Maes, 2002).

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This detail was presented so that respondents more clearly understood the issue to which they are expressing their agreement or disagreement. These items were specifically generated for the purposes of this research in consultation with an expert on green accreditation systems.
A number of items were included in the instrument to assess respondents’ willingness to pay for environmental conservation and protection. These items included: “I would be happy to contribute an extra 5% of the cost of a tourism package towards conservation of wildlife and the natural environment (i.e. $5 in every $100)”, “I would be willing to accept cuts in my standard of living in order to protect the environment”, “I would be willing to pay much higher prices for many goods and services in order to protect the environment”. These latter two items were adapted from the work of Stern et al. (1999). The others were developed for the purposes of this research, in consultation with an expert in sustainable tourism. Respondents were asked to indicate their opinion on these items on a seven point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree).

Measuring Pro-environmental Behaviour, and Pro-environmental Consumer Choice

Several other items adapted from the work of Stern et al. (1998) and Stern et al. (1999) were included to measure general pro-environmental behaviour such as: “how often do you practice recycling?”, “how often do you use public transport to minimise your car use?”, “how often do you use energy or water efficient household devices (e.g. low flow toilet flush/ shower heads, solar hot water, low energy lighting, etc.)”. In addition, there were a number of items measuring socio-political behaviour such as: “how often have you boycotted or avoided buying the products of a company because you felt the company was harming the environment?”, “how often do you vote for a candidate in an election at least in part because he or she is in favour of strong environmental protection/ conservation?”. Respondents were also asked to indicate whether they belonged to an environmental organisation or not (i.e. yes / no). Some specific consumer behaviour type items such as: “how often do you make a special effort to buy paper and plastic products that are made from recycled materials?” and “how often do you make a special effort to buy products that are environmentally friendly?” also adapted from Stern et al. (1998), have been included in the survey instrument with a view to getting some indication of respondents’ commitment to environmentally sustainable consumption. For all the foregoing behaviours,
respondents were asked how often they performed the behaviour: “always”; “mostly”; “occasionally”; “never”; or “no opportunity available”⁷⁰.

These items were included in the survey instrument as indicators of general, socio-political, and consumer pro-environmental behaviour outside the tourism context. Part of the objective for testing Hypotheses 1 through to 5 is to determine the influence of the environmentally relevant values and love and care for nature on pro-environmental behaviour. It was considered important to determine if the influence of environmental values and love and caring for nature is also evident in respondents’ daily lives as well as in their tourism specific choices and behaviours. Therefore, inclusion of these items within the instrument was considered to be essential for this purpose.

**Measuring General Interest in Ecotourism**

A general measure of interest in ecotourism, the Ecotourism Interest scale (EI) developed and tested by Juric et al. (2002), was included in the field instrument as a measure of respondents’ levels of interest in ecotourism type activities. Juric et al. (2002) have reported that the EI is a significant predictor of tourist behaviour, that is, actual visitation. Moreover, they suggested that while the scale had been initially developed in New Zealand, it would be useful to administer the scale in other countries and in other tourism contexts to further test its generalisability and validity (Juric et al., 2002). This field study provided a useful opportunity to further test the efficacy of the EI.

The EI consists of the following seven items in terms of their relative importance to tourists choices: “wilderness and undisturbed nature”; “tropical forests and indigenous bush”; “national parks; lakes and streams”; “world heritage status areas”; “learning about nature”; and “photographing landscape and wildlife”.

These seven items were interspersed among eight other tourism interest items which have been shown to be related - or not - to items of the EI (Juric et al., 2002). For example, in Juric et al.’s (2002) scale development study, shopping, gambling and wine tasting (which are aspects of Gold Coast destination marketing campaigns) were not significantly related to the EI scale, and therefore items describing these activities

⁷⁰ If the respondent marked “no opportunity available” or did not respond to the item, that particular case was deleted for the purpose of analysis.
have been incorporated into the measure to examine the relationships among variables within this present sample\(^71\). In previous research, ecotourists indicated that they are least interested in gambling, shopping, nightlife, amusement parks, and resort areas (Eagles, 1992; Juric et al., 2002). Thus inclusion of these items as well as the EI allows comparison of previous findings with those of this present study.

An item “sun and surf” was also included in this section of the survey instrument to assess its relationship with the other seven items in the EI. In the original work on development of the EI scale an eighth item “oceanside” was included and later eliminated due to a low item-total correlation (Juric et al., 2002). However, the Gold Coast has traditionally marketed “sun and surf” as a major natural tourist attraction of the region. Therefore, it would be interesting to determine if this choice, which is definitely nature based in terms of its providing a backdrop or context for tourism experiences, is related to the other items associated with nature based tourism experiences in the EI scale. Additional items included in the scale were the importance of “historical sites/ museums” (i.e. preserved history of culture) and “learning about other cultures”, because these types of activities have been associated with ecotourism in the past (Ceballos-Lascurain, 1991, p. 25; Fennell, 2003), and are also incorporated into some international definitions of ecotourism (e.g. Nature Conservancy and World Conservation Union). Two additional items, “exciting nightlife” and “power boating or 4-wheel driving”, were included in the set to balance as far as possible the number of items of the EI with the number of non-EI items.

In summary, 15 tourism interest items were included in the survey, seven from the EI and eight other items which were interspersed among them. Participants were asked to indicate the relative importance of each of these items when they choose a holiday, trip or attraction. A seven point scale ranging from 1 (not at all important) to 7 (extremely important) was used to collect information about the importance of each item to tourists. The range of total scores for the seven item Ecotourism Interest scale (EI) as a whole were from a minimum of 7 (7 x 1) through to a maximum of 49 (7 x 7). The total score on the EI was then an indicator of general interest in ecotourism, with higher scores representing stronger interest. Respondents were also asked to respond to the additional items: “shopping”; “gambling”; “exciting nightlife”;

\(^71\) In this instrument “wine tasting” was changed to “wine / food tasting” to assess a broader interest range.
“power boating or 4-wheel driving”; “wine/food tasting”; “historical sites/museums”; “learning about other cultures”, in the same manner as the ecotourism interest items. Scores for each of these items ranged from a minimum of 1 (not at all important) to a maximum of 7 (extremely important). In order to ensure that direct comparisons could be made between different groups of tourists in this study, all respondents were asked the same sets of questions about the relative importance of all 15 items when they chose a holiday, trip or attraction.

Measuring Holiday Preferences

Traditionally, ecotourists and mainstream or mass tourists have been identified largely on the basis of the type of tourism venue they happen to be visiting at the time of sampling by researchers. While it is valid to assume that tourists’ visitation behaviour is related to their interests and motivations, as argued in Chapters Three and Four, tourists can have a number of different reasons for visiting a particular tourism venue at a particular point in time. These reasons may, or may not, have anything to do with their interests or personal preferences, but instead could be associated with family considerations, or with seeking novel or trendy experiences, or with social issues, and so on. However, personal preferences are likely to be reflective of psychological variables such as value structures, goals and beliefs, and other related systems within a person’s psyche. It was thought that consumer preferences are likely to be dependent on these deeper psychological motivations which transcend particular situational contexts and thus may influence behavior more consistently than more context-specific choices.

In view of this reasoning, a set of different tourism holiday choices was offered to respondents without detailed explanations or descriptions of the holiday options on offer. These choices were: “sun and surf beach” holiday; “ecotourism or nature-based” holiday; “wildlife watching or wildlife photography” holiday; “luxury resort” holiday; “volunteer eco-tourism (i.e. paying for a holiday where you work to help with scientific environmental and wildlife conservation)” holiday; and “nightlife, gaming and shopping” holiday. The use of minimal explanation was a decision made

72 “Power boating or 4-wheel driving” was also included because this type of activity is highly consumptive in nature and potentially degrading to the natural environment, even though it is mostly a nature-based activity.
in order to reduce the likelihood that industry definitions of ecotourism, in particular, might unduly influence respondents’ choices (i.e. through increased cognitive involvement). Rather this strategy was used to assess respondent preferences on the basis of spontaneous choices, which was seen as a better indicator of personal motivations and feelings.

Respondents were asked to indicate their preferences by ranking the choices from 1 to 6, with 1 being first preference and 6 being last preference. Of the six holiday options, three were ecotourism type choices, and three were mainstream tourism type choices. These holiday options were interspersed with each other in order to reduce any obvious clustering of ecotourism type versus mainstream type tourism and the impact this might have on respondent choices. Furthermore, care was taken in the instructions that were given to respondents try to remove cost as a factor in their choices as some offerings might otherwise be perceived as more expensive than others. With this in mind, respondents were given the following instructions: “If all the following 6 tourism packages were similar prices and you had your choice, what would be your preference in order from 1 to 6? Please rank the following packages from 1 being your first preference or most preferred, 2 being your second preference, and so on … to 6 being your last preference or least preferred package”.

**Demographics**

The following demographic information was sought in the survey instrument: respondents’ age (year of birth), gender, education level, employment status, and country of birth. Place of upbringing (i.e. capital city, provincial city, country town, or rural area) was also included as this was considered to be a possible influence on respondents’ levels of interest in ecotourism and nature due to the relative remoteness or closeness to nature experienced during childhood (Horwitz, 1996; Van den Born et al., 2001). Demographic items were placed at the end of the survey.

**Survey Format: Scaling, Layout, and Common Methods Variance Issues.**

In order to maximise variance in the responses to Likert type items and to minimise confusion in respondents, items using Likert type scales were almost all organised on a 1 to 7 scale from strongly disagree 1 to strongly agree 7 and with a
neutral point at 4 to ensure consistency in presentation. Because the survey instrument was presented to respondents as a tourism survey most of the tourism specific items were presented first to ensure congruence with it being a tourism survey. One exception here was the inclusion of some tourism specific item sets between some of the psychological construct measures which was done to break up response patterns. In general, the measures relating to the psychological constructs, attitudes, and pro-environmental behaviours were presented after the tourism specific items, and then the demographic information was presented last. A few items that related to the specific venues who participated in the survey research were included to provide some general market research information as an incentive for their participation.\(^{73}\)

Another issue which was considered when designing the format and layout of the field survey instrument was the potential for common methods variance problems. Common methods variance concerns need to be considered when data using measures of variables with similar formats are collected in the same manner and at the same point in time in order to test hypothesised relationships between those variables (De Vellis, 2003; Gardner et al., 1998; Spector, 1987). In these circumstances, two or more measures may share more than construct similarity; their scores may covary because of the way in which they have been measured (De Vellis, 2003). In other words, some of the covariation between pairs of variables may be due to “measurement similarity rather than construct similarity” (De Vellis, 2003, p. 55).

However, due to the nature of this type of research in terms of its time and resource constraints, and the nature of the existing scale measures for some of the variables, it was necessary to include previously validated and empirically tested measures, with the same or similar formats, in this field survey instrument. Therefore, in an attempt to preempt some of the possible common methods variance problems, as far as possible within a logical and thematic structure, different sections with different response formats were interspersed throughout the survey instrument. This was done to try to create some sort of cognitive processing speed bump (Gardner et al., 1998), to interrupt individuals’ somewhat mindless marking of responses to a long series of primarily Likert-type scale items.

\(^{73}\) These 6 items were developed in consultation with tourism providers who agreed to participate and were added just prior to data collection. These items were presented on the last page of the instrument.
When designing the format and flow of questions Lindell and Whitney (2001) have suggested that demographic questions, which typically require very little cognitive processing, should be placed at the end of the survey instrument. This helps to prevent fatigue that may result in a response bias affecting those variables that require more cognitive engagement (Lindell & Whitney, 2001). Placing demographic variables, especially with long survey instruments (such as the present one), at the end of a survey, maximises the likelihood that respondents will answer questions which require cognitive engagement more carefully and truthfully because they fall earlier in the instrument and before fatigue sets in.

7.4 Statistical Analyses Techniques Used

All analyses for this research were undertaken using the SPSS statistical package. As several analyses were performed on the same data set in order to test the hypotheses, the alpha level for testing significance was lowered to control for increased Type I error rate, which occurs with multiple analyses on the same data (Hair et al., 2006; Howell, 2002). However, lowering the alpha level for testing significance also tends to inflate the Type II error rate (Black, Asafu-Adjaye, Khan, Perera, Edwards & Harris, 2007; Howell, 2002). In consideration of this, any conclusions drawn about the results of hypothesis testing were confined primarily to those where \( p < .001 \), and also, to a lesser extent, for results where \( p < .01 \). In the results that are described in the following chapter, the actual \( p \) values were reported where appropriate within the text to three decimal places to make a clear distinction between results where \( p < .01 \) and \( p < .001 \). Similarly, results presented in tables were also clearly identified as being *\( p < .05 \), **\( p < .01 \), and ***\( p < .001 \). Slight variations in sample size for some of the analyses performed were due to missing values.

Where differences between groups are assessed in terms of each particular dependent variable for individual hypotheses, \( t \)-tests and one way ANOVAs\(^ {74} \) were the analyses of choice rather than MANOVAs\(^ {75} \). The latter is considered to be more appropriate when assessing differences between groups on a linear combination of dependent variables, or combined variate, rather than for each individual dependent variable (Hair et al., 2006), as is the goal of this descriptive research. Bonferroni

\(^{74}\) Analysis of variance.

\(^{75}\) Multivariate analysis of variance.
posthoc comparisons were calculated, where appropriate, again as a control for an increased Type I error rate.

Where relationships are evaluated for hypothesis testing, simple bivariate correlations have been used. If the variables are both interval level data (i.e. numerical) Pearson’s $r$ has been used, and if at least one variable is ordinal level data, Spearman’s rho ($r_s$) has been used (Grether, 1976; Mason, Lind & Marchal, 1998; Siegel, 1957). There was some violation of the assumptions of normality with regard to the numerical data for correlation analysis using Pearson’s $r$. However, all the relevant distributions exhibited the same skew (i.e. negative), and therefore any conclusions drawn are conservative and are also confined to results where $p<.01$ and $p < .001$.

Where the collective and separate predictive effects of independent numerical variables on a numerical dependent variable (e.g. willingness to pay) are being assessed in hypotheses testing, standard multiple regression has been the primary approach taken (Hair et al., 2006). Standard multiple regression has been chosen as this project consists of descriptive research identifying the relationships between relevant variables, including the relative contribution of the new measure of love and care for nature (LCN) with respect to related measures of pro-environmental values, and also environmental beliefs, on pro-environmental behaviour, including willingness to pay.

Structural equation modelling techniques were not considered appropriate for this type of descriptive research as there is as yet no strong theoretical basis for specification of relevant structural models (Hair et al., 2006), especially those which involve a newly developed measure of the love and care for nature construct.

### 7.5 Testing for Common Methods Variance

The issue of common methods variance was mentioned in section 7.3 of this chapter. As previously discussed the design of the survey instrument format and layout was informed by the need to minimise the likelihood that common methods variance may bias any results. Spector (1987, p. 438) states that method variance is an artefact of measurement that may bias the results when relationships are explored among different constructs measured by the same method, but argues that there is little evidence for a significant biasing problem due to method variance with properly
developed instruments, and further that method variance has been found to be more of a problem with single item or poorly designed scales (Spector, 1987, p. 442). Crampton and Wagner (1994) concur, finding that in spite of the merit of urging moderation and due diligence in the use and interpretation of self report methods, the broad and comprehensive effects are not as pervasive as previously suggested by some critics, and that domain specific investigations are required to judge susceptibility to spurious relationships between variables in a self-report questionnaire measuring all the variables in a single study.

Nevertheless, because single sources of information, including survey instruments using the same or similar response formats such as Likert-type scales, could possibly result in spurious relationships between variables (Kaiser et al., 2007; De Vellis, 2003; Igbaria, Zinatelli, Cragg & Cavaye, 1997), it was considered important and necessary to test for possible common methods variance problems prior to performing any analyses on the data for hypothesis testing purposes. Harman’s single factor test was used (Igbaria et al., 1997; Podsakoff & Organ, 1986), whereby all the individual numerical variable items, supposedly measuring a number of different constructs, were entered into a single factor analysis. In the unrotated solution, 16 factors emerged with eigenvalues greater than one, explaining a total of 72.21% of the variance. The first factor explained only 34.45% of the variance, in spite of the fact that many of the variables entered into this analysis were functionally related to each other on both theoretical and empirical grounds and these relationships might be expected to therefore account for a considerable proportion of common variance (Podsakoff & Organ, 1986). The remaining 15 factors with eigenvalues greater than one shared another 37.77% of the variance between them. Therefore since a single factor did not account for most of the variance explained, in spite of known functional relationships among variables, it was determined that there was no evidence for any substantial common method variance problems within these data (Igbaria et al., 1997; Podsakoff & Organ, 1986). It can confidently be assumed that common methods variance issues will not significantly bias the results of hypothesis testing for Study Two.
7.6 Conclusion

Study Two of the empirical phase of this research involves hypothesis testing, which entails the collection and interpretation of relevant data based on the ontological and epistemological assumptions of Critical Rationalism, which has been argued to be the most appropriate research strategy for this type of research (see Chapter Five). This second empirical study is conducted within a tourism field context and adopts a quantitative methodology as the means for collecting and analysing data, using several existing quantitative measures of the variables of interest as well as the newly developed measure of love and care for nature (see Chapter Six Scale Development). The sampling frame for this research consisted of Gold Coast tourists over 18 years of age, and 261 tourists were sampled from two well known Gold Coast tourism venues who agreed to participate in this research and allow access to their patrons. The venues selected were the iconic Seaworld Marine Theme Park, as a mainstream tourism venue, and O’Reilly’s Rainforest Retreat, as an accredited ecotourism venue. These two different types of tourism venue were selected on the assumption that they might attract different types of tourists who had different interests, different psychological orientations towards the natural environment, and different levels of commitment to environmental sustainability.

A self-administered questionnaire, extensively employed in quantitative methodology, was used to collect data from tourists during their tourism experiences. This technique was considered to be both cost-effective and also less intrusive for tourists than interviewer-based surveys. The methodology, techniques and procedures used in collecting and analysing the data outlined in this chapter were selected to ensure that the samples were as representative as possible of the population of interest (i.e. tourists) within the practical constraints of this type of research, and that the data would be reliable and valid, and thus would address the hypotheses and effectively answer the research question.

The next chapter presents the results of the data analysis and hypothesis testing for Study Two. Chapter Eight commences with a presentation of the descriptive statistics associated with this sample of tourists from the mainstream tourism venue and the ecotourism venue. The second section of Chapter Eight then details the results of hypothesis testing for each of the six hypotheses in order to
answer the primary research question: Does an ecological worldview, comprised of pro-environmental values, and especially feelings of love and care towards nature, significantly influence tourists’ pro-environmental attitudes, behaviours and choices? Chapter Nine, which concludes Part II of this thesis, discusses in more detail the findings of the two empirical studies, Study One and Study Two, in terms of the literature, and outlines the major contributions of this research. Chapter Nine also discusses the implications and limitations of the research, and draws some key conclusions in terms of the overall aim of this research.
CHAPTER EIGHT: STUDY TWO - RESULTS OF HYPOTHESIS TESTING

Love and responsibility for the earth cannot only be thought about cerebrally; they must be felt emotionally, with the heart (Seamon, 1984, p. 769)

8.0 Introduction

The overall aim of this research is to determine if an ecological worldview significantly influences tourists’ pro-environmental attitudes, behaviours and choices, including their interest in and preferences for ecotourism over mainstream type tourism. An ecological worldview was previously argued to incorporate two main psychological aspects, biospheric values, which are concerned with the wellbeing of nature for itself, and the emotional construct of love and caring for nature. The significance of the human emotional connection with the natural environment in effecting a sense of responsibility and care towards nature is alluded to in the quote by Seamon at the start of this chapter. However, as discussed in Chapter Four, the construct of love and caring for nature has not been adequately measured previously in spite of the recognition by several philosophers and psychologists of its importance for human environmental ethics. Therefore, since this emotional aspect of an ecological worldview has an integral role to play in addressing the research question and achieving the overall aim of this research, being able to operationalise this construct was a necessary first stage of the research process. To this end, the first empirical study, Study One (outlined in Chapter Six), involved a scale development process for the creation of a psychometrically sound measure of love and caring for nature. This newly developed scale was then used in Study Two to test the hypotheses pertaining to influence of love and care for nature. Table 8.1 summarises all six hypotheses which were tested during Study Two.
Table 8.1.
Hypothesis tested in Study Two

<table>
<thead>
<tr>
<th>Number</th>
<th>Hypothesis</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1</td>
<td>Stronger biospheric values will have a positive relationship with tourist pro-environmental attitudes, behaviours, willingness to pay, and choices including interest in ecotourism.</td>
</tr>
<tr>
<td>H2</td>
<td>Stronger socio-altruistic values will have little or no relationship with tourist pro-environmental attitudes, behaviours, willingness to pay, and choices.</td>
</tr>
<tr>
<td>H3</td>
<td>Stronger egoistic values will have a negative relationship with tourist pro-environmental attitudes, behaviours, willingness to pay, and choices including interest in ecotourism.</td>
</tr>
<tr>
<td>H4</td>
<td>Love and care for nature will have a positive relationship with tourist pro-environmental attitudes, behaviours, willingness to pay, and choices including interest in ecotourism.</td>
</tr>
<tr>
<td>H5</td>
<td>Love and care for nature will be a better predictor of tourist pro-environmental willingness to sacrifice than values and beliefs as the level of sacrifice or effort required increases.</td>
</tr>
<tr>
<td>H6</td>
<td>Tourists who prefer ecotourism type experiences can be differentiated from those who prefer mainstream type tourism experiences on the basis of value orientation, love for nature, pro-environmental beliefs, and support for responsible and sustainable tourism.</td>
</tr>
</tbody>
</table>

This chapter presents the results of the hypothesis testing process for Study Two and is organised around the following main sections. Section one presents descriptive statistics relating to the sample of tourists from Seaworld and O’Reilly’s Rainforest Retreat. Included in the descriptive statistics is key demographic information about the sample of tourists, their overall interest in ecotourism type activities, and their preferences for particular holiday types. An examination of the relationships between their levels of interest in ecotourism and their particular holiday preferences is also presented. The section concludes with an overview of age, gender and education effects on tourists’ interests and preferences.
The second section of this chapter outlines the results of the hypothesis testing phase of the research. It commences with an examination of the influence of values in terms of tourists’ attitudes, behaviours, and choices, including their general interest in ecotourism type activities compared with other types of tourism activities. Specifically, this section is concerned with testing hypotheses one (H1), two (H2) and three (H3). The next part of the hypothesis testing section examines the influence of love and care for nature on tourists’ attitudes, behaviours, and choices, including interest in ecotourism activities. The particular importance of love and care for nature as a determinant of pro-environmental behaviours and intentions which require more commitment and personal sacrifice is also discussed. This part of the results section is concerned with testing hypotheses four (H4) and five (H5). The final part of the hypothesis testing section examines differences between the so-called “true” ecotourist and the mainstream or mass tourist on the basis of their values, love and care for nature and support for environmentally sustainable tourism. This part of the hypothesis testing section is concerned with testing the sixth hypothesis (H6) of the research. The concluding section of this chapter presents an overall summary of the results of the whole hypothesis testing process for Study Two and briefly outlines the main research findings in terms of the primary research question and overall aim of this research.

RESULTS: DESCRIPTIVE STATISTICS

8.1 Demographic Characteristics of the Tourist Field Sample

Two hundred and sixty-one tourists completed the survey including 167 day visitors to Seaworld, and 59 day visitors and 34 overnight visitors to O’Reilly’s Rainforest Retreat. The sample comprised 107 males and 147 were females (with 7 respondents failing to indicate their gender). While the ages of the respondents ranged from 18 to 75 years, the average age of the whole sample was just over 41 years. The age profiles of males and females were similar, as were the age profiles of visitors to Seaworld and the visitors to O’Reilly’s Rainforest Retreat.

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76 Average age of the whole sample of tourists was 41.12 years (SD=13.48). Sixteen respondents did not indicate their age. There was no significant difference in age between males (M= 40.87; SD=13.23) and females (M= 41.30; SD=13.70) \( t (243) = .24, p = .81 \). Average age for Seaworld visitors
There was also no significant difference (at .01) in education between the samples from each venue $\chi^2 (3, N = 252) = 9.89, p = .02$. However, there was a trend for a greater proportion of the visitors to O’Reilly’s to have university education (47.8%) when compared with 30.2% of the visitors to Seaworld. Furthermore, the opposite trend was evident in regard to those who reported not having completed high school, with a greater proportion of Seaworld visitors (23.5%) fitting this education category, compared with 11.1% of visitors to O’Reilly’s. This difference in educational profile between visitors to the two tourism sites provides some limited support for previous research which reported a tendency for ecotourists (as defined by visits to an ecotourism venue) to be university educated (see Fennell, 2003; Page & Dowling, 2002).

There was no significant difference in employment status between visitors to Seaworld and visitors to O’Reilly’s. The majority of all survey respondents (58.3%) were employed full time. There was some trend for proportionately more retirees (14.3%) to be at the ecotourism venue than at Seaworld (3.7%). This is consistent with observations that many of the tourists at Seaworld had young families with them. There was also no significant difference between the visitors to Seaworld and the visitors to O’Reilly’s in terms of where they grew up.

### 8.2 General Interest in Ecotourism Type Activities

Traditional definitions of the ecotourist are usually based on visitation behaviour (i.e. the type of tourism site visited), demographic characteristics, and activity profiling (Page & Dowling, 2002; Sharpley, 2006). However Juric et al. (2002) have argued that the profiling approach to identifying ecotourists based on the characteristics and activities of tourists in ecotourism settings represents a somewhat limited view of the potential ecotourism market. By way of example, these researchers suggest that people with physical limitations (e.g. age, disability, lack of fitness), parents with young children, or people who have limited capacity to travel to pristine or remote areas (e.g. money, time, transport, equipment), might be very interested in ecotourism and so-called authentic ecotourism experiences, yet are inhibited from participating in such activities because the offerings within the

(M=39.68, SD=12.51) was not significantly different (at .01) from that for visitors to O’Reilly’s Rainforest Retreat (M=43.74, SD= 14.81) $t (243) = 2.27, p=.03$. 

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marketplace do not meet their needs at a particular life stage or point in time (p. 268). This point was echoed by an anecdotal comment volunteered by one of the tourists at SeaWorld who said that because his children were young, a day trip such as a visit to SeaWorld is the preferred choice at this stage of his life, irrespective of his personal preferences or future intentions. However, when his children were older, he would be more likely to pursue his deeper interests and choose ecotourism type activities, including overnight visits to ecotourism venues in preference to other forms of tourism activity. Therefore, using interests (and preferences) might be an effective way of differentiating “true” or potential ecotourists from more mainstream tourists, rather than relying on demographics or visitation behaviour alone.

Across the whole sample of tourists the average interest in ecotourism score (EI) was 4.92 ($SD = 1.35$), and the distribution of scores was negatively skewed (more scores at the higher end of the scale), meaning that this sample of tourists was quite interested in ecotourism. The next section of this chapter examines the respondents’ ranked preferences for different types of tourism holiday experiences if they could have their choice, all things being equal.

8.3 Tourist Preferences for Types of Holiday Experience

When respondents provided their ranked choices of holiday experience from 1 (first preference) through to 6 (last preference), some of the cells contained very small numbers of respondents. Therefore groups were collapsed so that first and second choices formed the strongest preference group, third and fourth choices formed the mid-range preference group, and fifth and sixth choices formed the least preferred group. This was to ensure that there were sufficient numbers in each of the cells for analytical purposes.

Of the respondents who answered this section of the survey ($N = 256$), the relative numbers and percentages of respondents in each of the three ranked preference groups, are detailed in Table 8.2. In this table, a boldface E next to a

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77 These scores could range from 1 (little or no importance) to 7 (extremely important), and thus the higher the score the more general interest there is in ecotourism activities. Refer Chapter Seven for EI administration procedure.

78 Preferences were collapsed into three groups: first or second, third and fourth, fifth and sixth to ensure there were no cells with less than 5 observations.
holiday option indicated an ecotourism type holiday experience and a boldface M indicated a mainstream type holiday experience.

Table 8.2.
*Ranked preferences for holiday type*

<table>
<thead>
<tr>
<th>Holiday package type</th>
<th>First or second choice</th>
<th>Third or fourth choice</th>
<th>Fifth or sixth choice</th>
</tr>
</thead>
<tbody>
<tr>
<td>Traditional ecotourism or nature based holiday</td>
<td>107 (42%)</td>
<td>101 (40%)</td>
<td>45 (18%)</td>
</tr>
<tr>
<td>Wildlife watching or wildlife photography holiday</td>
<td>97 (38%)</td>
<td>118 (46%)</td>
<td>39 (15%)</td>
</tr>
<tr>
<td>Volunteer ecotourism holiday, (i.e. paying for a holiday where you work to help with scientific environmental and wildlife conservation)</td>
<td>32 (13%)</td>
<td>89 (35%)</td>
<td>133 (52%)</td>
</tr>
<tr>
<td>Sun and surf beach holiday</td>
<td>138 (54%)</td>
<td>81 (32%)</td>
<td>36 (14%)</td>
</tr>
<tr>
<td>Luxury resort holiday</td>
<td>124 (48%)</td>
<td>74 (29%)</td>
<td>58 (23%)</td>
</tr>
<tr>
<td>Nightlife, gaming and shopping holiday</td>
<td>19 (7%)</td>
<td>45 (18%)</td>
<td>189 (75%)</td>
</tr>
</tbody>
</table>

E – ecotourism type holiday  M – mainstream type holiday

Across the sample of tourists\(^79\), the most popular choice of holiday was the sun and surf or beach holiday with 54% of the sample indicating this as their first or second choice. This was followed by the luxury resort holiday option as a close second (48% ranked this first or second). The least popular choice was the nightlife, gaming and shopping holiday, with 75% of the sample ranking this option as their last or second last preference. Considering that the Gold Coast seems to base a good proportion of its tourist marketing campaigns at least partly on the casino, nightlife and shopping, these aspects of tourism appear to appeal to a much smaller market than other types of holiday including beach or luxury resorts and ecotourism type nature based experiences, if these results are any indication.

\(^{79}\) \(N = 256\) answered this section of the survey.
There was a relatively even spread across the first two ranking groups for ecotourism and wildlife watching and photography, with more than 80% of all tourists sampled selecting these two holidays within their first four preferences. Forty-two percent ranked ecotourism first or second, with a similar proportion (38%) ranking wildlife watching first or second. While 52% of the sample ranked volunteer ecotourism (i.e. tourist pays for a holiday to do volunteer work for environmental conservation projects)\(^{80}\) as a last or second last choice, a further 13% of respondents ranked it first or second, and 35% ranked it third or fourth. Given that most people want to relax and get away from work on a holiday, the proportion of respondents who would like to work on environmental conservation projects seems surprisingly high in a sample with more than half of the total sample (167 out of 261) being tourists who were surveyed at the “mainstream” tourism venue, Seaworld.

In order to determine if there was a difference between those who were sampled from the ecotourism venue (O’Reilly’s) compared with those sampled from the mainstream tourism venue (Seaworld) in terms of their preferences for holiday types, a chi-square analysis was employed. This was used to investigate whether holiday preferences were related to actual visitation behaviour at the time of sampling, and the results are summarised in Table 8.3.

<table>
<thead>
<tr>
<th>Holiday preference</th>
<th>% Mainstream venue visitors</th>
<th>% Ecotourism venue visitors</th>
<th>( \chi^2 )</th>
<th>N</th>
<th>Sig. level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ecotourism holiday</td>
<td>33.3 %</td>
<td>58.2 %</td>
<td>15.22, ( N=253 )</td>
<td>.000</td>
<td></td>
</tr>
<tr>
<td>Wildlife watching &amp; photography holiday</td>
<td>31.3 %</td>
<td>50.5 %</td>
<td>9.38, ( N=254 )</td>
<td>.009</td>
<td></td>
</tr>
<tr>
<td>Volunteer ecotourism holiday</td>
<td>9.8 %</td>
<td>17.6%</td>
<td>5.184, ( N=254 )</td>
<td>.075</td>
<td></td>
</tr>
<tr>
<td>Sun and surf beach holiday</td>
<td>63.2 %</td>
<td>38.0%</td>
<td>18.44, ( N=255 )</td>
<td>.000</td>
<td></td>
</tr>
<tr>
<td>Luxury resort holiday</td>
<td>55.5%</td>
<td>35.9%</td>
<td>9.08, ( N=256 )</td>
<td>.011</td>
<td></td>
</tr>
<tr>
<td>Nightlife, gaming and shopping holiday</td>
<td>9.9 %</td>
<td>3.3%</td>
<td>4.65, ( N=253 )</td>
<td>.098</td>
<td></td>
</tr>
</tbody>
</table>

\(^{80}\) The implications of a volunteer ecotourism holiday were explained to respondents in the survey instrument (see Chapter Seven).
Tourists who were sampled at the ecotourism venue (O’Reillys’) were generally more likely to prefer the ecotourism type holidays and less likely to prefer the mainstream tourism type holidays when compared with tourists who were surveyed at Seaworld. The opposite pattern was evident in tourists sampled at the mainstream venue (Seaworld), in that these tourists were generally more likely to prefer the mainstream tourism holidays and less likely to prefer the ecotourism type holidays when compared with tourists who were surveyed at O’Reilly’s. These relationships between preferences and visitation were significant at .01 or .001 for the ecotourism type holiday and wildlife watching and photography holiday, as well as the sun and surf beach holiday (refer Table 8.3). The relationship between preference for the luxury resort holiday and visitation behaviour approached significance at .01 (see Table 8.3). As outlined previously, both the volunteer ecotourism holiday and the nightlife, gaming and shopping holiday were the least popular choice among all respondents. However there was still a trend for proportionately more O’Reilly’s tourists to select volunteer ecotourism holidays, and for proportionately more Seaworld tourists to select nightlife, gaming and shopping holidays, although these trends were not significant. The next section of this chapter examines the relationship between tourists’ general interest in ecotourism activities and their expressed preferences for different holiday types.

8.4 General Interest in Ecotourism Activities and Holiday Preferences

In order to confirm that general interest in ecotourism activities as measured by Juric et al’s (2002) Ecotourism Interest (EI) scale, was significantly related to tourists’ preferences for ecotourism type holidays as opposed to mainstream type holidays, Spearman’s rho correlations were calculated using the preference rankings for all holiday types and average scores on the EI. General interest in ecotourism was significantly associated with preference for ecotourism type holidays and less interest in mainstream type holidays (see Table 8.4). These results provide evidence of the validity of the EI as a predictor of tourist preferences for ecotourism type holiday experiences, and also lend support for the usefulness of using preferences for particular holiday types as one means of identifying the potential ecotourist market segment.
Table 8.4.  
Relationship between general interest in ecotourism (EI) and holiday preferences

<table>
<thead>
<tr>
<th>Holiday preference</th>
<th>Ecotourism Interest (EI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ecotourism holiday</td>
<td>.48***</td>
</tr>
<tr>
<td>Wildlife watching and photography holiday</td>
<td>.46***</td>
</tr>
<tr>
<td>Volunteer ecotourism holiday</td>
<td>.36***</td>
</tr>
<tr>
<td>Sun and surf beach holiday</td>
<td>-.32***</td>
</tr>
<tr>
<td>Luxury resort holiday</td>
<td>-.47***</td>
</tr>
<tr>
<td>Nightlife, shopping and gaming holiday</td>
<td>-.35***</td>
</tr>
</tbody>
</table>

*** p < .001

Significantly higher levels of general interest in ecotourism (EI) were expressed by tourists who preferred the ecotourism type nature-based holiday, the wildlife watching and photography holiday, and the volunteer ecotourism holiday. The opposite pattern was evident for the three mainstream type tourism holidays. Those who preferred the sun and surf beach holiday, the luxury resort holiday, and the nightlife, gaming and shopping holiday all reported correspondingly lower levels of interest in ecotourism (refer Table 8.4). The significant negative association between general interest in ecotourism and preference for the sun and surf beach holiday seems to support the distinction between ecotourism type nature-based activities and other forms of nature-based activities including the classic “3S” holiday (sea or surf, sun, and sand) as reported by Weaver (2001). In the minds of these particular tourists, a beach holiday, where nature is a context for activities, seems to be more related to other mainstream type holiday experiences than to ecotourism type holidays where nature is the actual focus of the experience.

The Ecotourism Interest scale (EI) has been shown in past research to be predictive of actual tourist behaviour (Juric et al., 2002). Therefore tourists’ average score on the EI was used as a predictor variable against the criterion of visitation behaviour, that is whether the tourists were sampled at the mainstream venue (Seaworld) or the ecotourism venue (O’Reilly’s Rainforest Retreat). The average score on the EI was found to be a significant predictor of tourist behaviour $F(1, 252) = 13.95, p = .000, t = 3.74, p = .000$. Those who expressed higher general interest in ecotourism were also significantly more likely to be visiting the ecotourism venue on the day of sampling. This result is consistent with previous research which has also
found the EI to be a useful predictor of behaviour (Juric et al., 2002), and therefore provides further evidence of the validity of Ecotourism Interest scale (EI). The results of this present study tends to confirm the usefulness of the Ecotourism Interest scale EI (Juric et al., 2002) as an indicator of not only general interest in and preference for ecotourism type experiences, but also of actual tourist visitation behaviour. The next section of this chapter looks at place of upbringing as a child (i.e. rural, country town, capital city, etc.) and general interest in ecotourism type experiences.

8.5 General Interest in Ecotourism Activities and Place of Upbringing

Childhood upbringing, in terms of rural versus urban environments, was thought to be a possible influence on people’s interest in nature (Van den Born et al., 2001) and, therefore, presumably also their interest in nature based tourism and ecotourism. To determine if there was a difference in general interest in ecotourism between those who grew up in rural or semi-rural environments versus those who grew up in more urban environments, a one-way ANOVA was undertaken using the Ecotourism Interest scale as a dependent variable and place of upbringing (e.g. capital city; provincial city; country town; rural area) as the independent variable. There was no significant difference in interest in ecotourism between these groups $F(3, 243) = 1.11, p = .344$. Thus it appears at least for this sample that interest in ecotourism is not significantly influenced by place of upbringing.

8.6 Gender Effects

Contrary to some previous reports (e.g. Page & Dowling, 2002) this study found that preferences for ecotourism type holidays (ecotourism, wildlife watching, or volunteer ecotourism) are not significantly influenced by gender. That is, males and females have a similar propensity for choosing ecotourism, wildlife watching, and volunteer ecotourism as first or second preferences $\chi^2(2, N = 247) = 1.96, p = .376$; $\chi^2(2, N = 248) = 5.08, p = .079$; and $\chi^2(2, N = 248) = .47, p = .791$ respectively. There is also no evidence in this tourist sample of any difference between males ($M = 4.88, SD = 1.31$) and females ($M = 4.95, SD = 1.37$) in terms of their general interest in ecotourism activities (as measured by the EI) $t(246) = 0.41, p = .683$. Furthermore, there is no significant effect of gender on whether or not a person is a member of or
donates to an environmental organisation $\chi^2 (1, N = 213) = 1.19, p = .275$. There is also no significant difference between males and females in terms of a propensity for pro-environmental behaviours, except for one - boycotting a company or its products if there is the perception that the company is harming the environment. Women were somewhat more likely than men to say they would boycott or avoid buying the products of a company because of perceived harm to the environment $\chi^2 (4, N = 251) = 11.78, p = .019$. This finding could be of some interest to marketers and producers in terms of the relative consumer power that women hold and, in this sample, their apparently higher interest in and concern for the environmental credentials of producers, when making their purchasing decisions. Organisations might consider the relevance of this result in terms of developing marketing campaigns that promote the credentials of products and services in relation to environmental sustainability issues.

There was no significant difference between males and females in terms of environmental beliefs as measured by scores on the NEP $t (247) = 1.47, p = .144$. There was some trend for females to rate biospheric values as more important with respect to the other values ($M = 0.39, SD = 0.66$) than males’ ratings ($M = 0.26, SD = 0.60$) $t (250) = 1.77, p = .090$, but this trend is not significant. However, females did rate socio-altruistic values significantly higher ($M = 0.56, SD = 0.52$) with respect to their other values, than males ($M = 0.29, SD = 0.61$) $t (250) = 3.69, p = .000$. While both genders rated egoistic values lower in importance with respect to other values, there was a significant difference between males and females in terms of just how low this importance was $t (250) = 3.46, p = .001$. Females rated these values as much less important ($M = -1.43, SD = 0.97$) than males ($M = -1.02, SD = 0.90$). Females also showed significantly higher levels of love and caring for nature LCN ($M = 5.53, SD = 1.07$), than males ($M = 5.12, SD = 1.12$) $t (245) = 2.96, p = .003$.

In summary, females tended to have a higher reported sense of love and caring for nature and a higher socio-altruistic value orientation than males, and females also tended to have a relatively lower egoistic value orientation than males. This may be because females are traditionally thought to be more concerned about the affective or

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81 Higher positive difference scores indicate more importance placed on these values with respect to other values, and the greater the positive number the more importance is placed on these values and the stronger is the value orientation.

82 See previous note.

83 Females had greater negative difference scores. Negative difference scores indicate these values are relatively less important than other values, and the greater the negative number the less importance is placed on these values, and thus the lower or weaker is this value orientation.
emotional nature of relationships and social issues, and this concern might also be extended to nature and the environment. The differences in gender effects in this study, depending on the measures used, may at least partially explain some of the mixed results in previous studies in environmental psychology and ecotourism concerning differences between males and females. Perhaps gender effects may only be evident when measuring more affective type variables such as feelings of love, vis-à-vis cognitive variables such as beliefs and attitudes. Further testing of these relationships is required to more clearly determine any gender effects in regard to these variables.

8.7 Age Effects

In this sample, age had only a weak relationship with general interest in ecotourism activities (scores on the EI) \( r = .13, p = .025 \) (i.e. the older a person is, the greater is their general interest in ecotourism). However, there was a significant tendency for those who ranked ecotourism as either first or second preference \((M = 44.56, SD = 13.59)\) and third or fourth preferences \((M = 40.79, SD = 12.72)\) to be older than those who ranked it last or second last \((M = 34.14, SD = 12.28)\) \( F(2, 235) = 9.51, p = .000 \). There was also a low positive relationship between age and love and caring for nature \( r = .20, p = .001 \) and relative socio-altruistic value orientation\(^{84} \) \( r = .17, p = .010 \). However, there were no relationships between age and pro-environmental beliefs NEP \( r = .03 \), relative biospheric value orientation\(^{85} \) \( r = .07 \), or relative egoistic value orientation\(^{86} \) \( r = -.08 \), within this sample of tourists. If these results can be generalised then perhaps the older we get the more interested we tend to become in experiencing nature through ecotourism, and also the more we tend to care about nature and other people.

8.8 Education Effects

In this study there were no significant effects of education in terms of love and care for nature (LCN), or environmental beliefs (NEP). However, there was a

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\(^{84}\) Stronger socio-altruistic values with respect to all other values.

\(^{85}\) Stronger biospheric values with respect to all other values.

\(^{86}\) Relatively stronger egoistic values.
significant effect of education in terms of the relative importance assigned to egoistic values \( F(3,246) = 4.21, p = .006 \), with those with tertiary education rating these values as significantly lower in importance (\( M = -1.46, SD = 1.04 \)) than those who had not completed high school (\( M = -0.96, SD = 0.77 \)). Perhaps education contributes to a reduction in the importance of self-enhancement or egoistic values because of ego development (i.e. from the education process). Or it could be that further education contributes to a reduction in the need for personal power from outside sources due to an increasing sense of personal power from internal sources (i.e. self-efficacy). This would need further investigation. However, those with tertiary education (\( M = 0.45, SD = 0.61 \)) or vocational education (\( M = 0.44, SD = 0.64 \)) rated the biospheric values as more important relative to all other values than those who had simply completed high school (\( M = 0.39, SD = 0.50 \)) \( F(3,246) = 4.26, p = .006 \).

An additional effect for education was in relation to preferences for ecotourism types holidays, with university educated people more likely to choose the ecotourism nature-based holiday as first or second choice than those who did not have university education, although this was not significant at .01, \( \chi^2(6, N = 245) = 16.13, p = .013 \). This result is somewhat consistent with previous research findings concerning ecotourists, in that they have been reported to be older and typically better educated than mainstream tourists (Eagles & Cascagnette, 1995; Page & Dowling, 2002).

RESULTS: HYPOTHESIS TESTING

8.9 The Influence of Environmental Value Orientations

As outlined in Chapter Three, in previous research concerning environmental value orientations and their influence on pro-environmental attitudes and behaviours, differentiation of the biospheric value orientation from the socio-altruistic value orientation has proven to be problematic. The theory of a values basis for environmental concern and pro-environmental behaviour suggests that these two values types are distinct, with a biospheric orientation predicting more pro-environmental behaviour than a socio-altruistic orientation (Stern & Dietz, 1994; Stern et al., 1995; Stern et al., 1999). In consideration of this, most previous research has attempted to differentiate these two self-transcendent values sub-types from each other using factor analysis, reasoning that if the two values types load on separate
factors, then this would provide empirical evidence of their distinction. However, differentiating these two aspects of the self-transcendent values cluster\(^{87}\) (refer Chapter Three) on the basis of their loading on separate factors, has to date been largely unsuccessful (Dutcher et al., 2007; Steg et al., 2005; Stern & Dietz, 1994; Stern et al., 1999), although biospheric concerns have been differentiated from socio-altruistic concerns (e.g. Schultz, 2000, 2001; Stern & Dietz, 1994). As previously argued by Stern et al. (1999), Stern et al. (1995) and Stern and Dietz (1994), the loading of these two values types on a single factor, is most likely because the biospheric and socio-altruistic value orientations are both sub-types of the higher order self-transcendent values cluster representing a general altruism value orientation. However, Steg et al. (2005) found some evidence for differentiating between biospheric and socio-altruistic values in terms of their respective relationships with pro-environmental beliefs. In Steg et al’s study the biospheric values found to be associated with pro-environmental beliefs but the socio-altruistic values were not. Egoistic values have been consistently found to have negative relationships with a pro-environmental orientation and pro-environmental behaviour. Thus, it was considered worthwhile to determine the relationships among the three environmental value orientations as a first step prior to testing the first three hypotheses\(^{88}\). This was done by examining the magnitudes and significance levels of the bivariate Pearson’s \(r\) correlations among the three values types (biospheric, socio-altruistic, and egoistic).

The results of this analysis (including tables) are presented and discussed in the following sections in the order that the relevant variables are mentioned in hypotheses one to three.

---

\(^{87}\) Higher order value type.

\(^{88}\) Cronbach’s alpha values were calculated for the biospheric values \(\alpha = 0.87\), socio-altruistic values \(\alpha = 0.74\), and egoistic values \(\alpha = 0.53\). While \(\alpha\) for the 3 egoistic values was considered less than desirable, the results for the egoistic values as compared with the other values were somewhat similar to those of Steg et al. (2005). However, because these 3 items, as indicators of egoistic values, have been empirically tested previously by Stern et al. (1998) it was considered appropriate that they be used in this research context. In future research it may be prudent to further examine potential individual indicator items for egoistic values in order to increase their reliability and obtain alpha values greater than .60.
Correlation analysis revealed a moderately strong negative relationship between biospheric values and egoistic values \( r = -0.63, p = 0.000 \) \((N = 258)\) as predicted by theory and the results of previous research. Those respondents who placed relatively more importance on biospheric values (e.g. unity with nature, protecting nature, respecting the earth) also placed significantly less importance on egoistic values (e.g. wealth, being influential, having authority). There was also a significant negative relationship between socio-altruistic values and egoistic values \( r = -0.50, p = 0.000 \) \((N = 258)\), again consistent with past research results. Those respondents who held stronger socio-altruistic values (e.g. equality, social justice, a world at peace) also tended to place less importance on egoistic values. This makes sense in terms of values theory, as both biospheric values and socio-altruistic values contain value items taken from Schwartz’s self-transcendent values cluster and focus on issues beyond self. In contrast, egoistic values which include value items from Schwartz’s self-enhancement values cluster focus primarily on issues of self-interest. However, the relationship between biospheric values and socio-altruistic values, while positive, is weak at \( r = 0.15, p = 0.017 \) \((N = 258)\). This suggests that, while these two sets of values are related, they seem to be different enough from each other to indicate the likelihood of differentiation in an applied setting such as the prediction of pro-environmental behaviour. The results of this correlation analysis provide some support for the view that the three environmental value orientations influence pro-environmental attitudes, behaviours and choices in different ways, as argued in Chapter Three. The following three hypotheses were proposed in Chapter Three as a result of a review of the literature.

**H1:** Stronger biospheric values will have a positive relationship with tourist pro-environmental attitudes, behaviours, willingness to pay, and choices including interest in ecotourism.

**H2:** Stronger socio-altruistic values will have little or no relationship with tourist pro-environmental attitudes, behaviours, willingness to pay, and choices.
**H3: Stronger egoistic values will have a negative relationship with tourist pro-environmental attitudes, behaviours, willingness to pay, and choices including interest in ecotourism.**

The next section discusses the results of testing these first three hypotheses of this empirical study. The influence of each of the environmentally relevant values types on pro-environmental attitudes will be presented first. This will be followed by examination of their respective influence on behaviours, willingness to pay and make personal sacrifices to protect the environment, and pro-environmental choice including general interest in ecotourism activities. Finally, a summary of the findings revealed from testing hypotheses one, two and three will be presented.

*Hypothesis Testing: Values and Tourists’ Pro-Environmental Attitudes*

Table 8.5 presents the results of Pearson’s $r$ correlation analysis assessing the relationships between tourism related attitudes, consumptive type attitudes (indicated by “C”) and pro-environmental attitudes, and each of the three environmentally relevant values types, biospheric, socio-altruistic, and egoistic. Consumptive type attitudes are those which involve a sense of entitlement to use resources as desired for enjoyment, as well as less willingness to curb personal freedoms or to consider one’s personal impact during travel and leisure experiences. Pro-environmental attitudes are those which involve willingness to consider one’s personal impact on destinations and resources, as well as support for green accreditation systems for tourism, and willingness to curb one’s personal freedoms in consideration of environmental and cultural sustainability in relation to travel and leisure decisions.
### Table 8.5.  
*Relationships between environmental value orientation and attitudes*

<table>
<thead>
<tr>
<th>Agreement with</th>
<th>Biospheric values</th>
<th>Socio-altruistic values</th>
<th>Egoistic values</th>
</tr>
</thead>
<tbody>
<tr>
<td>As a tourist I believe that I am entitled to travel anywhere and anyhow I choose as I have paid for the personal experience. <em>(C)</em></td>
<td>-.18**</td>
<td>-.15*</td>
<td>.19**</td>
</tr>
<tr>
<td>As a tourist I feel I am entitled to use as much water/power/resources during my visit as I think fit for my own enjoyment. <em>(C)</em></td>
<td>-.21**</td>
<td>-.09</td>
<td>.23***</td>
</tr>
<tr>
<td>I prefer leisure activities and tourism experiences where I can just have fun, relax, and spend money on doing what I like how I like. <em>(C)</em></td>
<td>-.16**</td>
<td>-.12</td>
<td>.17**</td>
</tr>
<tr>
<td>As a tourist it is very important to me that tourism products, services and venues are part of a &quot;green&quot; accreditation system.</td>
<td>.52***</td>
<td>.22***</td>
<td>-.40***</td>
</tr>
<tr>
<td>I would choose a tourism product or service which adopts a &quot;green&quot; accreditation over one that does not if the choice is available.</td>
<td>.47***</td>
<td>.15*</td>
<td>-.39***</td>
</tr>
<tr>
<td>I believe I should definitely consider my impact on earth and other cultures when I make my travel choices.</td>
<td>.32***</td>
<td>.17**</td>
<td>-.28***</td>
</tr>
<tr>
<td>I support closure to the public of some national parks and wilderness areas to protect the environment from harm due to human activity.</td>
<td>.20**</td>
<td>.13*</td>
<td>-.19**</td>
</tr>
</tbody>
</table>

* *p < .05  ** p < .01  *** p < .001  

Note: *(C)* = Consumptive attitudes

The relationships summarised in Table 8.5 are consistent with the patterns of relationships among the three values types already examined. The correlations between different values types and each of these attitudes revealed that biospheric values had significant *positive* relationships (i.e. positive correlations) with pro-environmental attitudes and significant *negative* relationships (i.e. negative correlations) with the consumptive type attitudes *(C)*[^89]. Conversely, egoistic values had significant *negative* relationships with pro-environmental attitudes and significant

[^89]: Consumptive type attitudes are those which involve a sense of entitlement to use resources as desired for enjoyment and a lack of willingness to curb personal freedoms or to consider one’s personal impact during travel and leisure experiences.
positive relationships with consumptive type attitudes (see Table 8.5). The socio-
altruistic values had either no relationship (i.e. correlations close to zero) or only weak relationships with both consumptive type attitudes and pro-environmental attitudes, with the exception of the importance of green accreditation systems for tourism products and services (refer Table 8.5).

Based on the findings presented in Table 8.5, tourists who placed more importance on biospheric values were also more likely to agree that considering one’s personal impact on nature and other cultures was important in making travel choices, to support green accreditation systems for tourism, and were also more likely to say they would choose green accredited products and services over those that are not. Conversely those who placed relatively more importance on egoistic values were less likely to think they should consider their personal impact in making travel choices, and provided less support for green accreditation systems for tourism products and services.

Hypothesis Testing: Values and Pro-Environmental Behaviours

When investigating the frequency of self-reported pro-environmental behaviours, a similar pattern of relationships emerges. As outlined in the Chapter Seven, respondents were asked how often they engaged in a number of pro-environmental behaviours, ranging from never, occasionally, mostly, or always. If respondents had selected “no opportunity available”, these cases were removed prior to the analysis. Spearman’s rank order correlations were used to determine the relationships between each of the three environmental value orientations and the frequency of pro-environmental behaviours90. Table 8.6 summarises the correlations between how frequently respondents performed each of the pro-environmental behaviours and the relative importance they placed on the different values types. If the correlation coefficient in the table is positive it means that higher importance placed on the particular value type is associated with more frequent pro-environmental behaviour. If the correlation coefficient is negative numbers it means that higher importance placed on the particular value type is associated with less frequent pro-environmental behaviour.

---

90 Spearman’s rho rank order correlation technique is more appropriate for bivariate correlations when at least one of the variables is rank order data.
Table 8.6. *Correlations between behaviours and the three value orientations*91

<table>
<thead>
<tr>
<th>How often do you?</th>
<th>Biospheric values</th>
<th>Socio-altruistic values</th>
<th>Egoistic values</th>
</tr>
</thead>
<tbody>
<tr>
<td>practise recycling</td>
<td>.16*</td>
<td>.06</td>
<td>-.13*</td>
</tr>
<tr>
<td>use public transport to minimise car use</td>
<td>.15*</td>
<td>-.02</td>
<td>-.13</td>
</tr>
<tr>
<td>conserve energy</td>
<td>.20**</td>
<td>.02</td>
<td>-.13*</td>
</tr>
<tr>
<td>conserve water</td>
<td>.13*</td>
<td>-.03</td>
<td>-.03</td>
</tr>
<tr>
<td>use energy or water efficient household devices</td>
<td>.16*</td>
<td>.11</td>
<td>-.10</td>
</tr>
<tr>
<td>make special effort to buy products that are environmentally friendly</td>
<td>.40***</td>
<td>.12</td>
<td>-.28***</td>
</tr>
<tr>
<td>make special effort to buy recycled paper and plastic products</td>
<td>.29***</td>
<td>.15*</td>
<td>-.19**</td>
</tr>
<tr>
<td>boycott companies with poor environmental record</td>
<td>.36***</td>
<td>.17**</td>
<td>-.25***</td>
</tr>
<tr>
<td>vote for candidates with green platform</td>
<td>.43***</td>
<td>.15*</td>
<td>-.30***</td>
</tr>
<tr>
<td>sign environmental petitions</td>
<td>.34***</td>
<td>.17*</td>
<td>-.27***</td>
</tr>
</tbody>
</table>

* p < .05 ** p < .01 *** p < .001

While there is a positive relationship between biospheric values and frequency of recycling behaviour, public transport use, energy conservation, water conservation, and use of energy efficient household devices, these relationships are all somewhat weak ($r_s = .13$ to $r_s = .20$) (refer Table 8.6). Perhaps this is because all of these behaviours could be based on other motivators than values per se (e.g. living cost savings) which might therefore explain these lower relationships with pro-environmental values (i.e. biospheric values). In other words, most people, irrespective of environmental value orientation, would probably be motivated to perform activities which involved cost savings. Moreover, in Australia recycling is often associated with local government curb side recycling programs which involve little or no inconvenience to ratepayers and are a widely adopted component of household refuse disposal. These behaviours probably involve some element of habit

91 Spearman’s rank order correlations.
and accepted household practice, and are thus less likely to depend on a person’s value system.

In contrast to the generally weak relationships between values and those behaviours which involve cost savings or little inconvenience, the strongest relationships between values and behaviours are those between the biospheric values and behaviours which could be considered as requiring some extra effort or cost or greater personal sacrifice. These behaviours include buying environmentally friendly products, and those made from recycled materials. They also include boycotting companies which are perceived to be harming the environment, voting for political candidates on the basis of environmental position, signing environmental protection petitions; and reading publications by environmental groups. In the main, the relationships between these pro-environmental behaviours and biospheric values are all significant and positive ($p < .001$), whereby those who have stronger biospheric values are significantly more likely to report that they perform these behaviours on a more frequent basis (see Table 8.6 above). The next strongest relationships involve egoistic values and pro-environmental behaviours. In this case the reverse pattern is evident (from the pattern evident with biospheric values). Those who have relatively stronger egoistic values are significantly less likely to perform these pro-environmental behaviours (refer Table 8.6). In regard to socio-altruistic values, while those who place higher relative priority on these values perform these pro-environmental behaviours more frequently, the relationships are weak or nonexistent as evident in the low to very low correlations (refer Table 8.6).

Membership of, or donation to, an environmental organisation is also considered to be a pro-environmental behaviour which is assumed to require some effort. It could be inferred that this action demonstrates some level of commitment because it seems likely that those who join environmental groups are probably more interested in learning about environmental issues and problems, and also by joining these groups or through donations, they are committing both time and money to help with pro-environmental efforts. The vast majority of tourists did not belong or donate to an environmental organisation (80.4%). However, of the remainder who indicated that they were affiliated with an environmental organisation, this was significantly dependent on environmental value orientation. As expected, those expressing stronger biospheric values were significantly more likely to say they belonged to or donated to an environmental organisation $r_s = .29$, $p = .000$, and conversely those who
expressed relatively stronger egoistic values were more likely to say they did not belong or did not donate $r_s = -.18, p = .009$, although relationships are low to moderately low. There was again no significant relationship between affiliation with or donation to an environmental organisation and socio-altruistic values $r_s = .11, p = .106$.

**Hypothesis Testing: Values and Willingness to Pay or Willingness to Sacrifice to Protect the Environment.**

The three value orientations were examined in terms of their relationships with pro-environmental willingness to pay or to make personal sacrifices to protect the environment in this sample, and evidence for differentiation of each of the value types can be seen in the results presented in Table 8.7.

Table 8.7. *Relationship between value orientation and willingness to pay or make sacrifices to protect the environment*

<table>
<thead>
<tr>
<th>Item</th>
<th>Biospheric values</th>
<th>Socio-altruistic values</th>
<th>Egoistic values</th>
</tr>
</thead>
<tbody>
<tr>
<td>I would be willing to contribute extra 5% of cost for conservation of wildlife</td>
<td>.42***</td>
<td>.10</td>
<td>-.31***</td>
</tr>
<tr>
<td>I would be willing to contribute extra 10% of cost for conservation of wildlife</td>
<td>.39***</td>
<td>.04</td>
<td>-.29***</td>
</tr>
<tr>
<td>I would be willing to pay much higher prices for many goods and services in order to protect the environment</td>
<td>.43***</td>
<td>.08</td>
<td>-.29***</td>
</tr>
<tr>
<td>I would be willing to accept cuts in my standard of living in order to protect the environment</td>
<td>.41***</td>
<td>.05</td>
<td>-.28***</td>
</tr>
</tbody>
</table>

***$p < .001$

---

92 Spearman’s rho was used because membership status was dummy coded from 0 to 1, and because of the associated problems with underlying assumptions about distributions, it was considered prudent to use the nonparametric technique.
When examining tourists’ willingness to pay to protect the environment, the only significant relationships between these pro-environmental intentions\(^{93}\) and values were between biospheric values and willingness to pay, and egoistic values and willingness to pay. Stronger biospheric values were related to greater willingness to pay an extra 5% or 10% of the cost of a holiday experience for conservation of wildlife, willingness to pay much higher prices for goods and services and also willingness to incur cuts in one’s standard of living in order to protect the environment. This was evidenced by the moderate positive relationships as presented in Table 8.7. Conversely, respondents with relatively stronger egoistic values reported less willingness to pay or make personal sacrifices in this way as evidenced by the moderate negative relationships between egoistic values and these behavioural intentions (see Table 8.7). Interestingly, there was no relationship between socio-altruistic values and willingness to pay extra for holidays, willingness to incur increased costs in goods and services or cuts in standard of living in order to protect the environment (correlations are close to zero). This finding is inconsistent with the conclusions of previous research which has reported that general altruistic values (the self-transcendent value cluster) are significant predictors of pro-environmental behaviours and behavioural intentions (e.g. Schultz et al., 2005). However, as discussed previously, in most of the previous research of this nature the biospheric values and socio-altruistic values were analysed in combination, as a single altruism values type, rather than being investigated separately (Cameron et al., 1998; Stern et al., 1995; Stern et al., 1999). Steg et al. (2005) presented evidence that general pro-environmental beliefs and concerns, as measured by the NEP, were positively related to biospheric values but not to socio-altruistic values, but these researchers did not analyse the effects of the biospheric values, as distinct from the socio-altruistic values, on pro-environmental behaviours or behavioural indicators.

In view of Steg et al.’s (2005) previous results and these present findings, it was considered useful to delve a little deeper into the data in order to determine the relative contributions of pro-environmental beliefs (NEP) and biospheric values for tourists’ willingness to sacrifice to protect the environment, as these intentions were considered to require higher levels of personal effort, cost, and sacrifice.

\(^{93}\) Behavioural intentions, including willingness to pay, have been shown to be strongly associated with actual behaviour.
A bivariate correlation analysis revealed a moderate positive relationship between the biospheric values and scores on the NEP, $r = .48$, $p = .000$, confirming the findings of Steg et al. (2005). Moreover, the NEP was significantly related to greater willingness to incur much higher prices for goods and services to protect the environment $r = .36$, $p = .000$ and willingness to accept cuts in standard of living $r = .33$, $p = .000$. However, the biospheric values had somewhat stronger relationships with each of these behavioural intentions, $r = .43$, $p = .000$ for willingness to pay higher prices, and $r = .40$, $p = .000$ for willingness to incur personal standard of living cuts to protect the environment. Furthermore, when controlling for pro-environmental beliefs (NEP), there was little effect on the magnitude of relationships between biospheric values and willingness to pay higher prices, $r = .32$, $p = .000$, or willingness to incur cuts in standard of living, $r = .30$, $p = .000$. In contrast, when controlling for biospheric values, the influence of beliefs on both willingness to pay higher prices, $r = .19$, $p = .003$, and willingness to incur standard of living cuts, $r = .17$, $p = .007$ was partially mediated by the effect of biospheric values (Hair et al., 2006) and, thus, the effects of beliefs on behaviour were much weaker. Therefore, in this sample of tourists it seemed that stronger biospheric values were more important than pro-environmental beliefs in influencing pro-environmental willingness to pay and sacrifice to protect the environment.

**Hypothesis Testing: Values and Interest in Ecotourism Activities**

When examining pro-environmental value orientation and interest in particular tourism activities, tourists with stronger biospheric values were significantly more interested in ecotourism activities (i.e. scores on the Ecotourism Interest scale EI) and those with relatively stronger egoistic values were correspondingly less interested, as evidenced by their respective significant positive and negative correlations (refer Table 8.8). Stronger biospheric values were also significantly related to more interest in historical sites and museums, and learning about other cultures in tourists (see Table 8.8). Learning about other cultures and historical sites and museums has previously been shown to be related to interest in ecotourism (Boo, 1990; Eagles, 1992; Page & Dowling, 2002; Weaver, 2005) and form part of the definition of ecotourism with some international bodies. Both of these activities have previously been found to be related to ecotourism in the ecotourism literature (Ceballos-
Lascurain, 1991; Fennell, 2003). Furthermore, biospheric values were associated with less interest in the relatively hedonistic pursuits of shopping and exciting nightlife, a result which seems consistent with values theory in that these values are focused more on self-transcendence and are also antagonistic or in opposition to the self-enhancement or egoistic values (see Schwartz, 1992, 1994, 1996). There were no relationships between biospheric values and interest in sun and surf, wine and food tasting, or power boating and four-wheel driving.

Table 8.8.  
*Values and general interest in ecotourism (EI) as compared with other tourism activities*

<table>
<thead>
<tr>
<th>Interest</th>
<th>Biospheric values</th>
<th>Socio-altruistic values</th>
<th>Egoistic values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ecotourism interest (EI)</td>
<td>.47***</td>
<td>.16*</td>
<td>-.37***</td>
</tr>
<tr>
<td>sun and surf</td>
<td>-.06</td>
<td>-.03</td>
<td>.00</td>
</tr>
<tr>
<td>shopping</td>
<td>-.24***</td>
<td>-.06</td>
<td>.17**</td>
</tr>
<tr>
<td>gambling</td>
<td>-.13*</td>
<td>-.04</td>
<td>.13*</td>
</tr>
<tr>
<td>exciting nightlife</td>
<td>-.17**</td>
<td>-.21**</td>
<td>.24***</td>
</tr>
<tr>
<td>power boating and 4-wheel driving</td>
<td>-.02</td>
<td>-.13*</td>
<td>.09</td>
</tr>
<tr>
<td>wine and food tasting</td>
<td>-.01</td>
<td>.13*</td>
<td>-.01</td>
</tr>
<tr>
<td>historical sites and museums</td>
<td>.23***</td>
<td>.12</td>
<td>-.21**</td>
</tr>
<tr>
<td>learning about other cultures</td>
<td>.22***</td>
<td>.15*</td>
<td>-.29***</td>
</tr>
</tbody>
</table>

*p < .05, **p < .01, ***p < .001

In contrast to biospheric values, relatively stronger egoistic values were associated with significantly less interest in ecotourism and historical sites and museums as evidenced by their significant negative relationships (see Table 8.8). Moreover, relatively stronger egoistic values in tourists were associated with more interest in shopping and exciting nightlife. This is reflected by their significant positive relationships as summarised in Table 8.8. There were no relationships between egoistic values and interest in sun and surf, wine and food tasting, or power boating and four-wheel driving.

When examining the relationships between socio-altruistic values and tourism interests, there was a significant negative relationship (at .01) between socio-altruistic values and exciting nightlife (refer Table 8.8). This result is consistent with the concept of an incompatibility between self-transcendence values (in this case socio-
altruism) and the importance of hedonistic type pursuits such as exciting nightlife. However, there was little or no relationship (at .01) between socio-altruistic values and either general interest in ecotourism or interest in any of the other tourism activities (see Table 8.8).

**Summary of Results for Testing of Hypotheses One, Two and Three**

In summary, hypothesis one (H1), hypothesis two (H2), and hypothesis three (H3) are supported. As expected, biospheric values had significant positive relationships with pro-environmental attitudes, behaviours, and willingness to pay and sacrifice to protect the environment. Tourists with relatively stronger biospheric values were significantly more likely to hold pro-environmental attitudes, to engage in pro-environmental behaviours, and were also more willing to pay higher prices and make sacrifices to protect the environment. Biospheric values were also associated with more general interest in ecotourism and ecotourism related activities (e.g. learning about other cultures), and correspondingly less interest in other activities which imply more hedonistic pursuits (e.g. shopping) (H1).

However, stronger socio-altruistic values had little or no relationship with either pro-environmental attitudes or with propensity for pro-environmental behaviour, and no relationship at all with willingness to pay or to make sacrifices to protect the environment. In general, there was also little or no relationship between socio-altruistic values and interest in ecotourism or other tourism activities, with the exception of a negative relationship with interest in exciting nightlife (H2).

Moreover, relatively stronger egoistic values also had significant moderate relationships with pro-environmental attitudes, pro-environmental behaviours, and willingness to pay, albeit in the opposite way to the relationships for biospheric values. Egoistic values predict significantly less likelihood of engaging in all pro-environmental behaviours and less willingness to pay or make personal sacrifices to protect the environment. Furthermore, egoistic values were associated with significantly less interest in ecotourism and ecotourism related activities, and significantly more interest in the relatively hedonistic pursuits of shopping and exciting nightlife (H3).

Thus, these results suggest that the biospheric value orientation and the socio-altruistic value orientation can be empirically differentiated on the basis of their
respective relationships with pro-environmental behaviour and intentions. Furthermore, the findings provide some evidence for a two factor model of environmental values. However, it is not the model proposed by Stern and colleagues, which is based on a general altruistic value orientation (i.e. biospheric and socio-altruistic values combined) versus an egoistic value orientation. In this sample, the significant influences on pro-environmental behaviour and intentions were represented by the biospheric and egoistic value orientations alone, with the former predicting greater likelihood of pro-environmental behaviour and the latter predicting less likelihood. The socio-altruistic values had little or no relationship with propensity for pro-environmental behaviour or intentions in this sample of tourists. Figure 8.1 below presents a graphic illustration of the results of testing hypotheses one (H1), two (H2) and three (H3).

**SELF-TRANSCENDENCE**

- **Biospheric values**
  - H1: +
  - Proenvironmental attitudes, behaviours, and choices

- **Socio-altruistic values**
  - H2: +
  - Willingness to sacrifice for environmental protection

- **Egoistic values**
  - H3: -
  - Interest in ecotourism type experiences

**SELF-ENHANCEMENT**

Figure 8.1 Summary of results for testing of hypotheses one (H1), two (H2), and three (H3).

The following section examines the influence of love and care for nature on tourists’ attitudes, behaviours and choices.
8.10 The Influence of Love and Care for Nature

It was argued in Chapters Three and Four that an ecological worldview is not confined simply to a set of general pro-environmental beliefs, but is, instead, primarily a function of pro-environmental values and their emotional correlate of love and caring for nature. The previous section has presented evidence that biospheric values are the values most important for positively influencing pro-environmental attitudes, behaviours, willingness to pay, and greater interest in ecotourism activities, within this sample of tourists. This section now focuses on the influence of love and care for nature on pro-environmental altruism\(^4\), which addresses hypothesis four and five.

Specifically, the aim of the fourth and fifth hypotheses of this study (H4 and H5), presented below, is to determine, firstly, the influence of love and care for nature on tourists’ pro-environmental attitudes, behaviours, willingness to pay, and general interest in ecotourism activities, and secondly, to determine the strength of that influence, with respect to other related constructs, as the levels of personal sacrifice increase. Willingness to pay was considered to be a good indicator of people’s willingness to sacrifice at least some of their own individual self interests (e.g. money and general standard of living) for conservation and protection of nature. These two hypotheses, hypotheses four and five, are outlined below.

**H4:** Love and care for nature will have a positive relationship with tourist pro-environmental attitudes, behaviours, willingness to pay, and interest in ecotourism.

**H5:** Love and care for nature will be a better predictor of tourist pro-environmental willingness to sacrifice than values and beliefs as the level of sacrifice increases.

In order to build on the previous results for hypotheses one, two and three concerning the influence of biospheric values, love and care for nature (LCN) and

\(^4\) As discussed previously, indicators of pro-environmental altruism may include pro-environmental beliefs, attitudes, behaviours and behavioural intentions, as well as willingness to pay and make personal sacrifices to protect the environment.
biospheric values were both included in the following correlation analysis. This strategy offered a means of comparison between these two key psychological aspects of an ecological worldview which would more effectively demonstrate the specific contribution of love and care for nature.

**Hypothesis Testing: Love and Care for Nature and Pro-Environmental Attitudes**

Results of the correlation analysis outlined in Table 8.9 revealed that love and care for nature had similar relationships with pro-environmental attitudes as biospheric values. Relationships with consumptive type attitudes (C), which are those focused on tourists’ sense of entitlement to use resources and protect personal freedoms, were somewhat weak (although some were significant at .01). Love and care for nature also had only a weak influence on tourist support for closure of some national parks to protect the environment from human visitation. However, stronger feelings of love and care for nature significantly influenced tourists’ attitudes relating to considerations for the environmental sustainability of tourism. Those who expressed more love and care for nature also reported stronger support for green accreditation systems for tourism products and services, greater preparedness to preferentially purchase accredited products or services, and placed more importance on considering their personal impact on nature and other cultures when making their travel choices (see Table 8.9). This was a similar pattern of results as those reported for the influence of biospheric values.
Table 8.9
*Relationships between love and care for nature, biospheric values, and tourism related attitudes*

<table>
<thead>
<tr>
<th>Agreement with</th>
<th>Love and care for nature LCN</th>
<th>Biospheric values</th>
</tr>
</thead>
<tbody>
<tr>
<td>As a tourist I feel that I am entitled to travel anywhere anyhow I choose as I have paid for the experience (C)</td>
<td>-.15*</td>
<td>-.18**</td>
</tr>
<tr>
<td>As a tourist I feel that I am entitled use as much water/power/resources as I think fit for my own enjoyment (C)</td>
<td>-.20**</td>
<td>-.21**</td>
</tr>
<tr>
<td>I prefer leisure activities and tourism experiences where I can just have fun, relax, and spend money doing what I like, how I like (C)</td>
<td>-.15*</td>
<td>-.16**</td>
</tr>
<tr>
<td>As a tourist it is very important to me that tourism products, services and venues are part of a green accreditation system</td>
<td>.51***</td>
<td>.52***</td>
</tr>
<tr>
<td>I would choose a tourism product or services which adopts a “green” accreditation system over one that does not if the choice is available</td>
<td>.46***</td>
<td>.47***</td>
</tr>
<tr>
<td>I support the closure of some national parks and wilderness areas to protect the environment from harm due to human activity</td>
<td>.15*</td>
<td>.20**</td>
</tr>
</tbody>
</table>

*p < .05, **p < .01, ***p < .001

Note: (C) - Consumptive attitudes

**Hypothesis Testing: Love and Care for Nature and Pro-Environmental Behaviour**

While pro-environmental attitudes have been found to be significantly associated with pro-environmental action and behaviour (Stern et al., 1998), it is the prediction of pro-environmental behaviour which is one of the major objects of interest in social science research into human environment relations. Earlier in this chapter evidence was presented that stronger biospheric values were associated with increased frequency of pro-environmental behaviours. This section now compares those relationships in terms of the influence of love and care for nature on those same behaviours. The results of the analysis assessing the relationships between levels of love and care for nature and frequency of pro-environmental behaviours are detailed in Table 8.10.
Table 8.10
*Relationships between love and care for nature, biospheric values, and pro-environmental behaviours*\(^{95}\)

<table>
<thead>
<tr>
<th>How often do you?</th>
<th>Love and care for nature LCN</th>
<th>Biospheric values</th>
</tr>
</thead>
<tbody>
<tr>
<td>practise recycling</td>
<td>.19**</td>
<td>.16*</td>
</tr>
<tr>
<td>use public transport to minimise car use</td>
<td>.10</td>
<td>.15*</td>
</tr>
<tr>
<td>conserve energy</td>
<td>.29***</td>
<td>.20**</td>
</tr>
<tr>
<td>conserve water</td>
<td>.22**</td>
<td>.13*</td>
</tr>
<tr>
<td>use energy or water efficient household devices</td>
<td>.29***</td>
<td>.16*</td>
</tr>
<tr>
<td>make special effort to buy products that are environmentally friendly</td>
<td>.42***</td>
<td>.40***</td>
</tr>
<tr>
<td>make special effort to buy recycled paper and plastic products</td>
<td>.37***</td>
<td>.29***</td>
</tr>
<tr>
<td>boycott companies with poor environmental record</td>
<td>.51***</td>
<td>.36***</td>
</tr>
<tr>
<td>vote for candidates with green platform</td>
<td>.48***</td>
<td>.43***</td>
</tr>
<tr>
<td>sign environmental petitions</td>
<td>.44***</td>
<td>.34***</td>
</tr>
</tbody>
</table>

\(^{*p < .05, **p < .01, ***p < .001}\)

In reviewing this table, stronger reported love and care for nature in tourists is significantly associated with an increased propensity for engaging in all pro-environmental behaviours, with the exception of the use of public transport. This was a similar pattern of results to those presented on the influence of biospheric values. However, it appears that the relationships are somewhat stronger with respect to love and care for nature (see Table 8.10). Furthermore, as the pro-environmental behaviours require more effort, the relationships between love and care for nature and those behaviours strengthened. For example, behaviours which might require increased effort include: making a special effort to buy products that are environmentally friendly, boycotting companies with poor environmental records, or voting for political candidates on the basis of environmental platform, and signing environmental petitions. The propensity for engaging in these more effortful behaviours has stronger associations with both the central psychological aspects of an

\(^{95}\) Spearman’s rank order correlations were calculated as pro-environmental behaviour was ranked data. Slight variations in correlations between Tables are due to missing values.
ecological worldview\textsuperscript{96}, and particularly love and care for nature. Conversely relationships with the relatively easier pro-environmental behaviours such as conserving energy, conserving water, and recycling, are somewhat weaker, albeit still significant. These latter behaviours have elements of widespread social acceptance and adoption (i.e. through either regulation or habit), or alternatively, represent cost saving behaviours, as discussed previously (i.e. saving power and water saves money). Therefore many people, irrespective of environmental orientation, are likely to adopt these behaviours into their daily lives. Thus, the relationships between love and care for nature and pro-environmental behaviours were stronger for those behaviours that require more effort and involvement. Schultz and Oskamp (1996) also found similar effects concerning the moderating effect of effort (e.g. greater perceived sacrifice), on relationships between pro-environmental orientation and behaviour.

\textit{Hypothesis Testing: Love and Care for Nature and Willingness to Pay or Willingness to Sacrifice to Protect the Environment}

Table 8.11 summarises the Pearson’s $r$ correlations used to assess the relationships between love and care for nature compared with biospheric values, and respondents’ willingness to pay and willingness to make sacrifices to protect the environment. Tourists who expressed more love and care for nature were also more willing to pay for environmental conservation, more willing to pay much higher prices for goods and services, and more willing to incur cuts in their personal standard of living in order to protect the environment than those who expressed less love and care for nature. This is evident in the significant moderate to moderately strong positive correlations between love and care for nature and the willingness to pay behavioural intention items (see Table 8.11).

\textsuperscript{96} In this research these psychological aspects are stronger biospheric values and love and care for nature.
Table 8.11

*Relationships love and care for nature, biospheric values, and willingness to pay or to make sacrifices to protect the environment within and outside a tourism setting*97

<table>
<thead>
<tr>
<th>Item</th>
<th>Love and care for nature LCN</th>
<th>Biospheric values</th>
</tr>
</thead>
<tbody>
<tr>
<td>I would be happy to contribute an extra 5% of cost of a tourism package towards conservation of wildlife and the natural environment</td>
<td>.43***</td>
<td>.46***</td>
</tr>
<tr>
<td>I would be happy to contribute an extra 10% of cost of a tourism package towards conservation of wildlife and the natural environment</td>
<td>.37***</td>
<td>.39**</td>
</tr>
<tr>
<td>I would be willing to pay much higher prices for many goods and services in order to protect the environment</td>
<td>.61***</td>
<td>.44***</td>
</tr>
<tr>
<td>I would be willing to accept cuts in my standard of living in order to protect the environment</td>
<td>.58***</td>
<td>.41***</td>
</tr>
</tbody>
</table>

*p<.05, **p<.01, ***p<.001

Furthermore, the influence of love and care for nature appears stronger than the influence of biospheric values, especially in relation to willingness to incur increased costs for general goods and services and willingness to sacrifice one’s personal standard of living in order to protect the environment. Both of these behavioural intentions imply a greater preparedness to accept significant personal sacrifices to protect the environment (See Table 8.11).

As discussed in Chapters Two and Four, many philosophers and writers believe it is what we deeply care about that we will act to protect (Gould, 1991; Leopold, 1949/ 1987; Noddings, 2003; Rolston, 1993; Wilson, 1984, 1993, 1998; Kellert, 1997; Kellert & Wilson, 1993). Yet stronger biospheric values and love and care for nature both have significant and reasonably strong influences on the behavioural intentions relating to willingness to pay to protect the environment.

97 Slight variations in correlations between Tables are due to missing values.
Willingness to pay much higher prices and willingness to incur cuts in one’s personal standard of living are considered good indicators of pro-environmental behaviour which requires significant levels of personal sacrifice to protect the environment (Kaiser et al., 2007; Kals et al., 1999; Kals & Maes, 2002; Stern et al., 1998). Therefore it was considered useful to examine in more depth the respective influences of biospheric values and love and care for nature in determining which of these psychological variables had the most influence on willingness to sacrifice to protect the environment in this sample of tourists.

The correlation results presented in Table 8.11, revealed that stronger biospheric values were significantly associated with willingness to pay to protect the environment as measured by responses to the statements: “I would be willing to accept cuts in my standard of living in order to protect the environment” \( r = .41, p = .000 \); and “I would willing to pay much higher prices for many goods and services in order to protect the environment” \( r = .44, p = .000 \) respectively. However, when examining the same relationships but controlling for love and caring for nature (LCN), using a partial correlation analysis, the relationships become both much weaker and also non-significant, as evidenced by \( r = .11, p = .071 \) for willingness to take cuts in a standard of living, and \( r = .10, p = .105 \) for willingness to pay much higher prices. Moreover, the zero order correlations between love for nature (LCN) and willingness to pay were stronger than for values, as evidenced by: “I would be willing to accept cuts in my standard of living in order to protect the environment” \( r = .58, p = .000 \), and “I would willing to pay much higher prices for many goods and services in order to protect the environment” \( r = .61, p = .000 \) respectively. Yet in a partial correlation analysis, when controlling for biospheric values, the relationships between love for nature and willingness to pay were only slightly lower in magnitude, as evidenced by a correlation of \( r = .45, p = .000 \) for willingness to accept cuts in standard of living, and \( r = .48, p = .000 \) for willingness to pay much higher prices, and furthermore remained significant at .001. This suggests that love and caring for nature may fully mediate the relationship between biospheric values and behaviour (Hair et al., 2006), and therefore appears to be a stronger direct predictor of willingness to make personal sacrifices to protect the environment than values.

In view of the apparent importance of love and caring for nature in predicting willingness to pay, and to determine its relative contribution with respect to the
contributions of biospheric values and pro-environmental beliefs\textsuperscript{98}, a series of multiple regressions was performed. In these multiple regression analyses willingness to pay higher prices and willingness to incur cuts in personal standard of living were used as two separate criterion variables, and biospheric values, pro-environmental beliefs, and love and care for nature were used as the three independent or predictor variables. The results of these analyses are outlined in Tables 8.12 and Table 8.13 following.

When biospheric values, pro-environmental beliefs, and love and caring for nature were used together as predictors for willingness to pay much higher prices for goods and services to protect the environment, all three predictors accounted for a significant 38.3\% of the variance in willingness to pay $F (3, 242) = 50.08, p = .000$, but love and caring made the only significant unique contribution $\beta = .52 p < .001$ (Refer Table 8.12)\textsuperscript{99}.

Table 8.12  
\textit{Summary of regression predicting willingness to pay much higher prices for goods and services in order to protect the environment ($N = 245$)}

<table>
<thead>
<tr>
<th>Variable (predictor)</th>
<th>B</th>
<th>SE B</th>
<th>$\beta$</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Constant)</td>
<td>-.55</td>
<td>.67</td>
<td></td>
</tr>
<tr>
<td>Biospheric value orientation</td>
<td>.16</td>
<td>.17</td>
<td>.07</td>
</tr>
<tr>
<td>NEP</td>
<td>.02</td>
<td>.01</td>
<td>.12</td>
</tr>
<tr>
<td>Love and care for nature LCN</td>
<td>.74</td>
<td>.09</td>
<td>.52***</td>
</tr>
</tbody>
</table>

Note: $R^2 = .383$  
\*\*\* $p<.001$  
NB: Collinearity statistics of Tolerance and VIF were well within acceptable limits.

A similar pattern was evident using the biospheric values, beliefs, and love and caring, as combined predictors of willingness to accept cuts in one’s standard of living to protect the environment. Again all three variables accounted for a significant

\textsuperscript{98} Biospheric values, pro-environmental beliefs (NEP), and love and care for nature are all conceptually and empirically related to each other. Bivariate correlations between these variables are: NEP and biospheric values $r=.48$; NEP and LCN $r=.41$; and LCN and biospheric values $r=.60$.

\textsuperscript{99} The unique contribution of NEP was low and not significant $\beta = .12$, as was that of biospheric values $\beta = .07$. 
34.2% of the variance in willingness to accept cuts in living standard $F(3, 242) = 41.89, p = .000$, but again love and caring made the only significant unique contribution $\beta = .49, p < .001$ (refer Table 8.13).

Table 8.13
Summary of regression predicting willingness to accept cuts in one’s standard of living to protect the environment ($N = 245$)

<table>
<thead>
<tr>
<th>Variable (predictor)</th>
<th>B</th>
<th>SE B</th>
<th>$\beta$</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Constant)</td>
<td>-.06</td>
<td>.68</td>
<td></td>
</tr>
<tr>
<td>Biospheric value orientation</td>
<td>.19</td>
<td>.17</td>
<td>.08</td>
</tr>
<tr>
<td>NEP</td>
<td>.01</td>
<td>.01</td>
<td>.09</td>
</tr>
<tr>
<td>Love and care for nature LCN</td>
<td>.69</td>
<td>.13</td>
<td>.49***</td>
</tr>
</tbody>
</table>

Note: $R^2 = .342$

*** $p < .001$

NB: Collinearity statistics of Tolerance and VIF were well within acceptable limits.

Willingness to sacrifice money in terms of incurring increased costs, and willingness to incur cuts in personal standard of living to protect the environment are thought to be indicative of higher consumer commitment to the environment. Furthermore, these findings do not simply represent general behavioural type attitudes but rather they represent behavioural intentions which imply a requirement for higher levels of effort and sacrifice in order to protect the environment. In this study, love and care for nature was found to be a more important predictor of willingness to pay, at these higher levels of personal sacrifice and effort, than either pro-environmental value orientation (stronger biospheric values) or pro-environmental beliefs.

Hypothesis Testing: Love and Care for Nature and Interest in Ecotourism Activities

When examining the relationships between love and care for nature and interest in particular tourism activities, love and care for nature (LCN) had a moderately strong positive relationship with general interest in ecotourism (EI) ($r = .60$), and also with interest in historical sites and museums ($r = .36$) and learning about other cultures ($r = .36$) (see Table 8.14). In contrast, love and care for nature
was negatively related to the hedonistic activities of shopping and gambling, although these relationships, while significant, were generally weak (Table 8.14). Thus, in general, those tourists who expressed greater levels of love and care for nature were more interested in ecotourism activities (EI), and also with activities which have been previously associated with ecotourism such as visiting historical sites and experiencing different cultures (e.g. Fennell, 2003). Tourists expressing stronger levels of love and care for nature were less interested in shopping and gambling activities. This pattern of relationships was similar to the patterns associated with biospheric values. However, the relationship between feelings of love and care for nature and general interest in ecotourism activities (EI) was considerably stronger than the relationship between levels of interest in ecotourism and biospheric values (see Table 8.14), at least within this sample.

Table 8.14

<table>
<thead>
<tr>
<th>Interest Interest</th>
<th>Love and care for nature LCN</th>
<th>Biospheric values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ecotourism Interest (EI)</td>
<td>.60***</td>
<td>.47***</td>
</tr>
<tr>
<td>Sun and surf</td>
<td>.09</td>
<td>-.06</td>
</tr>
<tr>
<td>Shopping</td>
<td>-.17**</td>
<td>-.24***</td>
</tr>
<tr>
<td>Gambling</td>
<td>-.20**</td>
<td>-.13*</td>
</tr>
<tr>
<td>Exciting nightlife</td>
<td>-.10</td>
<td>-.17**</td>
</tr>
<tr>
<td>Power boating or 4-wheel driving</td>
<td>.00</td>
<td>-.02</td>
</tr>
<tr>
<td>Wine and food tasting</td>
<td>.09</td>
<td>-.01</td>
</tr>
<tr>
<td>Historical sites and museums</td>
<td>.36***</td>
<td>.23***</td>
</tr>
<tr>
<td>Learning about other cultures</td>
<td>.36***</td>
<td>.22***</td>
</tr>
</tbody>
</table>

* p<.05 ** p<.01 *** p<.001

Some ecotourism researchers have recently begun to consider some environmentally relevant psychological variables in the quest to understand the motivations of the ecotourist. The New Ecological Paradigm (NEP) (Dunlap et al., 2000) has been employed in some of this recent ecotourism research, and therefore it was considered appropriate to further determine the relative influence of love and care for nature with respect to both biospheric values and general environmental beliefs (NEP) in regard to general interest in ecotourism. A multiple regression analysis was
employed using biospheric values, environmental beliefs, and love and care for nature as combined predictors of general interest in ecotourism. The results of this analysis revealed that, while these three variables were significant predictors of interest in ecotourism, accounting for 38.1% of the variance in that interest, it was love and caring for nature which was the only significant unique contributor $F (3,236) = 48.40$, $p = .000$, as evidenced by the standardised beta coefficient $\beta = .50$, $p < .001$. This was in spite of there being significant positive relationships between these three environmentally relevant constructs. See Table 8.15 following.

Table 8.15
Summary of regression for predicting general interest in ecotourism $EI$ ($N = 240$)

<table>
<thead>
<tr>
<th>Variable (predictor)</th>
<th>B</th>
<th>SE B</th>
<th>$\beta$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>1.17</td>
<td>.68</td>
<td></td>
</tr>
<tr>
<td>Love and care for nature</td>
<td>.61</td>
<td>.08</td>
<td>.50***</td>
</tr>
<tr>
<td>Biospheric values</td>
<td>.28</td>
<td>.14</td>
<td>.13</td>
</tr>
<tr>
<td>NEP</td>
<td>.01</td>
<td>.01</td>
<td>.05</td>
</tr>
</tbody>
</table>

Note: $R^2 = .381$

*** $p < .001$

NB: Collinearity statistics of Tolerance and VIF were well within acceptable limits.

These results lend some support to the notion that those who are more interested in ecotourism may be part of a particular market segment that can be differentiated on the basis of Fennel’s (2003) “biological and preservationist affect” (p. 26), which is perhaps expressed by feelings of love and caring for nature.

Summary of Results for Testing of Hypotheses Four and Five

In summary, hypothesis four (H4) and hypothesis five (H5) have been supported by the findings presented in the previous sections. As expected, tourists who reported stronger feelings of love and care for nature were significantly more likely to hold pro-environmental attitudes, to engage in pro-environmental behaviours,

100 NEP and biospheric values $r = .48$; NEP and LCN $r = .41$; and LCN and biospheric values $r = .60$. 
and were also more willing to pay more and to make personal sacrifices in order to protect the environment (H4). Love and care for nature was also associated with more general interest in ecotourism and ecotourism related activities (e.g. learning about other cultures), and correspondingly less interest in other activities which imply more hedonistic pursuits (e.g. shopping) (H4). Moreover, love and care for nature was a more important predictor of general interest in ecotourism than either pro-environmental values (i.e. biospheric values) or environmental beliefs (NEP) (H4). Figure 8.2 presents an illustration of the results of testing hypothesis four.

**Figure 8.2.** Summary of results for testing of hypothesis four (H4)

Furthermore, when increased levels of implied personal sacrifice or effort were required in order to protect the environment, love and care for nature was a more important predictor of willingness to pay and to make sacrifices for the environment than either pro-environmental values (i.e. biospheric values) or pro-environmental beliefs, within this sample of tourists (H5). These findings have also provided additional evidence of the validity of the newly developed Love and Care for Nature scale (LCN). Figure 8.3 illustrates the results of testing hypothesis five.
Figure 8.3. Summary of results for testing of hypothesis five (H5).

The next section examines the differences between tourists who are more interested in ecotourism and those who are more interested in mainstream type tourism experiences in terms of their respective psychological profiles, and therefore addresses hypothesis six of this research.

### 8.11 Psychological Differentiation of Different Types of Tourists

As discussed previously, tourists’ interest in and preferences for ecotourism type holiday experiences and mainstream type holiday experiences were, in the main, reflected in their visitation behaviour at the time of sampling. This visitation behaviour refers to whether tourists were sampled from the mainstream tourist venue, Seaworld, or the ecotourism venue, O’Reilly’s Rainforest Retreat. Tourists at Seaworld were more likely to rank the mainstream type activities of sun and surf beach holidays and luxury resorts holidays as their first or second tourism preferences. They also reported significantly less interest in ecotourism type activities than those who had been sampled at the ecotourism venue. In contrast, tourists at O’Reilly’s were more likely to rank the ecotourism type nature-based holiday and the wildlife watching and photography holiday as their first or second preference\(^{101}\). Tourists at O’Reilly’s also reported significantly more general interest in ecotourism type

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\(^{101}\) This was also true to some extent for the volunteer ecotourism type holiday, although the tendency was not significant at .01.
activities than the tourists from Seaworld. Thus, tourists’ reported preferences and interests were found to be related to actual visitation behaviour.

Examining this further, patterns of responses for tourist rankings of the most popular holidays from the mainstream type (i.e. beach holiday) and the ecotourism type holidays (i.e. ecotourism holiday), were examined by visitation (i.e. where tourists were sampled), and opposing patterns of responses were observed (refer Figures 8.4 and 8.5 following). For example, Figure 8.4 reveals that the preference rankings for the ecotourism nature-based holiday were higher (i.e. most preferred) among the tourists sampled at O’Reilly’s Rainforest Retreat, and correspondingly lower (i.e. least preferred) amongst tourists sampled at Seaworld.

![Figure 8.4](image_url)

*Figure 8.4. Preferences for ecotourism type nature-based holidays by tourist sample.*

In contrast, Figure 8.5 shows that all preference rankings for the sun and surf beach holiday were higher among the tourists sampled at Seaworld, and correspondingly lower among the tourists sampled at O’Reilly’s Rainforest Retreat.
These results indicate that reported preferences for particular holiday types were related to actual tourist behaviour. Furthermore, preferences for mainstream tourism type holidays and ecotourism type nature-based holidays seemed to represent different categories of choice for the tourists. Correlation analysis between preferences for the different holiday types were undertaken to determine if this difference between the holiday types in the minds of the consumer was also evident across all six holiday offerings and the results of these analyses are presented in Table 8.16. The results confirm that preferences for ecotourism type holidays were positively related to each other, and were also negatively associated with mainstream type holiday offerings in the minds of these tourists. Those who reported stronger preferences for the ecotourism holiday tended to also have stronger preferences for wildlife watching and photography and volunteer ecotourism type holidays, and
correspondingly lower preferences for mainstream type holidays. Conversely, those who expressed stronger preferences for the luxury resort holiday (mainstream type tourism) also reported stronger preferences for the nightlife, gaming and shopping holiday, and vice versa. There were weak or no relationships between preferences for the sun and surf beach holiday and preferences for the other mainstream type holidays. However, stronger preferences for all the mainstream type holidays, including the beach holiday, were negatively associated with preferences for ecotourism type holidays (refer Table 8.16). Those who ranked the sun and surf beach holidays, luxury resort holidays, and nightlife, gaming and shopping holidays higher amongst their preferences were significantly more likely to rank all the ecotourism type nature-based holiday options lower (i.e. negative correlations).

Table 8.16.
*Relationships between holiday preferences (N=254)*

<table>
<thead>
<tr>
<th></th>
<th>M1</th>
<th>M2</th>
<th>M3</th>
<th>E1</th>
<th>E2</th>
<th>E3</th>
</tr>
</thead>
<tbody>
<tr>
<td>M1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M2</td>
<td>-.02</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M3</td>
<td>.13*</td>
<td>.35***</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E1</td>
<td>-.29***</td>
<td>-.56***</td>
<td>-.50***</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E2</td>
<td>-.45***</td>
<td>-.43***</td>
<td>-.42***</td>
<td>.26***</td>
<td></td>
<td></td>
</tr>
<tr>
<td>E3</td>
<td>-.36***</td>
<td>-.42***</td>
<td>-.50***</td>
<td>.25***</td>
<td>.21**</td>
<td></td>
</tr>
</tbody>
</table>

* p<.05, ** p<.01, *** p<.001

M1 = Mainstream sun and surf beach holiday
M2 = Mainstream luxury resort holiday
M3 = Mainstream nightlife, gambling and shopping holiday
E1 = Ecotourism nature based holiday
E2 = Ecotourism wildlife watching and/or photography holiday

There appeared to be some fundamental differences between the patterns of preference for particular types of holiday offerings as reported by the tourists. Traditionally ecotourism research into the motivational systems of ecotourists has focused on investigating ecotourists as defined simply by their having visited an ecotourism venue or destination at the time of sampling. However, as argued in

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102 Spearman’s rho rank order correlations.
Chapter Three and earlier in this chapter, tourists may partake in particular types of tourism experience at certain times for reasons other than personal preferences or interest. Therefore, because tourists’ preferences for particular types of experiences are considered to be closely related to their underlying psychological motivations, differences between the psychological profiles of so-called ecotourists and those of mainstream tourists is examined on the basis of their respective tourism preferences\textsuperscript{103}. Hypothesis six described below aimed to differentiate tourists who preferred ecotourism type experiences and holidays from those who preferred mainstream type tourism experiences and holidays on the basis of their environmentally relevant psychological orientation.

**H6:** Tourists who prefer ecotourism type experiences can be differentiated from tourists who prefer mainstream type tourism experiences on the basis of value orientation, love for nature, pro-environmental beliefs, and support for environmentally and culturally responsible tourism.

**Hypothesis Testing: Psychological Differentiation of Tourists, and Holiday Preferences**

Relationships between values, love and caring for nature, general pro-environmental beliefs and holiday preferences were assessed using Spearman’s rho rank order correlation analysis\textsuperscript{104}. The results of the analysis presented in Table 8.17 revealed that tourists who have stronger biospheric values, greater love and caring for nature, and stronger pro-environmental beliefs were significantly more likely to report preferences for the three ecotourism related holiday offerings (i.e. ecotourism; wildlife watching and photography; and volunteer ecotourism) than mainstream type holidays. Respondents with stronger biospheric values were also significantly less likely to prefer the mainstream type holiday offerings (i.e. beach holiday; luxury resort holiday; and nightlife, gaming and shopping holiday). This pattern of relationships was also the same for tourists who had relatively stronger socio-altruistic

\textsuperscript{103} Ecotourists are defined as those who prefer ecotourism type experiences, and mainstream tourists are those who prefer mainstream type tourism experiences.

\textsuperscript{104} While values, beliefs, and love and care for nature are interval data, holiday preferences were rank order data and thus Spearman’s rho is the appropriate analysis technique.
values, although these relationships were somewhat weaker than those for biospheric values (see Table 8.17).

Table 8.17.
*Relationships between values, love and care for nature, and pro-environmental beliefs, and tourism preferences (N=254)*

<table>
<thead>
<tr>
<th>Holiday preference...</th>
<th>Environmental beliefs NEP</th>
<th>Love and care for nature LCN</th>
<th>Biospheric values</th>
<th>Socio-altruistic values</th>
<th>Egoistic values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ecotourism nature based holiday</td>
<td>.24***</td>
<td>.33***</td>
<td>.38***</td>
<td>.21**</td>
<td>-.37***</td>
</tr>
<tr>
<td>Wildlife watching or wildlife photography holiday</td>
<td>.27***</td>
<td>.32***</td>
<td>.33***</td>
<td>.14*</td>
<td>-.21**</td>
</tr>
<tr>
<td>Volunteer ecotourism holiday</td>
<td>.28***</td>
<td>.30***</td>
<td>.34***</td>
<td>.17**</td>
<td>-.36***</td>
</tr>
<tr>
<td>Sun and surf beach holiday</td>
<td>-.23***</td>
<td>-.24***</td>
<td>-.26***</td>
<td>-.13*</td>
<td>.12</td>
</tr>
<tr>
<td>Luxury resort holiday</td>
<td>-.27***</td>
<td>-.34***</td>
<td>-.36***</td>
<td>-.16*</td>
<td>.37***</td>
</tr>
<tr>
<td>Nightlife, gaming and shopping holiday</td>
<td>-.35***</td>
<td>-.36***</td>
<td>-.43***</td>
<td>-.21**</td>
<td>.46</td>
</tr>
</tbody>
</table>

* p<.05, **p<.01, ***p<.001

The opposite pattern of results is apparent for tourists who had relatively stronger egoistic values. These respondents were significantly more likely to report preferences for mainstream type tourism packages of luxury resort holidays and nightlife, gaming and shopping holidays (the latter exhibiting the strongest positive relationship at $r_s = .43$). Those with stronger egoistic values were also significantly more likely to report ecotourism, wildlife watching, and volunteer ecotourism as their least preferred choices (see Table 8.17).

Table 8.18 presents a summary of the average love and care for nature scores, average importance placed on biospheric values, and average pro-environmental beliefs for those who indicated each of the six holiday options as their first preferences. Those who preferred any of the three ecotourism related holidays, especially volunteer ecotourism, reported higher levels of love and care for nature, placed greater importance on biospheric values with respect to other values, and

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105 First and second preferences were combined to obtain reasonable numbers of observations in each cell.
reported stronger pro-environmental beliefs, than those who preferred the mainstream type holidays, especially the luxury resort and nightlife gaming and shopping holidays (refer Table 8.18).

Table 8.18.
*Average love and care for nature, importance of biospheric values, and pro-environmental beliefs in relation to preferred holiday choices (N=254)*

<table>
<thead>
<tr>
<th>Most preferred holiday</th>
<th>Levels of love and care for nature LCN</th>
<th>Importance of biospheric values</th>
<th>Pro-environmental beliefs NEP</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>M</td>
</tr>
<tr>
<td>Ecotourism type holiday</td>
<td>5.75</td>
<td>0.85</td>
<td>0.56</td>
</tr>
<tr>
<td>Wildlife watching and photography holiday</td>
<td>5.73</td>
<td>0.83</td>
<td>0.53</td>
</tr>
<tr>
<td>Volunteer ecotourism holiday</td>
<td>5.92</td>
<td>0.90</td>
<td>0.70</td>
</tr>
<tr>
<td>Sun and surf beach holiday</td>
<td>5.18</td>
<td>1.07</td>
<td>0.21</td>
</tr>
<tr>
<td>Luxury resort holiday</td>
<td>4.96</td>
<td>1.20</td>
<td>0.11</td>
</tr>
<tr>
<td>Nightlife, gaming and shopping holiday</td>
<td>4.18</td>
<td>1.56</td>
<td>-0.17</td>
</tr>
</tbody>
</table>

As evidenced by the average scores for the LCN, biospheric values, and the NEP reported in Table 8.18, those who assigned first preferences to the *volunteer ecotourism* holiday option reported the *strongest* levels of love and care for nature (M=5.92, SD=0.90), and also placed the *most importance* on biospheric values with respect to other values (M = 0.70, SD = 0.67), when compared with those who assigned their first preferences to other holiday options. That is, tourists who preferred the volunteer ecotourism holiday exhibited a stronger biospheric value orientation. They also held the strongest pro-environmental beliefs (M = 80.23, SD =13.82). Examining this in more detail in terms of all ranked preferences for volunteer ecotourism, tourists who indicated volunteer ecotourism as their first preference reported significantly higher levels of love and caring for nature (M=5.92, SD=0.90) than those who indicated this as their least preferred holiday (M = 5.37, SD = 1.10) F (2, 242)\(^{106}\) = 8.74, p = .000. They also had significantly stronger biospheric

\(^{106}\) Variations in N are due to missing values.
values ($M = 0.70, SD = 0.67$) than those who indicated this holiday as their least preferred option ($M = 0.19, SD = 0.64$) $F(2, 249)^{107} = 10.45, p = .000$. Moreover, these tourists held significantly stronger pro-environmental beliefs ($M = 80.23, SD = 13.82$) than those who identified this holiday type as their least preferred option ($M = 72.24, SD = 10.19$) $F(2, 245)^{108} = 8.69, p = .000$. There was no difference between those who preferred this holiday and those who indicated that it was a mid-range choice in terms of their values, love and care for nature, and their beliefs.

The volunteer ecotourism holiday package is one where tourists pay to help with environmental conservation work, under the direction of project leader scientists. Those who participate in volunteer ecotourism holidays often pay significant sums of money in addition to travelling costs such as airfares and insurances to participate in working 8-10 hour days for a 5 or 6 day working week and over a period from a few days to a couple of weeks at a time (Weiler & Richins, 1995; Earthwatch, 2008). Such tourists often experience very basic living amenities during their holiday experience, and commit to pre-trip training sessions and briefings, in order to spend their leisure time working for environmental conservation. Thus, respondents who would prefer to participate in volunteer ecotourism activities, if they had the time, resources and opportunities available, may indeed represent the “extreme ecotourist” (to which Weiler and Richins refer, 1995, p. 35), in terms of their level of care and desire to be environmentally responsible. However, unlike the findings of Weiler and Richins (1995), there was no difference in this sample of tourists between males and females in reported preferences for volunteer ecotourism holidays $\chi^2(2, N = 248) = 0.47, p = .79$.

The next strongest pro-environmental orientation was evident in those who expressed stronger preferences for traditional ecotourism type holidays. Tourists who indicated the ecotourism holiday as their first or second preference also reported significantly higher average levels of love and care for nature ($M = 5.75, SD = .85$), than those who placed the ecotourism holiday as a mid-range preference ($M = 5.23, SD = 1.10$) and those who ranked the ecotourism holiday as their least preferred option ($M = 4.76, SD = 1.32$) $F(2, 241)^{109} = 14.78, p = .000$. Those who most preferred the ecotourism nature-based holiday also exhibited significantly stronger

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107 Variations in $N$ were due to missing values.
108 See previous note.
109 See previous note.
biospheric values ($M = 0.56, SD = 0.59$) than those who ranked this holiday as their least preferred option ($M = -0.13, SD = 0.63$) $F(2, 248)^{110} = 21.51, p = .000$. These tourists also expressed stronger pro-environmental beliefs ($M = 77.08, SD = 12.35$) than those who indicated it as their least preferred holiday ($M = 61.57, SD = 10.14$), $F(2, 244) = 6.51, p = .002$. A similar pattern emerged with those who indicated that the wildlife watching and photography holiday was their most preferred holiday option. These tourists reported significantly higher levels of love and caring for nature $F(2, 242) = 9.58, p = .000$, assigned significantly more importance to biospheric values $F(2, 249) = 8.63, p = .000$, and held stronger pro-environmental beliefs $F(2, 245) = 10.72, p = .000$, than those who ranked this holiday as their least preferred option.

In contrast, when examining the three mainstream type tourism holiday options, those who selected the nightlife, gaming and shopping holiday as their most preferred option indicated the lowest levels of love and care for nature, placed the least importance on biospheric values with respect to all other values, and reported the lowest levels of pro-environmental beliefs when compared with those who expressed first preferences for any of the other holiday options (see Table 8.18). These tourists reported biospheric values as significantly less important to them ($M = -0.17, SD = 0.58)^{111}$ than those who stated that this holiday type was their least preferred choice ($M = 0.50, SD = 0.57$) $F(2, 248) = 29.04, p = .000$. They also reported significantly lower levels of love and care for nature ($M = 4.18, SD = 1.56$) than those who ranked this holiday as least preferred ($M = 5.61, SD = 0.91$) $F(2, 241) = 23.16, p = .000$. Tourists who preferred the nightlife, gaming and shopping holiday also held significantly weaker pro-environmental beliefs ($M = 68.61, SD = 13.87$) than those who considered this their least preferred holiday option ($M = 77.11, SD = 11.37$) $F(2, 244) = 13.05, p = .000$.

Similarly, those who indicated luxury resort holidays as their most preferred holiday option also assigned significantly less importance to the biospheric values ($M = 0.11, SD = 0.59$) as compared with those who rated this holiday type as least preferred ($M = 0.69, SD = 0.57$) $F(2, 251) = 19.27, p = .000$. They held significantly lower levels of love and care for nature ($M = 4.96, SD = 1.20$) than those who ranked this holiday last ($M = 5.89, SD = 0.77$) $F(2, 244) = 17.40, p = .000$, and significantly

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110 Variations in $N$ were due to missing values.

111 Tourists who preferred nightlife, gaming and shopping holidays considered biospheric values on average less important than all other values (i.e. negative scores).
weaker pro-environmental beliefs ($M = 71.93, SD = 10.84$) than those who reported it as their least preferred choice ($M = 80.89, SD = 11.48$) $F (2, 247) = 12.42, p = .000$. The pattern of responses for those who preferred the beach holiday was similar to those of the nightlife, gaming and shopping holiday and the luxury resort holiday preferences, in terms of less importance being assigned to the biospheric values $F (2, 250) = 6.31, p = .002$, lower reported levels of love and care for nature $F (2, 243) = 4.61, p = .011$, and weaker pro-environmental beliefs $F (2, 246) = 6.70, p = .001$. However, these effects were not significant at .001.

Table 8.19 presents a summary of the relative importance of egoistic values for those who have indicated their first or second preferences for each of the six holiday options. Those who preferred any of the ecotourism related holidays placed less importance (i.e. negative scores of greater magnitude) on the egoistic values with respect to all other values than those who preferred the mainstream type holiday options (see Table 8.19). Those who preferred the nightlife, gaming and shopping holiday, followed by those who preferred the luxury resort holidays, assigned more relative importance to egoistic values, and thus held a relatively stronger egoistic value orientation than those who preferred any of the other holiday options.

Table 8.19.
Relative importance of the egoistic values in relation to preferred holiday options ($N=250$)

<table>
<thead>
<tr>
<th>Most preferred holiday</th>
<th>Relative importance of the egoistic values</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
</tr>
<tr>
<td>Ecotourism type holiday</td>
<td>-1.64</td>
</tr>
<tr>
<td>Wildlife watching and photography holiday</td>
<td>-1.46</td>
</tr>
<tr>
<td>Volunteer ecotourism holiday</td>
<td>-1.60</td>
</tr>
<tr>
<td>Sun and surf beach holiday</td>
<td>-1.16</td>
</tr>
<tr>
<td>Luxury resort holiday</td>
<td>-0.98</td>
</tr>
<tr>
<td>Nightlife, gaming and shopping holiday</td>
<td>-0.52</td>
</tr>
</tbody>
</table>
Therefore, these findings indicate that tourists who preferred ecotourism type nature-based type holiday experiences can be differentiated from those who preferred more mainstream type tourism experiences on the basis of biospheric values, egoistic values, levels of love and caring for nature and pro-environmental beliefs (See Tables 8.18 and 8.19). Those who expressed greater preferences for ecotourism type holiday experiences considered biospheric values more important and egoistic values less important than other values. They therefore exhibited a stronger biospheric value orientation. These tourists also reported more love and care for nature and held stronger pro-environmental beliefs. Conversely, those who expressed greater preferences for the mainstream tourism holiday experiences placed less importance on biospheric values and relatively more importance on egoistic values. That is, they were more inclined towards an egoistic value orientation. Correspondingly, those who preferred the mainstream tourism experiences also reported lower levels of love and caring for nature, and weaker pro-environmental beliefs.

Therefore, tourists who expressed particular preferences for ecotourism type holidays were differentiated from those who preferred the mainstream type holidays on the basis of value orientation, pro-environmental beliefs, and levels of love and caring for nature. Preferences for ecotourism type holidays were associated with biospheric values, pro-environmental beliefs, and higher levels of love and care for nature. In contrast, preferences for mainstream type holidays were associated with relatively stronger egoistic values, and lower levels of love and care for nature.

**Hypothesis Testing: Psychological Differentiation of Tourists, and Interest in Ecotourism**

In previous sections of this chapter, biospheric values, love and care for nature, and pro-environmental beliefs were found to be significantly associated with higher levels of general interest in ecotourism, as measured by the Ecotourism Interest scale (EI). In order to examine these relationships in more depth, it was considered useful to determine if those who had a high general interest in ecotourism could be differentiated from those who had low general interest in ecotourism in terms of their values, levels of love and caring for nature and environmental beliefs. A median split
Scores on the EI\textsuperscript{112} were employed to separate a high ecotourism interest group from a low ecotourism interest group across the whole tourist sample. The sample in the low ecotourism interest group was \( n = 132 \), and in the high interest group was \( n = 120 \)\textsuperscript{113}.

Tourists in the high general interest group considered the biospheric values to be significantly more important with respect to other values (\( M = 0.57, SD = 0.53 \)) than those in the low interest group (\( M = 0.12, SD = 0.65 \)) \( t (250) = 6.05, p = .000 \). The high ecotourism interest group also expressed significantly stronger levels of love and caring for nature (\( M = 5.89, SD = 0.75 \)) than those who were in the low interest group (\( M = 4.83, SD = 1.15 \)) \( t (243) = 8.62, p = .000 \), and also significantly stronger pro-environmental beliefs (\( M = 78.58, SD = 10.95 \)) than the low interest group (\( M = 71.74, SD = 11.11 \)) \( t (246) = 4.88, p = .000 \). Conversely, those in the low ecotourism interest group placed relatively more importance on the egoistic values (\( M = -0.97, SD = 0.85 \)) than those in the high interest group (\( M = -1.59, SD = 0.98 \))\textsuperscript{114} \( t (250) = 5.329, p = .000 \). Therefore, tourists who were in the high general interest in ecotourism category were differentiated from those were in the low interest category on the basis of environmental value orientation, love and care for nature, and pro-environmental beliefs.

**Hypothesis Testing: Different Types of Tourists, and Support for Responsible and Sustainable Tourism**

Hypothesis six (H6) also aimed to differentiate tourists who preferred ecotourism type experiences and holidays from those who preferred mainstream type tourism experiences in terms of the strength of their support for responsible and sustainable tourism. Consideration of one’s personal impact on nature and other cultures, support for green accreditation for tourism products and services (such as Green Globe\textsuperscript{TM}), and the intention to preferentially purchase accredited products and services, seem to represent three important attitudinal indicators of tourists’ commitment to responsible and sustainable tourism. Across the whole sample of

\textsuperscript{112} Scores on the 7-item Ecotourism Interest scale ranged from a low of 7 to a high of 49, with a median of 35.
\textsuperscript{113} There were some missing values.
\textsuperscript{114} Magnitude of negative difference scores indicates how low the importance of these values is with respect to all other values.
tourists, there was generally strong support for the importance of considering one’s personal impact on the earth and other cultures when making travel decisions, as evidenced by an average level of agreement with this statement of 5.70 ($SD = 1.52$) on a 7-point scale. There was also overall support for green accreditation across the whole tourist sample by the responses to the statement “As a tourist it is very important to me that tourism products, services and venues are part of a … ‘green’ accreditation system ...” The average level of agreement for the importance of green accreditation to tourism was 5.44 ($SD = 1.22$), and for intention to preferentially purchase an accredited product, the average level of agreement was 5.50 ($SD = 1.34$). However, there has been little data available in the past on whether so-called ecotourists consider this any more important than the general population of mainstream tourists, or whether they are more likely to consider their impact on the environment when making travel decisions. In this sample of tourists, assessment of the relationships between each of these three behavioural attitudes towards responsible and sustainable tourism, and tourists’ ranked preferences for holiday options, was made using Spearman’s rho rank order correlation analysis with the strength and direction of the relationships appearing consistent with both theoretical expectations and previous results (see Table 8.20).

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115 The Green Globe ™ definition was summarized as a prelude to this question (refer Chapter Seven).
Table 8.20. *Relationships between tourist attitudes concerning environmentally and culturally responsible tourism and holiday preference rankings (N=255)*

<table>
<thead>
<tr>
<th>Holiday preference</th>
<th>Green accreditation is very important for tourism products, services, and venues</th>
<th>I would choose a green accredited product over one that is not if the choice is available</th>
<th>I believe I should definitely consider my impact on earth and other cultures when making travel choices</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ecotourism nature based holiday</td>
<td>.29***</td>
<td>.27***</td>
<td>.20***</td>
</tr>
<tr>
<td>Wildlife watching or wildlife photography holiday</td>
<td>.26***</td>
<td>.28***</td>
<td>.23***</td>
</tr>
<tr>
<td>Volunteer eco-tourism holiday</td>
<td>.24***</td>
<td>.26***</td>
<td>.25***</td>
</tr>
<tr>
<td>Sun and surf beach holiday</td>
<td>-.21***</td>
<td>-.29***</td>
<td>-.19***</td>
</tr>
<tr>
<td>Luxury resort holiday</td>
<td>-.24***</td>
<td>-.25***</td>
<td>-.21***</td>
</tr>
<tr>
<td>Nightlife, gaming and shopping holiday</td>
<td>-.30***</td>
<td>-.23***</td>
<td>-.26***</td>
</tr>
</tbody>
</table>

*** p < .001

Stronger preferences for the ecotourism nature-based holiday, the wildlife watching and photography holiday, and the volunteer ecotourism holiday were all significantly associated with greater levels of tourist support for the importance of green accreditation systems for tourism, more willingness to purchase accredited tourism products and services over those that are not, and stronger beliefs that one should consider one’s personal impact on the environment and other cultures when making travel choices (refer Table 8.20). The reverse effect was evident in the relationships between the mainstream tourism holiday preferences and these three pro-environmental behavioural attitudes and intentions. Those who preferred the beach holidays, luxury resort holidays, and nightlife and gaming holidays were significantly less likely to believe they should consider their impact on the earth and cultures when making tourism choices. These tourists also indicated significantly less support and willingness to preferentially pay for green accreditation systems for tourism products and services, and furthermore, the higher they ranked their preferences for these mainstream holiday packages the more they disagreed with the importance of green accreditation systems and the less willingness they were to pay for these (refer Table 8.20).
Moreover, those who were part of the high general interest in ecotourism category (median split on EI) also reported significantly higher levels of agreement with the importance of green accreditation systems for tourism products and services \((M = 5.93, SD = 1.05)\) than those who were in the low interest category \((M = 4.95, SD = 1.21)\) \(t(251) = 6.86, p = .000\). Tourists who were in the high interest in ecotourism category were also more likely to report that they would preferentially purchase an accredited product or service \((M = 6.01, SD = 1.24)\) than those who were in the low interest category \((M = 5.01, SD = 1.29)\) \(t(251) = 6.33, p = .000\), and they were significantly more likely to believe they should definitely consider their personal impact on the earth and other cultures when making travel decisions \((M = 6.26, SD = 1.09)\) than the low interest group \((M = 5.14, SD = 1.67)\) \(t(251) = 6.32, p = .000\).

Therefore, while there was support across the whole sample of tourists for responsible and sustainable tourism, different types of tourists, based on their pattern of holiday preferences and high or low interest in ecotourism, could be differentiated on the basis of the relative strength of that support.

**Hypothesis Testing: Psychological Differentiation of Tourists, and Visitation Behaviour**

Preferences for types of tourism experiences and patterns of interest in ecotourism versus mainstream tourism were reported earlier in this chapter to be significantly related to actual tourist visitation behaviour (i.e. where the tourist had been sampled). Therefore, it was considered useful to determine if tourists who were sampled at the ecotourism venue, O’Reilly’s Rainforest Retreat, could be differentiated from the tourists sampled at the mainstream venue, Seaworld, on the basis of their psychological profiles. Between groups t-tests were conducted to examine differences in pro-environmental beliefs (NEP), love and care for nature, and the relative importance of biospheric values, socio-altruistic values, and egoistic values, in tourists who were visiting O’Reilly’s as compared with those visiting Seaworld. Table 8.21 presents a summary of the results of these tests. While there were some trends for O’Reilly’s visitors to have stronger levels of love and care for nature, relatively stronger biospheric values and relatively weaker egoistic values than Seaworld visitors, these trends were not significant at .01. However, O’Reilly’s
visitors had significantly stronger pro-environmental beliefs (NEP) than tourists at Seaworld (refer Table 8.21).

Table 8.21.
Differentiation of ecotourists versus mainstream tourists on the basis of visitation behaviour

<table>
<thead>
<tr>
<th>Psychological variables</th>
<th>O'Reilly's Rainforest Retreat</th>
<th>Seaworld Marine Theme Park</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n = 92</td>
<td>n = 166</td>
</tr>
<tr>
<td>Pro-environmental beliefs NEP</td>
<td>Mean 77.60 SD 11.75</td>
<td>Mean 73.35 SD 11.29</td>
</tr>
<tr>
<td></td>
<td>t value 2.84**</td>
<td></td>
</tr>
<tr>
<td>Love and care for nature</td>
<td>Mean 5.49 SD 0.92</td>
<td>Mean 5.28 SD 1.19</td>
</tr>
<tr>
<td>Relative importance of biospheric values</td>
<td>Mean 0.45 SD 0.58</td>
<td>Mean 0.27 SD 0.66</td>
</tr>
<tr>
<td>Relative importance of socio-altruistic values</td>
<td>Mean 0.47 SD 0.63</td>
<td>Mean 0.44 SD 0.53</td>
</tr>
<tr>
<td>Relative importance of egoistic values</td>
<td>Mean -1.38 SD 0.97</td>
<td>Mean -1.21 SD 0.96</td>
</tr>
</tbody>
</table>

* p < .05, ** p < .01, *** p < .001, (ns) - non significant

However, there were no significant differences between visitors to O’Reilly’s and visitors to Seaworld in terms of support for green accreditation systems for tourism, or in consideration of personal impact on the environment or other cultures in making travel decisions. Therefore, different types of tourists based on visitation behaviour could not be unequivocally differentiated on the basis of psychological orientation.

Summary of Results for Testing of Hypothesis Six

Hypothesis six (H6) of this study has been partially supported. Tourists who have stronger biospheric values, stronger pro-environmental beliefs, and particularly stronger love and care for nature had high levels of general interest in ecotourism and also reported significantly stronger preferences for ecotourism type holiday experiences over mainstream tourism experiences. Conversely, tourists who expressed stronger egoistic values, weaker environmental beliefs, and less love and caring for nature, also had correspondingly low levels of interest in ecotourism and expressed lower preferences for ecotourism type holidays. Moreover, these tourists
preferred the mainstream type holiday options, and particularly luxury resorts, and nightlife, gaming and shopping holidays.

Thus, the two types of tourists, defined by their patterns of preferences and interest, could be differentiated on the basis of value orientation, environmental beliefs, love and care for nature, and support for responsible and sustainable tourism. There was a clear differentiation when examining the psychological orientations of different types of tourists identified by their patterns of preferences and interests, but this differentiation was not as clear for tourist types identified by visitation behaviour alone.

These findings provide empirical support for the proposition, made in some of the ecotourism literature, that there are differences between tourists who are more interested in ecotourism activities and those who are more interested in mainstream tourism activities (Boo, 1990; Eagles, 1992; Juric et al., 2002; Weaver, 2001). Figure 8.6 presents a graphical of the results of testing hypothesis six in terms of tourism preferences.

![Hypothesis 6](image)

**Figure 8.6.** Summary of results for testing of hypothesis six (H6)
8.11 Conclusion

An ecological worldview has been defined in Part I of this thesis to be a pro-environmental orientation which was argued to include two key psychological components, biospheric values and love and care for nature. The aim of this research is to determine if such an ecological worldview influences tourists’ attitudes, behaviours and choices both at home in their daily lives and also within a tourism context. Therefore, the primary research question for the empirical phase of this research is: Does an ecological worldview, comprised of pro-environmental values, and especially feelings of love and care towards nature, significantly influence tourists’ attitudes, pro-environmental behaviours, and choices? The six hypotheses addressed in this second study of the empirical research were tested in order to answer this research question and thus achieve the overall aim of the research. The first five of the hypotheses proposed as a result of the literature review have been fully supported, and hypothesis six has been partially supported. Table 8.22 summarises the results of the hypothesis testing process.

From the results of Study Two presented in this chapter, an ecological worldview does seem to significantly influence tourists’ attitudes, behaviours, and choices both within a tourism setting and also in their daily lives. For example, stronger biospheric values and love and care for nature (the two key psychological components of an ecological worldview) were shown to be associated with stronger pro-environmental attitudes, increased propensity for pro-environmental behaviours, and greater willingness to pay to protect the environment both outside a tourism setting (i.e. at home in respondents’ daily lives), and also within a tourism context (i.e. tourism specific issues). Furthermore, biospheric values and particularly love for nature were also found to be associated with stronger interest and preferences for ecotourism related activities and experiences, and less interest and preference for mainstream type tourism experiences. Love and care for nature was found to be more important than even biospheric values in terms of influencing pro-environmental behaviours that require more effort and commitment, and particularly in regard to willingness to make personal sacrifices such as paying much higher prices for goods and services and incurring cuts in personal living standards in order to protect the environment.
<table>
<thead>
<tr>
<th>Number</th>
<th>Hypothesis</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1</td>
<td>Stronger biospheric values will have a positive relationship with tourist pro-environmental attitudes, behaviours, willingness to pay, and choices including interest in ecotourism</td>
<td>Supported</td>
</tr>
<tr>
<td>H2</td>
<td>Stronger socio-altruistic values will have little or no relationship with tourist pro-environmental attitudes, behaviours, willingness to pay, and choices.</td>
<td>Supported</td>
</tr>
<tr>
<td>H3</td>
<td>Stronger egoistic values will have a negative relationship with tourist pro-environmental attitudes, behaviours, willingness to pay, and choices.</td>
<td>Supported</td>
</tr>
<tr>
<td>H4</td>
<td>Love and care for nature will have a positive relationship with tourist pro-environmental attitudes, behaviours, willingness to pay, and choices including interest in ecotourism.</td>
<td>Supported</td>
</tr>
<tr>
<td>H5</td>
<td>Love and care for nature will be a better predictor of tourist pro-environmental willingness to sacrifice than values and beliefs as the level of sacrifice or effort required increases.</td>
<td>Supported</td>
</tr>
<tr>
<td>H6</td>
<td>Tourists who prefer ecotourism type experiences can be differentiated from those who prefer mainstream type tourism on the basis of value orientation, love for nature, pro-environmental beliefs, and support for responsible and sustainable tourism.</td>
<td>Supported for types of tourists on the basis of preferences and interests, but only partially supported on the basis of visitation</td>
</tr>
</tbody>
</table>

In contrast to a pro-environmental orientation, relatively stronger egoistic values were significantly related to less likelihood of pro-environmental behaviour, lower levels of pro-environmental intentions, and less willingness to pay or make personal sacrifices to protect the environment. Egoistic values were also associated with stronger consumptive type attitudes (i.e. sense of entitlement to use resources with impunity when travelling), less willingness to curb personal freedoms as a tourist, less interest in ecotourism type experiences, and more interest in mainstream tourism type activities (e.g. shopping; exciting nightlife).
Moreover, tourists who preferred ecotourism type nature-based holidays could be differentiated from those who preferred mainstream type holidays on the basis of environmental value orientation, levels of love and care for nature, and attitudes towards responsible and sustainable tourism. Tourists with a preference for ecotourism type nature holidays had stronger *biospheric* values, *more* love and care for nature, and expressed *stronger* support for responsible and sustainable tourism than those with a preference for mainstream type holidays. Conversely, those with a preference for mainstream type tourism holidays (e.g. luxury resorts) reported relatively stronger *egoistic* values, *less* love and care for nature, and also *weaker* support for responsible and sustainable tourism.

The following chapter, Chapter Nine, concludes Part II of this thesis and brings together the main elements of this project by reviewing the key themes that emerged as a result of this research. Chapter Nine summarises the principal findings of the empirical research conducted in Study One and Study Two, and discusses these findings in relation to the relevant literatures. It also considers the implications of the results, both theoretical and practical, as well as the limitations of this research and suggestions for future research.
CHAPTER NINE: DISCUSSION AND CONCLUSIONS

...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 (but only appreciate in some abstract sense). So let them all continue – the films, the books, the television programs, the zoos, the little half acre of ecological preserve in any community, the primary school lessons, the museum demonstrations, even … the 6:00AM bird walks … Let them continue and expand because we must have visceral contact in order to love. We really must make room for nature in our hearts (Stephen J. Gould, 1991)

9.0 Introduction

In this opening quote Gould makes an impassioned appeal for recognition of the importance of the human emotional relationship with nature, or love, in cultivating a worldview where nature matters for its own sake and not just as a resource for the benefit of humankind. He also appeals for more human participation and direct contact with the natural environment through “visceral contact”. Increased contact with nature, he argues, will help humans develop the deep love and caring for nature which he believes is essential for pro-environmental commitment and action. He also believes that humans will only fight to save what they love, and if this view is accepted then enhancing levels of love and care for nature may increase the likelihood of more appropriate responses to the current environmental crises facing humankind.

The research described in this thesis was founded on an awareness and growing concern about increasing levels of environmental degradation at the hands of humankind. This was coupled with the realisation that people seem very interested in nature, which is at least partially reflected by the growing popularity of green products and services including ecotourism or environmentally sustainable tourism. However, as previously argued, many people think that environmental problems and the risks associated with climate change seem too remote from daily life, and that they are unable to make any significant difference as individuals. Many also feel that it is primarily the responsibility of governments, business or other authorities to resolve
these issues. Yet consistent pro-environmental commitment, choices and action by individuals in their daily lives can reduce our combined ecological footprint\(^{116}\), and thus, minimise our collective impact on a fragile environment. A key question that emerged from these background issues was how do we determine what motivates people to act pro-environmentally, sometimes against their own personal self interest, in order to protect the environment? Flowing from this question, what are the most important psychological characteristics of an ecological worldview, where nature is valued for its own sake, and where humans feel part of the whole biotic community\(^{117}\) and act accordingly, rather than exercising dominion over it? The growing interest in nature based ecotourism type experiences was thought to be related to an innate interest by humans in the natural environment, as well as the desire to make that visceral contact with nature to which Gould refers.

In view of these issues, this research sought to determine the key psychological components of an ecological worldview and the strength of their influence on pro-environmental altruism including the kind of altruistic action which requires more commitment in the form of extra effort or personal sacrifices. By identifying these key components of an ecological worldview and their influence on pro-environmental action and commitment, better models of the psychological determinants of pro-environmental altruism can be developed. The association between a pro-environmental orientation and tourists’ particular preferences for ecotourism experiences, with their implied elements of environmental ethics and sustainability, were also investigated. Most forms of ecotourism involve the tourist being immersed in relatively unspoilt nature, and therefore represent opportunities for direct and intimate contact with natural environments. Participation in these experiences was considered to be at least partly motivated by the human desire for bonding with free nature. The emotional aspect of human-nature relations, that is, love for nature, was of particular interest in this project as this had not been investigated or measured in the past. Yet this concept of love is one which is consistently referred to in the environmental philosophy literature, and was seen to be of crucial importance for developing a so-called environmental ethic of care and deep commitment by individuals to environmental protection.

\(^{116}\) As discussed in Chapter One, an ecological footprint is an estimate of the land area that would be needed to sustain an individual indefinitely (ACF, 2004-2008).

\(^{117}\) community of nature.
In order to achieve the aim of the research it was necessary to undertake two separate empirical studies. The first study involved the development of a new psychometrically sound measure of the construct of love and care for nature and this was described in Chapter Six. This construct was considered to be essential in the development of a more complete understanding of an ecological worldview. The development of this new measure was also necessary in order to test a number of hypotheses that emerged out of a review of literature presented in Chapters Three and Four. These hypotheses were related to the key psychological components of an ecological worldview and their influence on environmental attitudes, behaviour, and choice.

This final chapter now considers the main findings of the two empirical studies with reference to significant literature in philosophy, psychology, and ecotourism. It begins with a review of the definition of an ecological worldview from the broad and deep perspectives of deep ecology, environmental philosophy, and environmental psychology. The importance of biospheric values for pro-environmental choices and behaviours are then compared with the lack of importance of socio-altruistic values and the negative effect of the egoistic values on these same behaviours and choices in the context of previous empirical research. Moreover, the merits of the newly developed scale measuring love and caring for nature (LCN) as the emotional aspect of an ecological worldview is discussed. The particular importance of this construct for predicting pro-environmental action and choice is presented from a perspective that extends existing psychological frameworks for determining environmental altruism. The contribution of these findings to a more theoretically informed understanding of the psychology of the so-called “ecotourist”, as a consumer of environmentally responsible tourism, is then outlined. A summary of the theoretical and practical implications of the research outcomes is presented from the perspectives of both environmental psychology and ecotourism research in particular. The limitations of this research are acknowledged and discussed and some suggestions for future research are proposed. Finally, some key conclusions from the findings of this research are drawn in terms of the primary research question and overall aim of this research project. The following section discusses the meaning of an ecological worldview as demonstrated by the outcomes of this research.
9.1 An Ecological Worldview

It has been argued in this thesis that an ecological worldview is more than the meaning espoused by Dunlap et al. (1977, 1978). The meaning of an ecological worldview according to these researchers was confined to a set of general beliefs about humanity’s relationship with nature, which could be measured using their New Ecological Paradigm (NEP) scale (Dunlap et al., 2000). The NEP scale, while tested over decades of research in a number of disciplines including social psychology, marketing, and tourism, is considered to be a more appropriate measure of general environmental beliefs and concerns rather than a worldview per se (Stern et al., 1995). Furthermore, the construct that is measured by the NEP is best conceptualised as sociological in nature rather than psychological (Schultz, 2000), in that it reflects beliefs about the whole of humanity’s relationship with nature, rather than about the relationship between the individual self and nature (Schultz et al., 2005). As previously discussed, the NEP may have outlived its usefulness in its present form - given growing levels of environmental awareness at the local, national and global level (Lalonde & Jackson, 2002; Lundmark, 2007).

In this study, an ecological worldview has been defined in a much broader and deeper sense as a particular philosophy of life or conception of the world. Within an ecological worldview the world is seen as fundamentally inter-connected, a profoundly and intrinsically valuable network of life which includes human beings (Capra, 1996; Naess, 1989). From an explicitly psychological standpoint, such a worldview also includes personally held views of how one, as a human member of that interdependent network, ought to behave to preserve and protect nature. As Capra (1996) has argued, in order to develop an ecological worldview: “the whole question of values is crucial ... in fact, its central defining characteristic”, and interdependent networks and not hierarchies are the central embodied metaphor (pp. 10-11). Therefore, values, and particularly core values with their “oughtness” quality, were considered to be highly relevant for understanding an ecological worldview as a pro-environmental psychological orientation.

Core values identified as “gold standard” guides for behaviour are those defined and articulated by the seminal work of Rokeach (1973), and later Schwartz and colleagues (1987, 1992, 1994, 1996), and, for the purposes of this research include those values specifically relevant to environmental issues. These types of
values are considered particularly relevant in contexts where an ethical element is clearly evident, including pro-environmental choices and behaviours. Such an ethical element is also implied in the philosophy of authentic ecotourism. Furthermore, in this thesis it has been argued that from a psychological perspective an ecological worldview necessarily includes the element of deep caring, as a reflection of the human emotional relationship with nature. Deep caring is characterised by strong feelings of love and care for nature, including a sense of respect and reverence, and has been operationalised in this research by the newly developed Love and Care for Nature (LCN) scale. The inclusion of a new measure of love and care for nature in the theoretical frameworks of psychology has not been done before, although measures of related constructs have been used within environmental psychology.

Thus, it has been argued in this research that environmentally relevant core values and deep love and caring for nature are the two key components of an ecological worldview. The particular values that were found to be most important to this pro-environmental worldview, and also those which were not, are discussed in the following section.

9.2 Self-Transcendent Versus Self-Enhancement Values

Previous research in environmental psychology has identified a general altruistic orientation as being predictive of pro-environmental attitudes, behaviours and behavioural intentions (Dietz et al., 2005; Schultz et al., 2005; Stern & Dietz, 1994; Stern et al., 1993; Stern et al., 1995). As discussed in Chapter Three, the altruistic orientation consists of values from Schwartz’s self-transcendent higher order values cluster. The self-transcendent values are primarily concerned with issues beyond one’s mere self-interest. For example, these altruistic type values include: unity with nature, protecting the environment, respecting the earth, social justice, equality, and a world at peace. Some of these values are clearly related directly to environmental issues (biospheric values), while others are more related to the wellbeing of humanity as a whole (socio-altruistic values). In contrast to self-transcendent values, the self-enhancement higher order values cluster primarily reflects concerns with issues of self-interest, and includes values such as wealth, being influential, and authority (egoistic values).
In most previous empirical studies, the biospheric and socio-altruistic values have been amalgamated as a single altruistic values type, as they are both derived from Schwartz’s self-transcendent values cluster. These values reflect a general altruistic orientation, and using factor analysis techniques researchers have found that biospheric and socio-altruistic values tend to load on a single factor (Dietz et al., 2005; Stern et al., 1995, 1998; Schultz et al., 2005). This is not surprising as patterns of responses to these two values types, which both form part of the universalism higher order value type (refer Chapter Three), have consistently been found to cluster together in extensive cross cultural research undertaken by Schwartz (1992, 1994, 1996). This single blended altruistic value orientation has been previously shown to be related to stronger pro-environmental concerns and attitudes, to self-reported pro-environmental behaviours, and to willingness to pay or make sacrifices to protect the environment (e.g. Dietz et al., 2005; Stern et al., 1998). General altruism is thought to be more predictive of pro-social behaviour including environmentally sensitive behaviour because people who hold such self-transcendent values as more important are likely to be more willing to make sacrifices of their own self-interest for the good of all humankind and of the planet as a whole.

However, theories in environmental psychology and philosophy suggest that the biospheric and socio-altruistic value orientations are in fact distinct. The biospheric value orientation is analogous to an ecocentric view of nature which recognises the importance of the wellbeing of nature for its own sake. The socio-altruistic value orientation seems more analogous to an anthropocentric view of nature which assigns more importance to the wellbeing of humankind, and thus nature’s value is primarily understood in terms of its benefit to human beings. However, it should be noted that none of the socio-altruistic value items make any mention of nature per se. The ecocentric view of nature is thought to be a better predictor of pro-environmental behaviour and willingness to pay than the anthropocentric view (Dietz et al., 2005; Schultz, 2005). As discussed in Chapter Three, there have been some attempts in previous research to differentiate the two altruistic type value orientations in terms of their respective relationships with pro-environmental behaviours and choices. Such studies have recognised the theoretical importance of identifying the effect of a biospheric, or ecocentric, type value orientation as distinct from a socio-altruistic type value orientation on pro-environmental behaviour and willingness to pay (Hansla et al., 2008; Schultz et al., 2005; Schultz & Zelezny, 1998). However
attempts to differentiate these orientations have been somewhat equivocal and therefore the link between specific values types and environmental behaviour has to date remained relatively unclear (Hansla et al., 2008; Schultz, 2005). One of the objectives of this research was to differentiate the three environmentally relevant value orientations (biospheric, socio-altruistic, and egoistic) and then examine the relationship of each value orientation with environmentally relevant variables, especially pro-environmental behaviours and consumer choice. Such a differentiation would clearly link the importance of biospheric values, as distinct from general altruism, with a pro-environmental orientation.

9.3 A Conceptual Model of Environmentally Relevant Values

As described in Chapters Three and Six, Stern et al. (1998) proposed that inventories of three item measures of Schwartz’s higher order value clusters provide scores that are adequate in terms of their psychometric properties and also as predictors of attitudes and behaviour. This present research has used the work of Stern et al. and modified their analytical approach for the three item measures of each of the different value types, with a view to making the instrument easier to use. This modification involved calculating the relative priority or importance placed on biospheric values, socio-altruistic values, and egoistic values separately, in order to determine their respective and distinct relationships with other related constructs such as general environmental beliefs and pro-environmental attitudes, choices and behaviours.

Using the priority or importance assigned to each of the values types, relatively stronger biospheric values were found in this study to be significantly associated with pro-environmental beliefs, pro-environmental attitudes, and pro-environmental behaviours, both within a tourism setting and in daily life. Pro-environmental behaviours included an individual’s personal commitment to resource conservation, pro-environmental consumer choices, and green political behaviour such as voting and signing petitions. The relationships between biospheric values and indicators of pro-environmental altruism\(^{118}\) were found to be stronger in regard to willingness to sacrifice one’s standard of living or to incur increased costs in order to

\(^{118}\) Pro-environmental altruism includes pro-environmental beliefs, attitudes, behaviours and behavioural intentions, as well as environmentally sensitive choices.
protect the environment, and also in regard to pro-environmental behaviours that require more effort, such as political action, green consumer choices, and the boycott of companies with poor environmental credentials. These findings may be due to the fact that these particular indicators of environmental altruism required more effort or personal sacrifice on the part of individuals and, therefore, also require greater pro-environmental commitment. Schultz and Oskamp (1996) also found that effort moderated the relationships between attitudes and pro-environmental behaviour - the more effort required the stronger the relationships. In addition to the association between biospheric values and indicators of pro-environmental altruism, these values were also associated with greater levels of interest in ecotourism type holiday experiences and activities, and less interest in mainstream or mass tourism activities.

The reverse effect was found when examining the influence of egoistic values. Those who assigned more importance to egoistic values also reported less propensity for pro-environmental behaviour, especially behaviour that require more effort or personal sacrifice to protect the environment. This is consistent with the argument made in the previous paragraph that more effort or sacrifice requires greater pro-environmental commitment, which those who reported relatively stronger egoistic values do not appear to have. Respondents with relatively stronger egoistic values also reported lower levels of pro-environmental beliefs, less willingness to pay, and displayed more consumptive attitudes and preferences. Furthermore, respondents who assigned relatively more importance to egoistic values also expressed less interest in ecotourism type experiences and more interest in mainstream or mass tourism activities.

These present findings which show positive associations between biospheric values and pro-environmental altruism, and negative associations between egoistic values and pro-environmental altruism, are logically consistent with the work of Stern and colleagues (1998) and also Schultz and colleagues (2005). These researchers have demonstrated that a general altruistic value orientation is related to stronger pro-environmental attitudes and behaviour, and that an egoistic value orientation is related to weaker environmental attitudes and behaviours. Moreover, they have argued that general levels of altruism should predict all altruistically related variables including those particularly pertinent to environmental issues. However, in this present

\footnote{119 sense of entitlement to use resources as they see fit for enjoyment purposes, and unwillingness to curb personal freedoms}
research, while the importance assigned to socio-altruistic values was significantly and positively associated with the importance assigned to biospheric values\(^{120}\), the relationship was somewhat weak. Furthermore, socio-altruistic values by themselves were found in this research to have little or no relationship with pro-environmental attitudes, behaviours and choices. Contrary to the argument put forward in some of the previous environmental research, it appears from the results of this study that not all altruistic values are associated with pro-environmental altruism, just the nature specific biospheric values type.

This finding of a lack of significance of socio-altruistic values for pro-environmental altruism has some support in the work of Steg et al. (2005), Deng et al. (2006), and Amerigo et al. (2007). These researchers also found no relationship between socio-altruism and a pro-environmental orientation. They also reported evidence for the particular importance of biospherism (as attitudes) or biospheric type concerns for pro-environmental beliefs and norms, or pro-environmental attitudes. However, none of this previous research has specifically linked the three distinct core values types (i.e. biospheric, socio-altruistic, and egoistic) with pro-environmental behaviours or intentions. This present study has demonstrated that link, and has found empirical evidence of the unique importance of biospheric values for predicting pro-environmental behaviour and intentions, and the lack of importance of socio-altruistic values in this regard.

In summary, this research project has presented evidence for clear differentiation of the three values types, biospheric, socio-altruistic, and egoistic, in terms of their respective relationships with and relative predictive ability for environmentally related constructs, using a simple and easily replicated analysis technique. Biospheric values were shown to be significantly related to a greater propensity for all pro-environmental choices and behaviours, whereas socio-altruistic values had little or no relationship with pro-environmental attitudes, choices and behaviours. In contrast, egoistic values were significantly associated with weaker environmental beliefs and attitudes, and fewer pro-environmental choices and behaviour. The biospheric values’ relationships with more environmentally significant behaviours and choices, and also the egoistic values’ relationships with less likelihood of these behaviours and choices were particularly so in relation to

\(^{120}\) Both socio-altruistic and biospheric values are altruistic type values from Schwartz’s universalism values type and the self-transcendent cluster.
those issues which required more effort or personal sacrifice. Stronger biospheric values seem to motivate greater propensity for behaviour which requires self-sacrifice, since these values are by nature self-transcending and altruistic. Conversely, relatively stronger egoistic values decrease the propensity for making personal sacrifices, probably because those with relatively stronger egoistic orientations are more interested in benefits to self over other.

The findings of the hypothesis testing phase of this study present evidence for a two factor model of environmental value orientation, and not a three factor model. However, it is a different model from the one put forward in previous research by Stern, Dietz and colleagues, which proposed that the single altruistic value orientation, consisting of biospheric and socio-altruistic values, and the egoistic value orientation were important in the prediction of environmentally significant behaviour and choices, albeit in opposite ways (Stern & Dietz, 1994; Stern et al., 1998; Stern et al., 1995). In this present study, when all three environmentally relevant values types were analysed separately, only the biospheric values and the egoistic values have significant relationships, albeit in opposite directions, with self-reported environmentally significant behaviour and choices. The apparent lack of salience of socio-altruistic values for pro-environmental behaviours and choices may be because these values are simply not activated by environmental issues. Thus, it is argued in this thesis that an ecological worldview is clearly comprised of stronger biospheric values, but it does not necessarily include stronger socio-altruistic values. Moreover, it is also argued that relatively stronger egoistic values seem to be indicative of a worldview which is opposite to an ecological one. However, previous research which examines the psychological determinants of pro-environmental altruism has not adequately considered the affective or emotional aspect of a pro-environmental orientation, nor has this body of research included love and care for nature within the theoretical and conceptual frameworks. In view of the arguments presented in Chapters Two and Four that many environmental thinkers believe that the care factor or love for nature is essential for an ecological orientation and pro-environmental action, it was considered an important part of this research project to examine the relative contribution and importance of love (and care) for nature with respect to values for pro-environmental choices and behaviours.
9.4 Love and Care for Nature

Feelings of love and deep caring, respect and empathic concern for the environment, and perceived relationship with the natural environment, have all been variously used to describe concepts such as: biophilia (Fromm, 1964; Wilson, 1984), a nature ethic (e.g. Naess, 1989), a land ethic (Leopold, 1949/1987), or an environmental ethic of care (e.g. Hay, 2002; Merchant, 1992). This concept of love and deep caring for nature has been linked by philosophers to a pro-environmental orientation and also to pro-environmental social action, including political action (Hay, 2002; Merchant, 1992; Rolston, 1993). However, psychometric measurement of this explicitly emotional construct of love and caring for nature has not been the subject of any previous research in spite of the theoretical link between such emotion and the so-called greening of the self, or development of a personal environmental ethic, as described in the environmental philosophy literature (e.g. Bragg, 1996; Macy, 1991; Rolston, 1993).

Schultz and colleagues (Schultz, 2002; Schultz et al., 2004) have investigated the concept of psychological inclusion of nature in self as an indication of the closeness and quality of human-nature relations and the influence of this on pro-environmental action. However, Schultz (2002) has acknowledged that the work undertaken so far has been primarily from the cognitive rather than the emotional or affective perspective. In response to the lack of a psychometrically sound measure of the emotional aspects of the human relationship with nature, or caring, a new scale was developed in this research project which focuses on the emotional rather than the cognitive elements of an individual’s relationship with nature. The new 15-item scale comprises items concentrating on a personal\textsuperscript{121} sense of connectedness and oneness with nature including the experience of emotions such as awe and wonder (i.e. connectedness), feelings of deep love, joy in nature, and emotional closeness to nature (i.e. love and caring), and a sense of personal\textsuperscript{122} responsibility for protecting the wellbeing of nature and protecting it from harm for its own sake (i.e. commitment). As discussed in Chapter Six, throughout the scale development process there was a conscious emphasis placed on emotional wording and concepts in the item statements used in the scale.

\textsuperscript{121} as opposed to the whole of humanity’s sense of connectedness or oneness
\textsuperscript{122} as opposed to the responsibility assigned to humanity as a whole
This new scale measure was called, for the sake of simplicity, the Love and Care for Nature (LCN) scale and it has been found to measure a concept which is related to but clearly differentiated from both biospheric values and pro-environmental beliefs (as measured by the New Ecological Paradigm NEP). In addition, the LCN was found to be related to, yet also differentiated from, other scales including the Connectedness to Nature Scale (CNS) (Mayer & Frantz, 2004) and the Inclusion of Nature in Self (INS) scale (Schultz, 2002) which were established measures of similar constructs related to a pro-environmental orientation. These existing measures, however, seem to be significantly, if not entirely, cognitive in nature, and none have attempted to specifically measure deep love and caring for nature.

The Love and Care for Nature (LCN) scale was found to have good psychometric properties including high internal consistency, and demonstrated validity, including content, criterion-related, and construct validity (see Chapter Six). This instrument provides a means of measuring the hitherto hypothesised human emotional affiliation with nature, love and deep caring for nature, which is thought to be innate (Fromm, 1964; Kellert & Wilson, 1993).

People who expressed stronger feelings of love and care for nature (LCN) also placed higher priority on biospheric values and to a lesser extent socio-altruistic values as well. In other words, they tend to be more altruistic in orientation and also expressed a greater sense of personal connectedness with nature. Indeed, when the related constructs of love and care for nature (LCN), psychological inclusion of nature in self-concept (INS), and cognitive feelings of connectedness to nature (CNS), are used collectively to estimate the relative strength of biospheric value orientation, the only significant unique contributor is love and care for nature. Love and care for nature by itself accounted for more than a third of the variance in the importance attributed by respondents to biospheric values. Therefore, it appears that love has the most important association with pro-environmental values, and more so than other established measures of a pro-environmental orientation, at least among this sample of respondents. Those people who express greater levels of love and care for nature also report stronger pro-environmental behavioural intentions, engage in more pro-environmental behaviours, and make more environmentally sensitive choices. Furthermore, they consider egoistic values, those that revolve around self-interest, to
be significantly less important than all other values when compared with those who express weaker levels of love and care for nature.

In addition to determining the association between love for nature and biospheric values, this project also sought to identify the relative importance of love and care for nature compared to other psychological determinants of pro-environmental altruism and commitment. The next section discusses the evidence for the contribution made by love for nature, as a significant, and arguably the most important psychological component of an ecological worldview.

Love and care for nature as measured by the new scale (LCN) is a better predictor of people’s willingness to make personal sacrifices in order protect the environment than either biospheric values or pro-environmental beliefs. For example, when examining the relative contributions of love and care for nature (LCN), biospheric values, and general pro-environmental beliefs (NEP) for respondents’ willingness to accept cuts in their personal living standard or willingness to pay much higher prices for goods and services to protect the environment, the LCN is the only significant unique contributor to both of these behavioural intentions. It is also a better predictor of a willingness to make sacrifices to protect the environment than either the CNS or the INS, both of which have been previously found to be associated with a pro-environmental orientation (Mayer & Frantz, 2004; Schultz, 2002). Thus, love and care for nature seems to be a better determinant of pro-environmental behaviour, intentions, and willingness to make sacrifices (i.e. money and standard of living) to protect the environment than any of the other theoretically related and environmentally relevant constructs, if the results from this study are an indication.

Furthermore, the strength of the predictive ability of love and care for nature for other pro-environmental behaviours and choices tends to increase as the levels of sacrifice or effort also increase. Some of these indicators of higher effort include: green political behaviour such as environmental petition endorsement and voting; making an effort to purchase environmentally friendly products; and boycotting companies with poor environmental records. There were lower, albeit significant, relationships with behaviours which required less effort or sacrifice such as recycling, conservation of water and energy and using energy and water efficient household

123 Willingness to sacrifice includes sacrificing money by paying more or willingness to incur cuts in one’s personal standard of living.
124 Biospheric values, pro-environmental beliefs NEP, CNS, or INS.
appliances. However, these behaviours are often associated with community or government programs (at least in Australia) and as such may represent accepted community practice or involve cash incentives for participation. Therefore, people may be motivated to engage in these behaviours for reasons other than environmental commitment per se.

In relation to values, some of the results concerning love and care for nature have some consistency with the findings of Schultz and Oskamp (1996) who also found similar effects for effort (i.e. a type of sacrifice) on the strength of relationship between psychological attributes and pro-environmental behaviour. Similar to this present research, in the study by Schultz and Oskamp (1996) if more effort is required then the relationship between pro-environmental attitudes and behaviour is strengthened. It seems reasonable to assume that activities which require more effort or personal sacrifice would be more likely to activate an altruistic motivation and also caring about concerns beyond oneself and immediate self interest, in this case towards the welfare of the natural environment.

In this study, both biospheric values and love and care for nature (as measured by the LCN) had consistently stronger relationships with pro-environmental behaviour and choices than did generalised pro-environmental beliefs, as measured by Dunlap et al.’s (2000) New Ecological Paradigm (NEP). Therefore, biospheric values and love and care for nature are considered to be the two most important elements of an ecological worldview from among the related constructs measured and evaluated in this research. However, it was considered important to determine the respective contributions of love and values for predicting pro-environmental altruism as well. Both love and care for nature and biospheric values had similar relationships with willingness to pay to protect the environment when there are lower levels of implied personal sacrifice involved (e.g. willing to pay 5 or 10% extra on the cost of a holiday). If the relationships between these behavioural intentions and biospheric values are re-assessed when controlling for love and care for nature, the strengths of the relationships are reduced but are still significant. Thus the influence of values on willingness to pay to protect the environment appear to be partially mediated by love (Hair et al., 2006) when perceived sacrifice is relatively low. However, when there is higher implied personal sacrifice involved (i.e. willingness to incur much higher prices or cuts in living standard for environmental protection), the relationships between biospheric values and willingness to pay are substantially weaker after
controlling for love and care for nature. In addition, these weaker relationships between values and willingness to pay were no longer significant and, therefore, the influence of values appears to be fully mediated by love (Hair et al., 2006) in relation to those situations which require more perceived personal sacrifices. When the converse is examined, no effects on the relationships between love and willingness to pay are evident when controlling for values. Thus values do not mediate the effect of love and care for nature on environmental behaviour (Hair et al., 2006). It appears then that love and care for nature represents the most importance direct influence on willingness to pay, especially when more personal sacrifice is required.

As Gould has said – “we will not fight to save what we do not love”. The corollary to this is that perhaps we will fight to save what we do indeed love; we must care enough to want to act, and apparently our depth of love and caring does matter in regard to our willingness to act. Perhaps some aspect of biophilia is now out of the realm of the purely theoretical and into the realm of the tangible and perceptible (and measurable).

9.5 Summary of the Psychological Aspects of an Ecological Worldview

The definition of an ecological worldview adopted in this research is reflected in a stronger biospheric value orientation as well as greater feelings of love and care for nature, as measured by the newly developed LCN scale. Such an ecological worldview is related to increased propensity for pro-environmental behaviours, behavioural intentions and greater willingness to sacrifice for environmental protection, especially when more effort and personal sacrifice is required. The importance of the biospheric values and love and care for nature, as part of an ecological worldview, in predicting pro-environmental behaviour and choices resonates with the arguments put forward by Clayton and Opotow (2003). They believe that emotional connection or caring is related to a strong personal environmental identity, and that this environmental identity tends to be activated when there is a perceived threat to the wellbeing of nature, resulting in an increased likelihood of pro-environmental action to protect nature (Clayton & Opotow, 2003). The results of this study support this view. Moreover, it appears that love and care for nature is possibly the most important aspect of an ecological worldview in terms of its greater direct influence on pro-environmental behaviours and willingness to make
sacrifices to protect the environment than either values or beliefs. As well as green consumer choice, political action, and environmentally responsible behaviour, the choices influenced by an ecological worldview include those which are relevant to leisure preferences such as tourism.

9.6 An Ecological Worldview and its Influence on Tourist Interests and Preferences

An ecological worldview, comprised of stronger biospheric values and greater love and care for nature, was found to be significantly related to increased general interest in ecotourism as measured by the Ecotourism Interest (EI) scale (Juric et al., 2002). Such an ecological worldview was also associated with stronger preferences for ecotourism type nature based holiday experiences, wildlife watching and photography holidays, and also volunteer ecotourism holidays over mainstream type tourism experiences such as beach holidays and luxury resort holidays. Moreover, love and care for nature was found to have a stronger association with general interest in ecotourism than either biospheric values or pro-environmental beliefs, and alone accounted for more than a third of the variance in respondents’ general interest in such activities. Moreover, stronger biospheric values and love and care for nature among respondents were also associated with more support for green accreditation systems for tourism and also stronger intentions to purchase green accredited products and services if these are available. This suggests that an ecological worldview, reflected in the importance of biospheric values and love and care for nature, is associated not only with increased concern for the wellbeing of the natural environment, and thus greater commitment to pro-environmental altruism and nature protection, but also with a stronger interest in and desire for direct interaction with nature during leisure activities such as those offered by ecotourism type experiences.

In contrast, respondents who placed relatively more importance on egoistic values and expressed less love and caring for nature were significantly less interested in ecotourism and expressed lower preferences for ecotourism type holiday experiences. Furthermore, they were significantly more interested in mainstream type tourism activities such as shopping, gambling and nightlife, and also preferred the mainstream tourism holidays of luxury resorts, and nightlife, gaming and shopping holidays. Those with a stronger relative egoistic orientation also displayed more
consumptive attitudes, for example “As a tourist I feel I am entitled to use as much water/ power/ resources and I think fit for my own enjoyment”, as well as less willingness to make personal sacrifices for environmental protection or to consider their personal impact on the environment in making travel decisions. Therefore, environmentally relevant values (i.e. biospheric values versus egoistic values) and levels of love for nature seem to influence tourists’ personal interests when making holiday decisions. The results of this research demonstrate some consistencies with the very recent findings of Dolincar and Leisch (2008) who reported that individuals with low levels of moral obligation to engage in pro-environmental behaviour were also more interested in luxury tourism and less interested in nature tourism. In contrast, those who expressed higher levels of moral obligation to engage in pro-environmental behaviours demonstrated the opposite effect, preferring nature type vacations and much less inclination towards more hedonistic luxury tourism (Dolincar & Leisch, 2008).

When examining these effects of pro-environmental biospheric values and love for nature on tourists’ choices, to some extent there were similar patterns of psychological profiles evident between so-called “ecotourists” and mainstream tourists, as defined by their actual visitation behaviour. This visitation behaviour was measured by the type of tourism site from which tourists were sampled. For example, there was a trend for tourists who were sampled at O’Reilly’s Rainforest Retreat to express stronger biospheric values and also greater levels of love and care for nature than tourists sampled at the mainstream venue, Seaworld, although these trends were not significant. One of the reasons for a lack of significant difference between Seaworld tourists and O’Reilly’s tourists in terms of values and love for nature may be due to insufficient differences in the perceived value of nature or feelings of love and care between these two groups of tourists. For example, Clayton and Opotow (2003) have argued that leisure experiences involving any direct contact with nature, including visits to zoos, are associated with higher levels of interest in nature, stronger connectedness to nature, and increased environmental identity. If this argument is accepted, then it could be that at least some of the tourists visiting Seaworld, which is a marine wildlife theme park, were expressing an environmental identity and a closer connection with nature that is similar to tourists who were visiting the accredited ecotourism venue, O’Reilly’s.
Thus, an ecological worldview is not only associated with greater interest in and preference for ecotourism, but with correspondingly less interest and preference for mainstream tourism (sun and surf, luxury resorts, and the ego-tourism of shopping, nightlife, gambling, etc.), and vice versa. The ecological worldview and the egoistic worldview seem to be indicative of fundamentally different types of consumers, and perhaps predict different and largely opposite tourist market segments.

9.7 Differentiation of Tourist Market Segments

An examination of the different patterns of tourists’ interests and preferences revealed two apparently distinct market segments. Tourists who were more interested in and expressed preferences for ecotourism type activities such as wilderness experiences, ecotourism nature based holidays, wildlife watching and photography, and volunteer ecotourism holidays, were also significantly less interested in most mainstream tourism activities. Conversely, those who expressed stronger preferences for beach holidays, luxury resorts, or nightlife and gaming, and shopping holidays had significantly lower interest in and preferences for ecotourism type experiences. Furthermore, the reported reasons and benefits of these different sets of interests and preferences were also quite different from each other. For example, tourists who preferred ecotourism type holidays identified direct experiences and immersion in unspoilt nature and the opportunity for environmental learning as being of primary importance in making their choices. However, those who expressed preferences for mainstream type tourism experiences identified having fun, being pampered, and relaxation as being very important to them.

Stronger interest and preferences for ecotourism type nature based experiences was associated with all pro-environmental attitudes and behavioural intentions such as support for green accreditation and willingness to pay more for tourism experiences to protect the environment. It was also associated with a belief that one should definitely consider one’s personal impact on nature and other cultures in making travel choices, and also a willingness to curb personal freedoms to protect the environment. Stronger interest in ecotourism activities was also associated with more willingness to control one’s personal consumption levels and freedoms in consideration of environmental and cultural concerns, and with less interest in simply having fun and spending money. These findings suggest that for tourists who are more interested in ecotourism
type experiences there is less focus on self alone and more preparedness to consider the wider impact of one’s actions and choices. Moreover, the stronger tourists’ interest in and preferences for ecotourism type experiences were, the less they tend to feel they are entitled to do what they like and use whatever resources they like during tourism experiences.

In contrast, preferences for mainstream type experiences and holidays, such as beach holiday, sun and surf, luxury resorts, were positively associated with more consumptive attitudes and a stronger sense of entitlement. Preferences for mainstream tourism holiday experiences and packages were also associated with less support for green accreditation systems for tourism or for purchasing such accredited products, less willingness to curb freedoms or to consider personal impact on environments in making travel choices, and also less willingness to pay extra for tourism experiences for environmental conservation purposes. It was also evident that the higher tourists ranked their preferences for mainstream type holiday packages, the less they supported green accreditation systems for tourism.

In view of these results, future research into ecotourists (or environmentally responsible tourists) may be more usefully conducted based on a definition which is built on their respective deeply held psychological profiles or at least measures of general interest, in conjunction with traditional definitions based on visitation behaviour. While the type of tourism venue chosen by tourists to actually visit at particular times is important information, it should not represent the sole means of market segment identification or analysis. If values, beliefs, and also love and care for nature are likely to predict increased interest and preference for ecotourism experiences over more mainstream tourism activities, then it could be assumed that these types of pro-environmental consumers may make many of their choices, including tourism choices, on the basis of their core psychological make-up. The results of this research, which combines tourism specific behavioural intentions and willingness to pay with more general consumer behaviour and choice, suggest that this is indeed the case.

Moreover, consideration of one’s personal impact on nature and other cultures, support for green accreditation for tourism products and services, and the intention to preferentially purchase accredited products and services seem to represent three important behavioural indicators for tourist commitment to responsible and sustainable tourism. In regard to this commitment, it seems from the present results
that consumers who express preferences for ecotourism experiences and those who express preferences for mainstream tourism experiences come from fundamentally different perspectives in terms of their different psychological profiles, their choices and preferences, as well as their motivations.

9.8 Emergence of the Environmentally Sensitive and Responsible Tourist

Some researchers have proposed that regular participants in hard ecotourism experiences, especially those who choose longer stays and more authentic and ecologically sound experiences may be more likely to embrace the ecological paradigm and hold stronger pro-environmental values and attitudes than those who prefer softer ecotourism or mass tourism experiences (Page & Dowling, 2002; Weaver & Lawton, 2002). However, other researchers have disagreed with this view and believe it unlikely that environmental and social concerns predominate among those who participate in ecotourism (Sharpley, 2006). These disagreements have been due in part to a paucity of systematic and theory based psychological research that has empirically tested environmental values, as well as other relevant psychological characteristics, among ecotourists. For example, Wearing and Neil (1999) have cited Ballantine and Eagles (1994) who contend that true ecotourists should demonstrate eight psychographic characteristics including:

- the possession of an environmental ethic, willingness not to degrade the resource;
- focus on intrinsic rather than extrinsic motivations; biocentric rather than anthropocentric in orientation; aiming to benefit wildlife and the environment;
- striving for first hand experience with the natural environment; possessing an expectation of education and appreciation; and high cognitive and affective dimensions (p. 21).

However, as discussed in Chapter Three, Ballantine and Eagles (1994) clearly acknowledge that these eight characteristics proposed originally by Butler are “more of a wish list of what ecotourists should be” rather than what has been empirically tested through any systematic research (p. 210). In spite of the psychological nature of this wish list, there have, until now, been no substantial links made between the ecotourism literature and the extant social and environmental psychology literature,
nor with the theoretical models developed therein. This project attempted to redress this deficiency by utilising and extending relevant psychological theories and testing them within a tourism context.

The results of Study Two have provided some evidence to support much of the so-called “wish list” proposed by Ballantine and Eagles (1994, p. 210). This evidence is summarised below:

1. “the possession of an environmental ethic” – This research found stronger pro-environmental biospheric values (i.e. those with the oughtness quality to them), stronger pro-environmental beliefs NEP (i.e. beliefs that are more ecocentric than anthropocentric), and stronger love and care for nature LCN, in those who expressed more interest and preference for ecotourism.

2. “willingness not to degrade the resource” – Those who were more interested in and preferred ecotourism over mainstream tourism were more willing to pay to protect the environment, expressed greater support and willingness to pay for green accreditation systems for tourism, and were more willing to curb behaviours and freedoms in consideration of their impact on earth and cultures.

3. “focus on intrinsic rather than extrinsic motivations” – Consumers who express preferences for ecotourism type activities are more interested in nature for its own sake, and also learning about nature and other cultures; they are less interested in spending money, pampering, and just having fun.

4. “biocentric rather than anthropocentric in orientation” – In addition to the evidence presented in point one, the socio-altruistic value orientation was shown to have no relationship or only a weak relationship with general interest in ecotourism, as well as with pro-environmental behaviours, intentions, and willingness to pay.

5. “aiming to benefit wildlife and the environment” – This is evident in a greater willingness to pay to protect the environment, and to pay extra for a holiday experience for environmental conservation purposes among those who prefer ecotourism type experiences.

6. “striving for first hand experience with the natural environment” – Interest in and preference for ecotourism type experiences was motivated by a desire for direct contact and immersion in nature coupled with learning about nature.
7. “possessing an expectation of education and appreciation” – See point six. This was evidenced by the reported reasons and benefits for ecotourism type holiday preferences, namely immersion and direct experience in unspoilt nature, learning about nature, and feeling one with nature.

8. “high cognitive and affective dimensions” – Those who were more interested in and preferred ecotourism experiences also expressed a desire to learn about nature, and they held stronger biospheric values, pro-environmental beliefs and concerns about nature, and particularly greater love and care for nature.

As previously discussed, tourists who are generally more interested in ecotourism activities are also more willing to consider their personal impact on environments when making travel decisions, and express more support for green accreditation systems for tourism products and services than those who are less interested in these types of activities. This type of support which is relevant for all forms of sustainable tourism, and not just ecotourism, may mean that these types of tourists represent part of a wider segment of responsible travellers. It is argued in this thesis that consumers who express preferences for ecotourism type leisure activities seem to be manifesting in these choices a form of green consumerism, as environmentally sensitive and aware human beings. If the evidence presented in this study for a stronger pro-environmental orientation in the tourists who reported more interest in ecotourism type activities is any indication, then the growth in ecotourism can be viewed not just as a supply driven phenomenon, but may also be driven by a growing group of tourists who are socially and environmentally aware. Perhaps these “true” ecotourists, defined by a general interest in ecotourism and their pro-environmental orientation, can indeed be differentiated on the basis of Fennel’s (2003, p. 26) “biological and preservationist affect”, marked by not only by stronger biospheric values but also particularly by greater feelings of love and care for nature in particular. It may be, as several researchers have proposed, that nature based tourism has a unique role in generating positive feelings and a sense of care towards the environment through experiential learning (Millar & Millar, 1996; Reynolds & Braithwaite, 1999).

While previous research has suggested that ecotourists may be simply responding to green marketing campaigns or eco-sell rather than being genuinely more interested in ecotourism (Sharpley, 2001, 2006), the results of this research
suggest that this may not be the case. If these results are any indication, then the psychological profile of so-called ecotourists may be broader and deeper than previously thought, and their environmentally sensitive choices and behaviours are apparently not confined to tourism alone. In view of this, Sharpley (2006) may be right in seeing little value in defining the consumers of ecotourism as “ecotourists”. Instead they may be more appropriately conceptualised as the new breed of traveller described by Page and Dowling (2002). This new breed of traveller is characterised by both greater environmental sensitivity and awareness and also greater desire for nature experiences and environmental knowledge (Page & Dowling, 2002).

Demographic profiling of different types of tourists has been extensively covered in much of the previous ecotourism literature (Fennell, 2003; Page & Dowling, 2002). However, there has been comparatively little research linking the demographic characteristics of different types of tourists to core psychological characteristics such as values, and there have been no links made between demographic information and tourists’ expression of deep love and caring for nature. The following section presents an overview of the demographic profiles of the tourists who participated in this research.

9.9 Demographics and a Pro-Environmental Orientation

Previous ecotourism market segmentation research has reported a seemingly growing trend for females to be very well represented in ecotourism, especially with respect to some of the proposed biocentric ecotourist segments (Page & Dowling, 2002; Weaver, 2002; Weaver & Lawton, 2002, 2007; Weiler & Richins, 1995; Weaver, 2002). For example, Weiler and Richins (1995) reported that their so-called “extreme” ecotourists, who pay to volunteer their leisure time for environmental conservation work, tended to be female. Similarly, Weaver (2002) found a significantly higher proportion of females than males among so-called “hard core” ecotourists who also displayed what he calls “an exceptionally high level of biocentrism” (p. 23).

There were similar trends for gender differences in terms of general altruism among the tourists who participated in this present research. While there was no difference found between males and females in the importance of biospheric values, females reported stronger feelings of love and care for nature, and tended to have a
relatively stronger socio-altruistic value orientation than males. Females also tended to assign less importance to egoistic values than males, and were significantly more likely than males to engage in pro-environmental consumer behaviour such as boycotting companies with poor environmental credentials, and purchasing environmentally friendly products. In accordance with these findings which demonstrate some evidence of stronger general altruism and love for nature in females, previous investigations into differences between males and females on altruism and environmental concerns have shown that females tend to be more likely to act in pro-environmental ways and express greater awareness and stronger environmental concerns than males (Dietz et al., 2005). Following this line of argument, it has thus been proposed that females tend to exhibit a stronger ethic of care (Stern et al., 1993). This conclusion seems reasonable since females are traditionally thought to be more socialised into, and concerned about, the affective nature of relationships and social issues, and this might be logically extended to a corresponding concern for nature and the environment. Since love and care for nature was found to be a good predictor of general interest in ecotourism, the fact that females expressed significantly more love and care for nature than males in this present research might be one underlying reason for any observed feminisation of the ecotourism market segment.

In spite of the previous observations regarding gender differences in ecotourism participation, respondents’ preferences for ecotourism type experiences reported in this research were not significantly influenced by gender. In other words males and females were equally likely to express preferences for ecotourism type nature based experiences. The ambiguous nature of gender effects in this present research, depending on what was being measured, seem to mirror the often mixed results obtained in previous environmental psychology and ecotourism literature concerning gender differences. Perhaps gender effects may be more evident when measuring the affective type variables such as feelings of love and care, rather other more cognitive type variables such as beliefs or opinions. This would need further investigation in order to clarify the effects of gender, if any, on environmentally relevant behaviour and choice.

In terms of education and age, previous research findings concerning ecotourists report that they tend to be older and typically better educated than mass or mainstream tourists (Eagles & Cascagnette, 1995; Page & Dowling, 2002). These
reports were supported by the results of this present research. In regard to the association between education and increased preferences for ecotourism type experiences over mainstream tourism, if the reasons given for holiday preferences and perceived benefits are examined, this makes some sense. For example, the key difference between the reasons and benefits reported by respondents who expressed preferences for ecotourism type experiences when compared with those who preferred other types of experiences was the importance of an education or learning component to the experience. Perhaps the more one is educated the more one wants to learn, in this case specifically about nature and the world about us.

There were no substantial effects for age in regard to the importance of biospheric values or levels of love and caring for nature\(^{125}\) found in this research. However, unlike age, education did have some effect on values and also love for nature. Tourists with tertiary education or vocational education rated biospheric values significantly more important and egoistic values as correspondingly less important than those who had only completed high school. Perhaps education contributes to an increase in altruism beyond one’s own immediate concerns, and even beyond concerns for humanity alone, outwards towards all of nature, as a consequence perhaps of ego and moral development (i.e. from the education process). This could be considered to be somewhat reminiscent of Charles Darwin’s (1894) vision of human social evolution. If this is indeed the case, there may be a need to include moral, ethical, and global environmental sustainability components in educational curricula. However, the effect of education on environmental values needs further investigation to determine if these results can be replicated across a range of contexts.

9.10 Contributions and Theoretical Implications of This Research

The main contributions and theoretical implications of this research project are summarised in the following paragraphs.

\(^{125}\) The relationship between age and love and care for nature was only weak.
Psychological Model of an Ecological Worldview and Its Influence on Pro-environmental Altruism

Development of an extended psychological model of an ecological orientation and worldview, which includes nature specific *biospheric* values and the new construct of *deep love and caring* for nature, has meant that there is now a clearer picture of the psychological profile of the environmentally sensitive and aware individual. Such an individual appears to be strongly influenced by their ecological worldview in terms of exhibiting a personal commitment to pro-environmental behaviours and pro-environmental intentions, including a greater willingness to make a range of sacrifices in the daily lives to support environmental protection. In contrast to much of the previous psychological research on environmental values, the new model does *not* include socio-altruistic values, and it has been proposed in this thesis that values which focus on social wellbeing alone are simply *not activated* in regard to the environment specific issues presented in this research.

Well developed theoretical models of the psychology of environmentally sensitive consumers, and their choices and preferences, may be especially important in a consumer based society which typically places great strain on environmental resources and thus contributes to an unsustainable ecological footprint\(^\text{126}\). There is much power resting in consumer spending patterns, and the environmentally sensitive consumer appears to be willing to pay *more* for goods and services which have appropriate environmental credentials. This presents an opportunity for the broader market to change the products and services it has to offer in terms of their environmental impact, and also to establish and protect brand equity through authentic and responsible marketing communication of these credentials and, more importantly, delivering on that promise. Environmentally responsible consumers may actually lead the way for the rest of society to follow.

Development of a New Measure of Love and Care for Nature (LCN)

A major contribution of this study is the development of a new measure, with sound psychometric properties, of the emotional component of an ecological

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\(^{126}\) See Chapter One – ecological footprint is a measure of the impact of everything humans do and consume on the environment
worldview, conceptualised as deep love and caring for nature. The development of a scale to measure love and care for nature has contributed to the parent discipline of environmental (conservation) psychology by establishing strong links between love and caring for nature and pro-environmental choice and behaviours. In fact, the influence of love and care for nature on environmentally relevant behaviours and intentions was shown to be even more important than the influence of other indicators of a pro-environmental orientation, including pro-environmental values, when people are being asked to accept more personal sacrifices for nature conservation.

Development of this scale to measure love and care for nature extends the psychological frameworks of environmental altruism, and has also taken the philosophical concept of “biophilia” into the operational realm by making it perceptible and measurable. As Wilson127 (1993) reminds us “biophilia” is crucial in effecting real human change in behaviour and more respect for nature. The results of this study may go some way towards presenting empirical evidence to support Wilson’s view of the importance of love for nature in human pro-environmental action. Use of the short 15-item scale to measure love and care for nature will facilitate a more complete understanding of the psychological determinants of pro-environmental altruism, and will also provide some means of measuring incremental changes in pro-environmental orientation which predict such altruism.

While field testing of the scale has been undertaken in a tourism context for the reasons detailed in Chapters One and Six, it nevertheless represents an instrument which is designed to measure levels of love and care for nature within the general population, and not just a tourist population. As acknowledged in Chapter Six of this thesis, a number of further field trials using a variety of different samples will be required before stable and generalisable norms for this new LCN scale can be established with confidence. However, when suitable scale norms are developed, because of the relative ease of administration of this short 15-item scale, there is potential for it to be a useful indicator of a pro-environmental orientation and thus predictor of pro-environmental action in future research across a range of contexts.

127 Edward O. Wilson is a Harvard University professor, human ethicist, and prominent environmental advocate.
A Psychological Framework for Understanding the Consumer of Ecotourism

Ecotourism research, to date, has suffered from a degree of insularity and lack of theoretical grounding, and it has been suggested in the past that it needs to borrow from the theoretical frameworks of older disciplines, including psychology, in order to build credible conceptual frameworks (Fennell, 2001, p. 640). Moreover, linking environmental psychology literature with ecotourism literature, in spite of the relevance of the former to the latter, has been previously wanting, and therefore clear evidence for a pro-environmental orientation shared by those who are more interested in ecotourism over mainstream tourism has been equivocal at best.

This present research has established clear links between the theoretical models of environmental psychology and philosophy with those of ecotourism and found empirical evidence for a distinct difference in psychological orientation and worldview of the so-called “true” ecotourist (for want of a better definition) and the mainstream or mass tourist. This research study has presented evidence that those people who are more interested in and have preferences for ecotourism type experiences also hold stronger pro-environmental values, beliefs, and feelings of love and caring for nature than people who are more interested in and prefer mainstream tourism activities. Furthermore, such a pro-environmental orientation was found to be more pervasive in influencing a wide range of choices and decisions, not just confined to tourism. These tourists could be more usefully described as environmentally sensitive and responsible consumers than as “ecotourists”.

The focus in this research on the demand rather than the supply side of ecotourism which has been the focus of much of the empirical research in ecotourism to date, contributes some depth to the emergent picture of ecotourism as a system involving not just the management of the supply of nature as a product, but also the emergence of the responsible tourist as the type of consumer for whom environmental ethical considerations and love of nature are strong motivators for their choices. If the results of this study are indicative of the ecotourist population, who may be defined by their preferences for ecotourism type products, then they do exist as a distinct market segment. Additionally such tourists seem to exhibit many of the eight pro-environmental psychographic characteristics on the wish list reported by Ballantine and Eagles (1994). These true ecotourists may also co-exist, within an ecotourism setting at a point in time, with more mainstream tourists as defined by their
preferences for mainstream or mass tourism. Such a co-existence could at least partially explain some of the equivocal results in previous research. For example, some of the tourists sampled at ecotourism venues may have been true ecotourists, as environmentally sensitive and aware consumers, and some may have been mainstream tourists or even adventurers who are simply seeking novelty or challenge. Future investigations that seek to predict the consumption of ecotourism may find it useful to include both a definition of the ecotourist based on the strength of general interest in ecotourism with respect to other forms of tourism, and also based on measures of a pro-environmental orientation, especially love and care for nature. Behavioural definitions based solely on visitation alone seem no longer adequate. Therefore, the application and extension of existing theoretical frameworks within the more established disciplines of psychology and philosophy to ecotourism has helped to develop a more complete understanding the consumer of ecotourism as compared with other types of tourists.

The contributions and theoretical implications of these research findings also suggest a number of practical implications, primarily for environmental education and ecotourism providers.

9.11 Implications for Environmental Educators and Ecotourism Providers

Recently Schultz et al. (2004) reported that there is already a body of evidence concerning the transformative ability of direct experiences in nature, a view which is echoed by environmental philosophers and educators (Greenway, 1995; Miles, 1991; Millar & Millar, 1996; Roszak, 1995). This transformation occurs because of increased feelings of connectedness to nature, and sometimes it can be quite profound, generating strong emotional responses in the person which might change attitudes, beliefs and probably also values (Kellert, 1997; Kellert & Wilson, 1993; Miles, 1991; Roszak, 1995). Schultz et al. (2004) have also argued that environmental education activities through direct experiences in nature might have more long lasting effects on behaviour than traditional environmental education programs which primarily focus on changing attitudes and cognitive beliefs. Therefore, if these arguments are accepted, focusing on experiential learning through direct experiences in nature, such as those provided by ecotourism and other nature based leisure activities, may enhance people’s love and caring for nature as an emotional response to close contact
with nature. In addition, being able to measure the changes in love for nature, even small variations, using the new Love and Care for Nature scale (LCN) will provide tangible evidence of the efficacy of environmental education initiatives and learning outcomes from immersion in nature activities and nature oriented leisure pursuits (e.g. gardening, bushwalking, hiking, etc.).

In this study, the Love and Care for Nature scale (LCN) was shown to be a strong predictor of interest in and preferences for nature based ecotourism activities and also of attitudes and behaviour indicative of consumer commitment to environmental sustainability. By using the short 15-item LCN scale it may be possible to undertake larger surveys of the general population to estimate more accurately the true size of the ecotourism market segment and also the relationship, or extent of overlap, between the so-called ecotourist segment and the environmentally sensitive responsible traveller/ consumer segment. This scale offers a practical and easily administered means of determining this market segment and predicting both interest in ecotourism and commitment to environmental sustainability. The LCN scale was shown in this research to be not only strongly related to all other psychological determinants of environmental interest and pro-environmental altruism, including biospheric values, but was also found to be a useful predictor of environmentally relevant variables including behaviour.

There seems to be increasing demand for ecotourism as evidenced by contemporary trends. This growth, coupled with its sizeable economic contribution to the global economy, means that there is considerable collective power resting in the hands of the consumers of ecotourism in terms of the quality and nature of tourism products they choose as well as the real and potential impact on places they visit. Some critics of ecotourism are concerned about the impacts of increasing visitation on relatively pristine natural environments (Stronza, 2001). Other critics are also skeptical of the authenticity of purported commitments by some providers to environmental and cultural sustainability in the race for profit maximisation (Stronza, 2001). In view of these concerns, being able to identify those tourists who are more environmentally sensitive and responsible travellers may become increasingly important, as these consumers may be less consumptive of resources, and may also demand evidence of environmental responsibility from tourism providers. The results of this research suggest that the environmentally sensitive and aware consumer is characterised by a psychological profile and motivations consistent with individuals
who believe in the intrinsic value of nature and also express more love and care for nature. Such individuals make a number of decisions and choices as consumers on the basis of their pro-environmental orientation, just one of those choices being a partiality for ecotourism type nature-based leisure experiences over mainstream tourism activities. The capacity to identify and attract environmentally responsible tourists is therefore important in terms of promoting environmental sustainability among tourism providers, including their commitment to reduce the potential for adverse impact of visitation on nature and cultures.

Moreover, identification of different and distinct market segments based on core psychological variables, including love for nature, may also be useful for the development of more effective marketing approaches and destination management techniques to ensure viability and sustainability of the ecotourism industry as a whole, the sustainability of individual destinations, and protection of precious environmental resources. Tourists who have an ecological worldview seem to be indicative of the ideal responsible consumer in that their commitment to minimising their personal impact on environments and their willingness to pay extra for nature conservation when making travel decisions would mean that the carrying capacity of destinations, particularly sensitive area destinations, could be more responsibly managed through targeted marketing campaigns aimed at these types of consumers. Moreover, restrictions on personal freedoms, facilities, and the services offered in order to protect valuable natural and cultural resources from damage by visitors would likely gain greater support from these environmentally sensitive consumers who may even be prepared to pay a premium for experiences which market genuine environmental sustainability credentials and assurances.

In addition, interpretation is an inherent component of the ecotourism experience and is often highly valued by the tourist. Therefore, understanding tourists’ psychological characteristics will aid in the design of more effective interpretation programs that are mindful of the audience’s respective psychological profiles and thus better meet their needs. For example, tourists with an ecological orientation may respond better to components of interpretation which focus on environmental learning, the importance of protecting the integrity of the nature and the biosphere for its own sake, and initiatives taken by the venue to protect and enhance the wellbeing of the environment. These tourists also want to reduce their impact on the environment through visitation and so may want and need fewer
services, and are likely to be more willing to incur significant personal freedom restrictions. Conversely, tourists who come from a more egoistic perspective may respond better to interpretation that focuses on the importance of protecting the integrity of nature from the perspective of its utility for themselves and their local community in providing recreation, relaxation, medicine, ongoing food, and other aspects of personal wellbeing and enjoyment. These egoistic type tourists are likely to need more explanation and justification for any restrictions to their personal freedoms and the quality of services provided. They also may be a worthwhile target market for interpretation and education initiatives which aim to increase their levels of love for nature, and thus care, through facilitating positive emotional responses to particular aspects of the environment during their experiences. In this way the psychological orientations of these more egoistic tourists might change as a result of exposure to and immersion in different nature experiences.

Thus, from a purely economic perspective, it is important for marketers and policy makers in tourism to be able to identify psychological variables, such as value systems and level of love and care for nature, as motivators of choices and behaviours, which accurately define the different ecotourism markets, so that tourism packages of experiences can then be tailored to better suit the needs, motivations and expectations of the consumer. Understanding these core psychological characteristics of consumers will also assist with better destination management techniques to ensure viability and sustainability of the ecotourism industry as a whole, the sustainability of individual destinations, protection of environmental resources including sensitive areas, and management of services provided (Page & Dowling, 2002).

However, Page and Dowling (2002) have argued that simply protecting environments for the principal reason of sustaining tourism is a narrow objective. A more profound objective may be to use tourism as a means of protecting the environment and preserving and enhancing biodiversity, in other words adopting an ethic of “care” rather than an ethic of “use”. From this broader viewpoint, ecotourism has the potential to play a unique educative role in terms of developing a genuine environmental ethic of care and deeply held pro-environmental psychological orientation, especially in those people who have lost touch with the natural world, providing it is managed carefully and well.
In spite of the contributions and implications of this research, it is important to acknowledge some limitations of the research in order to provide a context for the findings and the conclusions drawn, without negating them or their value.

### 9.12 Limitations of the Research

In regard to the scale development process adopted in Study One, a potential limitation could be the use of university students to pilot test the scale, as De Vellis (2003) recommends the use of a development sample which is representative of the population for which the scale is intended. However, ease of access to the sample and efficiency of resource use are positive offsets for potential problems associated with using student samples in this way. Furthermore, the pilot study sample included over 300 participants to reduce the likelihood that participant variance\(^\text{128}\) would be a concern when examining individual item performance. In order to address some of the issues concerning the possible influence of level and type of education on student responses in the pilot study, students who were studying biological and environmental sciences as well as teacher education were not included in the sampling frame for the pilot study. It was also thought that students studying in the business faculty might be more representative of the general population (for which the scale is intended) than students from other disciplines due to the pervasiveness of business understanding and issues at all levels of society.

It is also acknowledged that the use of the same sample of tourists for the field trial of the new Love and Care for Nature (LCN) scale, and also for hypothesis testing was not ideal. However, because of the practical constraints and resource limitations associated with a research project of this type, this was considered a necessary compromise, and practicality held sway over ideal. As discussed previously, it will be important to undertake extensive field trials of the new Love and Care for Nature (LCN) scale in the future, to confirm its reliability and validity, and also its efficacy for predicting environmentally relevant attitudes, behaviours, and choices.

Another possible limitation of this research study was the use of a non-probability convenience sample rather than a random or probability sample for Study Two. However, as outlined in Chapter Seven, the inherent practical problems of

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\(^{128}\) See De Vellis (2003).
obtaining approved access to suitable sampling venues and their tourist patrons influenced the decisions about where and how tourists could be accessed. Therefore a major consideration for the sampling approach chosen was the principal objective of causing minimum disruption to both the business and customer satisfaction at each of the chosen venues.

Moreover, the sampling frame for the field study phase of this project was confined to the Gold Coast region, and it may be that this sample is not indicative of a broader population. However, the Gold Coast is considered one of Australia’s premier tourism regions, so access to tourists of all types was possible. In addition, much of the Gold Coast’s market positioning is based on the natural environment, either as a context or backdrop for activities (e.g. beach holiday, luxury resorts), or as the actual focus of the tourist experience (e.g. ecotourism in national parks in the region).

Another acknowledged limitation of this study is that sampling tourists may reduce the generalisability of these preliminary findings beyond a tourist population. However, this project focused primarily on investigating the relationships among the psychological constructs of interest and resultant choices and behaviours. The decision to sample tourists for hypothesis testing was a deliberate choice for three major reasons. Firstly, as argued in Chapters Two and Three it has been proposed by a number of social researchers that it is at leisure (as opposed to work) that human beings are most true to themselves. That is, they are free to simply be. Presumably this is also true for particular leisure activities such as tourism. In this way it was hoped that people would respond to the survey instrument as authentically as possible in a relatively relaxed tourism setting. Secondly, in previous research in environmental psychology, tourist samples have been largely unexplored in terms of the psychological attributes associated with a pro-environmental orientation and behaviours, particularly core values and feelings of love and care for nature, in spite of the fact that much worldwide tourism depends on nature and its integrity, either as the focus of the experience or at least as the context. Correspondingly, the tourism and particularly ecotourism literature is also limited in terms of the development of conceptual and theoretical models that link the psychology, motivations, and behaviours of consumers of tourism, including ecotourism. Thirdly, in the work of

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129 For example, those behaviours that are not tourism specific – such as general political and consumer behaviour and willingness to pay
environmental psychologists who have empirically tested the model of environmental value orientations\textsuperscript{130}, there was limited empirical support for differentiation of biospheric from socio-altruistic value orientations. In response to this, it was hoped that sampling in a context where people have varying degrees of interest in nature, including high levels of that interest, may be more likely to yield evidence to support such differentiation. This evidence was found.

The next part of this chapter proposes some directions for future research which have emerged from the research findings and also the limitations that were discussed in this section.

9.13 Future Research

The previously discussed implications of the present research findings and the acknowledged limitations of this research, have led to the identification of three areas of future research, and these are discussed in the following sections.

1. \textit{Further testing of the influence of an ecological worldview}

It is important that further testing of the proposed theoretical model of an ecological worldview, including a biospheric value orientation and feelings of love and care for nature, is undertaken over a wide range of contexts and population samples in order to provide additional evidence of its validity as a determinant of pro-environmental altruism, including environmentally sensitive choices and behaviour. As part of this research, continuing field trials of the LCN scale using a variety of population samples, not confined to tourism, are necessary and would help to confirm the importance of love and caring for nature in pro-environmental behaviour and choice, and thus hopefully extend the potential usefulness of the new scale measure.

2. \textit{Further research on the role of ecotourism in experiential learning}

The scope of this study was simply to investigate relationships between several theoretically relevant psychological variables as motivators of pro-

\textsuperscript{130} Biospheric, socio-altruistic and egoistic value orientations.
environmental choices including tourism. As discussed previously, it is hoped that nature based tourism and particularly ecotourism might be used as one vehicle for increasing the sense of love and caring towards the environment through the experiential learning processes inherent in these experiences. Stronza (2001) has proposed that the raising of human consciousness through tourism and being able to measure any transformative effects of tourist experiences in terms of cultural and environmental sensitivity would contribute significantly to our understanding of tourism as a system with the potential of reaching the goal of a truly sustainable industry. Winter (2007) has also argued that the tourism industry has an important opportunity to educate tourists about values pertaining to the environment, especially since for many people their greatest physical contact with nature may occur during leisure activities such as nature tourism. In spite of this hope, to be able to effectively evaluate the contribution of tourism to environmental education, it is essential to be able to draw meaningful conclusions about cause and effect relationships. Therefore, carefully constructed experimental research studies will need to be conducted over many and varied samples, ideally coupled with longitudinal research to track changes in particular individuals over time. The new LCN scale may be one of the means of evaluating the relative success of any environmental education experiences, including those inherent in ecotourism.

3. Further investigation of volunteer ecotourists

A potentially fruitful avenue for future research may be a deeper investigation of volunteer ecotourists, as love and care for nature and biospheric values of those who selected volunteer ecotourism as their preferred type of holiday were shown to be stronger than those who preferred any of the other ecotourism type nature-based holidays, or the mainstream type tourism holidays. Thus, further research into volunteer ecotourists, including those who currently participate in Earthwatch or similar programs, would be useful. Such tourists seem to be a special market segment that is willing to pay, often considerable sums of money, to work for environmental conservation during their leisure time, yet their values systems, beliefs, and levels of love and care for nature have in the past been under-investigated. Singh et al. (2007) have argued that capitalising on the education and affluence of a market segment who are especially willing to become active participants in environmental conservation.
efforts could be a particularly worthwhile focus for marketing efforts within the tourism industry. Understanding more about the psychology of this special market segment may also provide valuable information for potential providers of such experiences. There could also be a lucrative and worthwhile opportunity for smaller providers and niche market suppliers to develop products in conjunction with scientific, university, social research organisations, and charities to foster a growth in volunteer “tourism”, as a from of alternative tourism. While products such as this will bring both personal benefits and psychological rewards to the individual participants, they are also likely to bring social, environmental and cultural benefits to whole communities. In future research into this potential market segment it would be useful to employ both survey type research, including measures of psychological variables such as values and love and caring, and also qualitative research such as ethnography and in-depth interviews to determine precisely what psychological motivators drive these types of tourists.

9.14 Conclusions

David Suzuki (1997) reminds us

We are creatures of the Earth, created out of stardust, energised by the sun, carrying with us fragments of the first life-forms – evidence of our kinship with every other creature on the planet. As Earth beings we share in life’s basic survival method – diversity, both biological and cultural – and we are honed by evolution to live in the company of our fellow life-forms. Armed with our emerging worldview, we find ourselves back on centre stage, holding the fate of our newfound family – and our own – in our trembling and incompetent hands (p. 145).

This doctoral project began with recognition of the profound importance of these ideas and the realisation that humans are on the brink of environmental catastrophe. As Suzuki so eloquently put it, we do hold the fate of our “newfound family” which is the whole biotic community or “the land” as Leopold (1949/ 1987) calls it, in our collective hands. Up until now, we humans have also been guilty of incompetence and hesitancy as evidenced by the global environmental degradation and accelerating climate change at the hands of humankind. Recently, it has become
very clear that to forestall widespread environmental devastation we humans have to take urgent and decisive action both as individuals and as communities.

Because of the importance of the actions of all individuals in appropriately responding to this crisis, this research project sought to understand what motivates people in their daily lives to act for environmental conservation and protection, often against their own self-interest. This thesis has argued that a strong pro-environmental orientation can be conceptualised as an ecological worldview which views nature as the whole community of life of which humans are simply a part. The research focused on identifying the key psychological components of an ecological worldview which environmental philosophers have argued is one in which nature is considered to have significant intrinsic value. Such a worldview is also characterised by love and deep caring about nature which includes respect and compassion for the community of life to which we belong, as well as a sense of responsibility for its wellbeing. It was thought that this ecological worldview would influence individual’s pro-environmental attitudes, behaviours and choices, including preferences for nature based tourism. Because many thinkers believe that humans have an innate emotional bond with the natural environment, which has been called “biophilia” in the philosophy literature, it was thought that many people might feel a yearning for direct contact with free nature in response to that bond. Furthermore, growth in the popularity of leisure experiences in nature such as ecotourism was considered to be a likely manifestation of that yearning for contact with the natural environment. Therefore, this research project sought to examine the influence of an ecological worldview on people’s attitudes, behaviours and choices within a tourism setting where nature was either at the least some point of interest or the actual focus of the experience.

The Influence of an Ecological Worldview

An ecological worldview, as defined in this research, was found to comprise two key psychological components. These components were a biospheric value orientation and also strong feelings of love and care for nature. Tourists who had a stronger ecological worldview were significantly more likely to engage in pro-environmental behaviours and make pro-environmental consumer choices in their day to day lives and also in a tourism context. Such behaviours included voting for
political candidates on the basis of their green platforms, signing environmental petitions, boycotting companies who have poor environmental credentials, and purchasing environmentally sensitive products and services. An ecological worldview also influences preferences for particular types of leisure experiences including nature based tourism over more mainstream tourist activities. Moreover, it appears from the results of this research that love for nature is a very important predictor of these environmentally significant behaviours and choices, including preferences for ecotourism. This is especially so when greater implied sacrifice in terms of effort, time, and money is required for environmental protection purposes. Love not only strongly influences the willingness of people to make such personal sacrifices but also seems to mediate the effect of pro-environmental values on these intentions, and thus love had the most important direct influence. In contrast, relatively stronger egoistic values seemed to be indicative of a worldview that is the opposite of an ecological one. Stronger egoistic values predicted weaker pro-environmental attitudes, less pro-environmental behaviour and choice, and more interest in mainstream tourism experiences over ecotourism. As a result of evidence gathered in this research project, a model for the key psychological components of an ecological worldview, versus an egoistic worldview, and their respective relationships with behaviour and choices is presented in Figure 9.1.
Figure 9.1. A conceptual model of the influence of an ecological worldview on tourists’ attitudes, behaviour, and choices, including preferences for ecotourism versus mainstream tourism.

A New Measure of Love and Care for Nature (LCN)

In view of encouraging results concerning the strong positive relationships between the Love and Care for Nature scale (LCN) and biospheric values, general pro-environmental beliefs, and other environmentally relevant variables, together with the relative strength of its predictive ability for environmentally sensitive choices and behaviours, it may be usefully applied as a simple and efficient indicator of relative ecological worldview in a number of populations of interest. Furthermore, the ease of administration and use of the new 15-item LCN scale in comparison to relatively complex lists of core values, suggests that it may be a more useful instrument for tracking and evaluating changes in people’s level of caring towards nature as a result of relevant life experiences, ego development, or education programs. However, for stronger conclusions about its usefulness to be drawn, this new measure will need extensive field trials in the future that are undertaken in conjunction with appropriate...
related measures of values, beliefs, and psychological inclusion in nature, across a range of research contexts to determine if these findings can be replicated.

**Social Change: An Opportunity Inherent in Ecotourism**

If the proposed innate human desire for connection with nature results in the seeking of more direct experiences in nature, particularly unspoilt nature, then the growing demand for nature based tourism including ecotourism in an increasingly urbanised world, might be one response to that innate desire. Furthermore, if, as many researchers believe, direct experiences in nature generate a greater sense of love and caring for nature, then nature based tourism particularly ecotourism with its inherent context for environmental learning may represent a means of deepening those feelings of love. For example, experiential learning which is a significant component of ecotourism and wilderness experiences could particularly focus on ways of helping people to increase their feelings of love and care for nature. This may be valuable in the development of a more ecological worldview and also greater commitment among people for engaging in pro-environmental behaviour in day to day life. Thus there is an important social opportunity inherent within well managed authentic ecotourism to increase the number of committed advocates for environmental conservation.

Moreover, development of an ecological worldview seems to be imperative if we are to survive the environmental crises facing the planet and change our collective behaviour enough to avoid devastation and the worst consequences of climate change. In the current environmental crisis, governments around the world are increasing their requirements for individuals to pay more for many essential services such as power and water, as well as food and the other goods and services required for daily living. Changes in the way individuals live including their consumption patterns can no longer be ignored or put off. The changes required are necessarily becoming rapid and may be confronting for many. However, increasing people’s sense of love and deep caring for nature may be the best means of gaining the support and commitment for the types of behavioural changes required of all of us in order to avert disastrous environmental consequences.

Continuing systematic and interdisciplinary investigation of what motivates and especially what moves human beings into developing and enhancing their sense of stewardship of the earth and the human relationship with nature needs to be
undertaken in order to better understand pro-environmental behaviour, to better predict that behaviour, and more importantly influence it. Such interdisciplinary research is crucial if we are to change our collective focus and hopefully mitigate potential destruction of our precious global home and its wellbeing which is forever bound to our own. The time is now and the matter is urgent.

The Primary Research Question: An Answer

The evidence presented here has demonstrated that the psychological aspects of an ecological worldview, and in particular, love and caring for nature, do indeed influence consumer pro-environmental decision making and consumer choices, including leisure preferences, as expressed in greater interest in and preference for ecotourism type experiences over other more mainstream tourism experiences. While an ecological worldview predicts an increased propensity for pro-environmental behaviour and choices including travel choices, it appears that it is the love and caring element which seems to be the most important influence, at least for the choices and behaviours that require more personal sacrifice and effort, and thus commitment.

Therefore, the primary research question has been answered: Does an ecological worldview, comprised of pro-environmental values and feelings of love and care for nature, significantly influence pro-environmental attitudes, behaviours and choices including leisure choices such as tourism? The answer is “yes”.

Furthermore, it appears that love for nature, as measured in this study through the newly developed Love and Care for Nature scale (LCN), may be the most important influence on pro-environmental behaviour and choice. Love then has a good deal to do with it, “it” being the propensity to consider the environmental consequences of many if not most behaviours and consumer choices when making personal decisions.

The following quote by Miles (1991) is highly reminiscent of Gould’s (1991) thoughts presented at the beginning of this chapter on the importance of participation in nature for developing an ecological view of human-nature relations, including appreciation and particularly love for nature. Miles (1991) says:

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Learning about wilderness is not like learning arithmetic or economics or how the political system works. It is more akin to learning what is beautiful about a Mozart concerto, a Rembrandt painting, or a Shakespearean sonnet … the value and significance of nature is recognised by both mind and heart … Even as one must listen to a great piece of music to understand and appreciate it, so one must be immersed in nature in order to deeply understand and appreciate its essence and significance (Miles, 1991, pp. 6-7).

Like Gould, Miles also believes that simply learning about nature and developing an awareness of environmental issues is not enough for developing an ecological view and thus a sense of responsibility and commitment to protect the wellbeing of nature. He argues that to truly know and appreciate the importance of nature and our place within it, we as humans must also feel its significance with the heart, through learning to deeply care about and love the whole community of nature to which we inextricably belong. The value and significance of nature Miles and Gould both contend are best recognised through humans directly immersing themselves or participating in nature. Many opportunities for immersion and participation in nature can be provided by ecotourism type nature based experiences which emphasise experiential learning and intimate contact with unspoilt nature, especially in our relatively urbanised existence. Ecotourism then may represent an important opportunity to promote environmental awareness and commitment in people by cultivating more love and caring for nature as well as appreciation of its value through Gould’s notion of visceral contact.
REFERENCES


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APPENDIX A

Scale development: List of the 93 items used in the preliminary pre-pilot survey.
**APPENDIX A**

Scale development: List of the 93 Items used in preliminary pre-pilot survey

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>I feel that we humans need natural surroundings for our wellbeing.</td>
</tr>
<tr>
<td>2.</td>
<td>When I am near what appear to be very old trees in the natural environment, I often experience a feeling of wonder and respect.</td>
</tr>
<tr>
<td>3.</td>
<td>When I am in nature, I often feel a sense of oneness with the mountains, rivers, oceans, and other features of the natural environment.</td>
</tr>
<tr>
<td>4.</td>
<td>I feel happy just knowing there are still some areas of unspoilt wilderness in the world.</td>
</tr>
<tr>
<td>5.</td>
<td>I love watching animals in their natural environment.</td>
</tr>
<tr>
<td>6.</td>
<td>When in natural settings I feel emotionally close to nature.</td>
</tr>
<tr>
<td>7.</td>
<td>I feel joy just being in nature.</td>
</tr>
<tr>
<td>8.</td>
<td>I feel that I am part of nature.</td>
</tr>
<tr>
<td>9.</td>
<td>I enjoy learning about nature.</td>
</tr>
<tr>
<td>10.</td>
<td>Being in natural surroundings makes me feel less stressed.</td>
</tr>
<tr>
<td>11.</td>
<td>I am always curious about how things in nature work.</td>
</tr>
<tr>
<td>12.</td>
<td>Humans must live in harmony with nature.</td>
</tr>
<tr>
<td>13.</td>
<td>I feel that closeness to nature is important for my wellbeing.</td>
</tr>
<tr>
<td>15.</td>
<td>We humans must behave as responsible members of Earth’s ecosystems.</td>
</tr>
<tr>
<td>16.</td>
<td>For humans to thrive, nature must also thrive.</td>
</tr>
<tr>
<td>17.</td>
<td>When I am close to nature, I feel a real sense of oneness with nature.</td>
</tr>
<tr>
<td>18.</td>
<td>Human beings are meant to have control over the rest of the natural environment.</td>
</tr>
<tr>
<td>19.</td>
<td>I feel that the mental and physical health of human beings depends on the health and wellbeing of the natural environment.</td>
</tr>
<tr>
<td>20.</td>
<td>I feel human beings should be vegetarian.</td>
</tr>
<tr>
<td>21.</td>
<td>I feel happy just knowing that there are some areas of unspoilt nature still in existence.</td>
</tr>
<tr>
<td>22.</td>
<td>I believe animals don’t really feel pain as we know it.</td>
</tr>
<tr>
<td>23.</td>
<td>I feel content and somehow at home when I am in unspoilt nature.</td>
</tr>
<tr>
<td>24.</td>
<td>I feel it is important to protect and preserve endangered animals and their habitats.</td>
</tr>
<tr>
<td>25.</td>
<td>It is cruel to throw live crabs or lobsters into a pot of boiling water to cook them.</td>
</tr>
<tr>
<td>26.</td>
<td>I feel that the natural environment and I are interconnected.</td>
</tr>
<tr>
<td>27.</td>
<td>It is cruel to house chickens that are farmed for eggs in large batteries or cages.</td>
</tr>
<tr>
<td>28.</td>
<td>Fish and other non-mammals don’t feel pain in any sense of the word.</td>
</tr>
<tr>
<td>29.</td>
<td>Cruelty of any kind to animals makes me feel upset.</td>
</tr>
<tr>
<td>30.</td>
<td>I feel upset when animals are killed for fur or other fashion items.</td>
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<tr>
<td>31.</td>
<td>I feel a deep love for nature.</td>
</tr>
<tr>
<td>32.</td>
<td>I am not really concerned when I hear of animals living in stressful conditions.</td>
</tr>
<tr>
<td>33.</td>
<td>I feel sorry for animals kept in stressful or unhealthy living conditions.</td>
</tr>
<tr>
<td>34.</td>
<td>I feel upset when I see or hear of animals that lack access to food, water, or reasonable living conditions.</td>
</tr>
<tr>
<td>35.</td>
<td>I feel that the awe-inspiring and wondrous grandeur of unspoilt nature is close to a religious/spiritual experience for me.</td>
</tr>
<tr>
<td>36.</td>
<td>I feel upset when I see animals being hunted purely for sporting activity.</td>
</tr>
<tr>
<td>37.</td>
<td>I feel that it is my personal responsibility to look after nature in any way I can.</td>
</tr>
<tr>
<td>38.</td>
<td>I feel sad when I hear or read about animals being hunted and killed to make decorative items or souvenirs.</td>
</tr>
<tr>
<td>39.</td>
<td>I feel that if we wear fur clothing, it should only be fake fur.</td>
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<tr>
<td>40.</td>
<td>I feel sad when I hear or read about endangered animals whose habitats have been destroyed.</td>
</tr>
<tr>
<td>41.</td>
<td>I feel upset when I hear of large areas of ancient trees being cut down or burned to clear land for farming or logging.</td>
</tr>
<tr>
<td>42.</td>
<td>I feel it is important to only buy wood products that are from plantation sources.</td>
</tr>
<tr>
<td>43.</td>
<td>Pollution of air and water is unacceptable.</td>
</tr>
<tr>
<td>44.</td>
<td>Improving the quality of life for people depends on protecting and improving the quality of the earth’s natural ecosystems.</td>
</tr>
<tr>
<td>45.</td>
<td>I feel upset when I think about the ongoing destruction of large areas of the world’s rainforests.</td>
</tr>
<tr>
<td>46.</td>
<td>I feel it is important to buy recycled paper products whenever possible.</td>
</tr>
<tr>
<td>47.</td>
<td>I feel upset when I see animals being chained, living in confined areas, or in cages.</td>
</tr>
<tr>
<td>48.</td>
<td>I feel it is important that wilderness areas are restored and protected.</td>
</tr>
<tr>
<td>49.</td>
<td>People who walk off the designated walking path in a national park are just irresponsible.</td>
</tr>
<tr>
<td>50.</td>
<td>I feel sorry for animals in captivity.</td>
</tr>
<tr>
<td>51.</td>
<td>I often feel a strong sense of care towards the natural environment.</td>
</tr>
<tr>
<td>52.</td>
<td>I feel upset when I hear of animals and plants becoming extinct or being endangered.</td>
</tr>
<tr>
<td>53.</td>
<td>For life to flourish we must all treat nature with care and respect.</td>
</tr>
<tr>
<td>54.</td>
<td>I feel upset when marine animals swallow or get caught in fishing lines, nets, packaging straps, or plastic bags.</td>
</tr>
<tr>
<td>55.</td>
<td>It is important to me to belong to nature-based organizations to be able to help in any way I can.</td>
</tr>
<tr>
<td>56.</td>
<td>When in nature I feel that I must be careful so I do not upset the ecosystem balance in any way.</td>
</tr>
<tr>
<td>57.</td>
<td>I feel sad when I see creatures dying in oil spills or other pollution.</td>
</tr>
<tr>
<td>58.</td>
<td>It doesn’t really matter how animals that are farmed for food are killed.</td>
</tr>
<tr>
<td>59.</td>
<td>In order to improve the quality of life for people we need to protect and improve the quality of Earth’s natural environments.</td>
</tr>
<tr>
<td>60.</td>
<td>Mountains, rivers and other features of nature are important and must be protected.</td>
</tr>
<tr>
<td>61.</td>
<td>I feel that I must protect nature from harm in any way I can.</td>
</tr>
<tr>
<td>62.</td>
<td>The overseas export of live sheep and cattle is cruel.</td>
</tr>
<tr>
<td>63.</td>
<td>Everything in the environment is important and must be cared for.</td>
</tr>
<tr>
<td>64.</td>
<td>I feel that I must not waste or degrade natural resources.</td>
</tr>
<tr>
<td>65.</td>
<td>When in nature I try to control my behaviour so I do not upset the balance of nature in any way.</td>
</tr>
<tr>
<td>66.</td>
<td>I support the closure of national parks or wilderness areas to the public if the ecosystem or species of animals or plants were becoming threatened by human activity.</td>
</tr>
<tr>
<td>67.</td>
<td>I support consumer payment for renewable energy sources (ie. solar power) on household electricity accounts (eg. Green Choice with Energex).</td>
</tr>
<tr>
<td>68.</td>
<td>I feel we must eliminate the use of disposable plastic shopping bags.</td>
</tr>
<tr>
<td>69.</td>
<td>I feel it is right to protect and preserve the integrity and beauty of natural ecosystems for their own sake.</td>
</tr>
<tr>
<td>70.</td>
<td>Animals should always be treated by human beings with compassion and respect.</td>
</tr>
<tr>
<td>71.</td>
<td>Maintaining biodiversity is important to the well-being of the whole planet, not just humans.</td>
</tr>
<tr>
<td>72.</td>
<td>I feel it is important to buy environmentally friendly household products whenever possible.</td>
</tr>
<tr>
<td>73.</td>
<td>I support the closure of some wilderness areas to the public to protect them from harm due to human activity.</td>
</tr>
<tr>
<td>74.</td>
<td>I feel I have a personal responsibility to conserve water wherever possible even if it is inconvenient or a nuisance.</td>
</tr>
<tr>
<td>75.</td>
<td>I feel we must all reduce our use of non-renewable energy.</td>
</tr>
<tr>
<td>76.</td>
<td>I often experience a powerful sense of awe and wonder in the presence of unspoilt nature.</td>
</tr>
<tr>
<td>77.</td>
<td>Animals are individuals, capable of feeling pain and emotions.</td>
</tr>
<tr>
<td>78.</td>
<td>I feel that nature is important for its own sake.</td>
</tr>
<tr>
<td>79.</td>
<td>I feel I should minimize the use of my car where possible, even if this is inconvenient.</td>
</tr>
<tr>
<td>80.</td>
<td>I feel that where and how fishermen are allowed to catch fish should be strictly controlled to protect marine resources.</td>
</tr>
<tr>
<td>81.</td>
<td>I feel I must conserve water even if there have been no water restrictions imposed by local, state, or federal governments.</td>
</tr>
<tr>
<td>82.</td>
<td>I need to have as much of the natural environment around me as possible.</td>
</tr>
<tr>
<td>83.</td>
<td>Protecting the well-being of nature for its own sake is important to me.</td>
</tr>
<tr>
<td>84.</td>
<td>I don’t really like being in wilderness areas or unspoilt nature.</td>
</tr>
<tr>
<td>85.</td>
<td>I feel spiritually bound to the rest of nature.</td>
</tr>
<tr>
<td>86.</td>
<td>A world without the beauty and complexity of nature would be a sad and barren place.</td>
</tr>
<tr>
<td>87.</td>
<td>Captive dolphin and whale shows are not good for the animals.</td>
</tr>
<tr>
<td>88.</td>
<td>When I spend time in unspoilt nature I feel that my day-to-day worries seem to dwindle away in the face of the wonder of nature.</td>
</tr>
<tr>
<td>89.</td>
<td>I often feel a sense of awe and wonder when I am in unspoilt nature.</td>
</tr>
<tr>
<td>90.</td>
<td>I feel humans have a right to control nature for economic benefit.</td>
</tr>
<tr>
<td>91.</td>
<td>I prefer artificial environments and advanced technology around me.</td>
</tr>
<tr>
<td>92.</td>
<td>I often feel emotionally close to nature.</td>
</tr>
<tr>
<td>93.</td>
<td>I feel a personal sense of interconnectedness with the rest of nature.</td>
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</tbody>
</table>
APPENDIX B

Scale development: Major pilot testing survey instrument.
APPENDIX B

Pilot-testing research

Natural Environment survey

Thank you very much for taking the time to help with this preliminary pilot testing research to clarify items in the survey, prior to field testing of the instrument.

Please rate your personal feelings about each statement on a scale from 1 to 6 where 1 means you strongly disagree and 6 means you strongly agree by placing a circle around the number which best represents your feelings about each statement.

There are no right or wrong answers in this questionnaire. I am simply seeking to determine how people really feel about each of these issues, so please be honest.

An example is shown following:

It is important to me to have living plants in my home or workplace.

Strongly disagree Disagree Somewhat disagree Somewhat agree Agree Strongly agree
1 2 3 4 5 6

I would also like to be able to ask for verbal feedback and comment on the questionnaire and on individual items after you have completed the questionnaire if you are willing to be involved in this way. I have made provision for written comments at the end of the questionnaire for your convenience. However, please feel free to make written notations and comments throughout the questionnaire if you prefer that method.

The purpose of this pilot testing phase is to reduce the numbers of items to be used in the instrument by eliminating the least useful items. All the items in this set have already been through a process of comment and review by a series of interested experts from a range of related disciplines. Your contributions in the final cut of items will be of very valuable assistance in this stage of the process.

I am very appreciative of your participation, and any comments will be gratefully received.

Helen Roobottom
1. When I am near what appear to be very old trees in the natural environment, I often experience a feeling of wonder and respect.

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<th>Strongly disagree</th>
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2. When I am in nature, I often feel a sense of oneness with the mountains, rivers, oceans, and other features of the natural environment.

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3. When in natural settings I feel emotionally close to nature.

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4. I feel joy just being in nature.

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5. I feel that I am part of nature.

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6. I enjoy learning about nature.

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7. Being in natural surroundings makes me feel less stressed.

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8. I am always curious about how things in nature work.

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9. I feel that closeness to nature is important for my wellbeing.

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10. I find nature and the natural environment fascinating.

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11. When I am close to nature, I feel a real sense of oneness with nature.

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12. I feel content and somehow at home when I am in unspoilt nature.

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<th>Strongly disagree</th>
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13. I feel that the natural environment and I are interconnected.

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14. I feel a deep love for nature.

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<th>Strongly disagree</th>
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</table>
15. I feel that the awe-inspiring and wondrous grandeur of unspoilt nature is close to a religious/spiritual experience for me.

<table>
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<th>Strongly disagree</th>
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<th>Agree</th>
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16. I feel that it is my personal responsibility to look after nature in any way I can.

<table>
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<tr>
<th>Strongly disagree</th>
<th>Disagree</th>
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17. I feel that if we wear fur clothing, it should only be fake fur.

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<tr>
<th>Strongly disagree</th>
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18. I feel upset when I hear of large areas of ancient trees being cut down or burned to clear land for farming or logging.

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<th>Strongly disagree</th>
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19. I feel it is important to buy wood products that are from plantation sources and not from old growth forests.

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20. I feel upset when I think about the ongoing destruction of large areas of the world’s rainforests.

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<th>Strongly disagree</th>
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21. I feel it is important to buy recycled paper products whenever possible.

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22. People who walk off the designated walking path in a national park are just irresponsible.

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23. I feel sorry for wild animals in captivity.

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24. I often feel a strong sense of care towards the natural environment.

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25. When in nature I feel that I must be careful so I do not upset the ecosystem balance in any way.

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<th>Agree</th>
<th>Strongly agree</th>
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<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
</tbody>
</table>

26. I feel that I must protect nature from harm in any way I can.

<table>
<thead>
<tr>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Somewhat disagree</th>
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</tr>
</tbody>
</table>

27. Animals should always be treated by human beings with compassion and respect.

<table>
<thead>
<tr>
<th>Strongly disagree</th>
<th>Disagree</th>
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<th>Somewhat agree</th>
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28. I feel it is important to buy environmentally friendly household products whenever possible.

<table>
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<th>Strongly disagree</th>
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</table>
29. I support the closure of some wilderness areas to the public to protect them from harm due to human activity.

<table>
<thead>
<tr>
<th>Strongly disagree</th>
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</tr>
</tbody>
</table>

30. I often experience a powerful sense of awe and wonder in the presence of unspoilt nature.

<table>
<thead>
<tr>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Somewhat disagree</th>
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<th>Agree</th>
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</table>

31. I feel that where and how fishermen are allowed to catch fish should be strictly controlled to protect marine resources.

<table>
<thead>
<tr>
<th>Strongly disagree</th>
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<th>Agree</th>
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</tbody>
</table>

32. I need to have as much of the natural environment around me as possible.

<table>
<thead>
<tr>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Somewhat disagree</th>
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<th>Agree</th>
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</tr>
</tbody>
</table>

33. Protecting the well-being of nature for its own sake is important to me.

<table>
<thead>
<tr>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Somewhat disagree</th>
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<th>Agree</th>
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<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
</tbody>
</table>

34. I don’t really like being in wilderness areas or unspoilt nature.

<table>
<thead>
<tr>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Somewhat disagree</th>
<th>Somewhat agree</th>
<th>Agree</th>
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</tr>
</tbody>
</table>

35. I feel spiritually bound to the rest of nature.

<table>
<thead>
<tr>
<th>Strongly disagree</th>
<th>Disagree</th>
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<th>Agree</th>
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<td>2</td>
<td>3</td>
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<td>5</td>
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</tr>
</tbody>
</table>

335
36. When I spend time in unspoilt nature I feel that my day-to-day worries seem to dwindle away in the face of the wonder of nature.

<table>
<thead>
<tr>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Somewhat disagree</th>
<th>Somewhat agree</th>
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<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
</tbody>
</table>

37. I often feel a sense of awe and wonder when I am in unspoilt nature.

<table>
<thead>
<tr>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Somewhat disagree</th>
<th>Somewhat agree</th>
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<td>3</td>
<td>4</td>
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<td>6</td>
</tr>
</tbody>
</table>

38. I prefer artificial environments and advanced technology around me.

<table>
<thead>
<tr>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Somewhat disagree</th>
<th>Somewhat agree</th>
<th>Agree</th>
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<td>3</td>
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<td>5</td>
<td>6</td>
</tr>
</tbody>
</table>

39. I often feel emotionally close to nature.

<table>
<thead>
<tr>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Somewhat disagree</th>
<th>Somewhat agree</th>
<th>Agree</th>
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<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
</tbody>
</table>

40. I feel a personal sense of interconnectedness with the rest of nature.

<table>
<thead>
<tr>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Somewhat disagree</th>
<th>Somewhat agree</th>
<th>Agree</th>
<th>Strongly agree</th>
</tr>
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<td>3</td>
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<td>6</td>
</tr>
</tbody>
</table>

41.

![Please circle the picture below that best describes your relationship with the natural environment. How interconnected are you with nature?)](image)
COMMENTS:

THANK YOU FOR YOUR PARTICIPATION AND CONTRIBUTION TO THIS RESEARCH
APPENDIX C

Scale development: Pearson’s r correlations between the 15 items of the final LCN scale.
### APPENDIX C

Pearson’s $r$ bivariate correlations between the 15 items in the final LCN scale

<table>
<thead>
<tr>
<th>Item</th>
<th>Item number</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 I feel joy just being in nature</td>
<td>2 3 4 5 6 7 8 9 10 11 12 13 14 15</td>
</tr>
<tr>
<td>2 I feel that closeness to nature is important for my wellbeing</td>
<td>71 .74 .68 .68 .69 .66 .52 .58 .68 .66 .56 .80 .70</td>
</tr>
<tr>
<td>3 when I am close to nature, I feel a real sense of oneness with nature</td>
<td>75 .72 .79 .72 .64 .70 .61 .68 .69 .76 .67 .73 .76</td>
</tr>
<tr>
<td>4 I feel content and somehow at home when I am in unspoilt nature</td>
<td>79 .76 .75 .68 .64 .68 .74 .70 .72 .69 .77 .67 .71</td>
</tr>
<tr>
<td>5 I feel a deep love for nature</td>
<td>.74 .71 .66 .65 .64 .70 .74 .71 .70 .68 .67 .70 .73 .78</td>
</tr>
<tr>
<td>6 I often feel emotionally close to nature</td>
<td>.77 .63 .68 .64 .70 .70 .75 .70 .73 .78</td>
</tr>
<tr>
<td>7 when I spend time in unspoilt nature I feel that my day-to-day worries seem to dwindle away in the face of the wonder of nature</td>
<td>74 .66 .70 .70 .67 .61 .68 .60</td>
</tr>
<tr>
<td>8 protecting the wellbeing of nature for its own sake is important to me</td>
<td>.57 .62 .73 .74 .64 .64 .71</td>
</tr>
<tr>
<td>9 I feel spiritually bound to the rest of nature</td>
<td>.89 .67 .59 .69 .63 .51</td>
</tr>
<tr>
<td>10 I feel a personal sense of interconnectedness with the rest of nature</td>
<td>.72 .66 .75 .69 .60</td>
</tr>
<tr>
<td>11 I often feel a sense of awe and wonder when I am in unspoilt nature</td>
<td>.78 .67 .70 .67</td>
</tr>
<tr>
<td>12 I often feel a strong sense of care towards the natural environment</td>
<td>.72 .67 .73</td>
</tr>
<tr>
<td>13 I need to have as much of the natural environment around me as possible</td>
<td>.59 .64</td>
</tr>
<tr>
<td>14 when in natural settings I feel emotionally close to nature</td>
<td>.70</td>
</tr>
<tr>
<td>15 I enjoy learning about nature</td>
<td></td>
</tr>
</tbody>
</table>

340
APPENDIX D

Scale development: Items retained in the LCN scale after the major pilot study and after the field trial.
# APPENDIX D

<table>
<thead>
<tr>
<th>40 items used in pilot testing</th>
<th>Retained after pilot study</th>
<th>Retained after field trial</th>
</tr>
</thead>
<tbody>
<tr>
<td>When I am near what appear to be very old trees in the natural environment, I often experience a feeling of wonder and respect.</td>
<td>YES</td>
<td></td>
</tr>
<tr>
<td>When I am in nature, I often feel a sense of oneness with the mountains, rivers, oceans, and other features of the natural environment.</td>
<td>YES</td>
<td></td>
</tr>
<tr>
<td>When in natural settings I feel emotionally close to nature.</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>I feel joy just being in nature.</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>I feel that I am part of nature.</td>
<td>YES</td>
<td></td>
</tr>
<tr>
<td>I enjoy learning about nature.</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>Being in natural surroundings makes me feel less stressed.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I am always curious about how things in nature work.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I feel that closeness to nature is important for my wellbeing.</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>I find nature and the natural environment fascinating.</td>
<td>YES</td>
<td></td>
</tr>
<tr>
<td>When I am close to nature, I feel a real sense of oneness with nature.</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>I feel content and somehow at home when I am in unspoilt nature.</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>I feel that the natural environment and I are interconnected.</td>
<td>YES</td>
<td></td>
</tr>
<tr>
<td>I feel a deep love for nature.</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>I feel that the awe-inspiring and wondrous grandeur of unspoilt nature is close to a religious/ spiritual experience for me.</td>
<td>YES</td>
<td></td>
</tr>
<tr>
<td>I feel that it is my personal responsibility to look after nature in any way I can.</td>
<td>YES</td>
<td></td>
</tr>
<tr>
<td>I feel that if we wear fur clothing, it should only be fake fur.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I feel upset when I hear of large areas of ancient trees being cut down or burned to clear land for farming or logging.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I feel it is important to buy wood products that are from plantation sources and not from old growth forests.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I feel upset when I think about the ongoing destruction of large areas of the world’s rainforests.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## APPENDIX D

<table>
<thead>
<tr>
<th>40 items used in pilot testing</th>
<th>Retained after pilot study</th>
<th>Retained after field trial</th>
</tr>
</thead>
<tbody>
<tr>
<td>I feel it is important to buy recycled paper products whenever possible.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>People who walk off the designated walking path in a national park are just irresponsible.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I feel sorry for wild animals in captivity.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I often feel a strong sense of care towards the natural environment.</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>When in nature I feel that I must be careful so I do not upset the ecosystem balance in any way.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I feel that I must protect nature from harm in any way I can.</td>
<td>YES</td>
<td></td>
</tr>
<tr>
<td>Animals should always be treated by human beings with compassion and respect.</td>
<td></td>
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<td>I feel it is important to buy environmentally friendly household products whenever possible.</td>
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<td>YES</td>
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<tr>
<td>I don’t really like being in wilderness areas or unspoilt nature.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I feel spiritually bound to the rest of nature.</td>
<td>YES</td>
<td>YES</td>
</tr>
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<td>YES</td>
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<tr>
<td>I often feel a sense of awe and wonder when I am in unspoilt nature.</td>
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<td>YES</td>
</tr>
<tr>
<td>I prefer artificial environments and advanced technology around me.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I often feel emotionally close to nature.</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>I feel a personal sense of interconnectedness with the rest of nature.</td>
<td>YES</td>
<td>YES</td>
</tr>
</tbody>
</table>
APPENDIX E

Tourism Survey Instrument 131

131 Change of name from Roobottom to Perkins.
APPENDIX E

Tourism Survey
QUESTIONNAIRE COVERSHEET

Researchers: Professor Peter Brown
Director,
Centre for Work, Leisure and Community Research

Helen Roobottom (family name now Perkins)
PhD candidate
Department of Marketing
Room 2.13A, Level 2, Business 1 Building G01
Gold Coast Campus PMB50 GMC 9726
Phone: 07-55528913 or 0409 640241
Email: H.Roobottom@griffith.edu.au

Why the research is being conducted
This project forms part of a larger research project being undertaken at Griffith University as part of the requirements for a Doctoral dissertation program. The purpose of this study is to be able to identify psychological variables, such as value systems, as motivators of choices and behaviours which accurately define different tourist markets.

What you will be asked to do
You will be asked to complete the questionnaire rating your opinions on each of the questionnaire items on a likert type scale (instructions are available in the body of the questionnaire) together with some basic demographic information. There will be no personal identifying information recorded on the questionnaire, and your privacy and confidentiality will be protected at all times. Your completed survey questionnaire may be placed in the confidential envelope provided and directly returned to the researchers, or you may prefer to take the survey questionnaire away and return it to Helen Roobottom at Department of Marketing Griffith University Gold Coast PMB50 GMC 9726 in the Reply Paid envelope provided.

How participants will be selected for this research
The researchers will approach potential participants and introduce themselves. If you express interest, they will explain briefly the purpose of the research, provide a copy of this information sheet and invite participation.

Your participation is voluntary
Your participation in this research is completely voluntary. In addition, if you change your mind after initially participating, you are free to withdraw from the study at any time without comment or penalty.
The expected benefits of the research
The study aims to use this information to hopefully explain tourist choices and behaviours and be better able to predict them so that tourism packages of experiences can be tailored to more effectively suit the needs, motivations, and expectations of the tourist.

Risks to you
There will be no risks to participants and you will not be identifiable in any way, including in publications or reports, as a result of this research.

Your confidentiality
The conduct of this research involves the collection, access and/or use of some of your personal information such as age, gender, and education. However, the information collected is strictly confidential and will not be disclosed to third parties without your consent, except for government, legal or other regulatory authority requirements. A de-identified copy of this data may be used for other research purposes. However, your anonymity will at all times be safeguarded. For further information consult the University’s Privacy Plan at www.gu.edu.au/ua/aa/vc/pp or telephone (07) 3875 5585.

Ethical conduct of this research
Griffith University conducts research in accordance with the National Statement on Ethical Conduct in Research Involving Humans. If you have any concerns or complaints in relation to the ethical conduct of this research project you may contact the Manager, Research Ethics on (07) 3875 5585 or research-ethics@griffith.edu.au.

Our appreciation for your assistance
I am very appreciative of your participation. Your contribution is highly valued and any additional comments you may care to give will be gratefully received. By completing the survey questionnaire you are deemed to have agreed to participate in this project.

Questions/ further information and feedback
You may contact me on the above phone number, or address, or email at any time if you have additional questions. You may also request a copy of the summary of the overall results at the completion of the project if you would like this information by contacting me.

Thank you.

Helen Roobottom
APPENDIX F

Tourism Survey Instrument
APPENDIX F

TOURISM SURVEY

We are very interested in how people's values and attitudes affect their choice of tourism activities, and what benefit they perceive they get from these activities. This research will be used as information to help tourism organizations develop tourism packages that better suit the needs of visitors to eco-tourism or other nature based attractions.

Many tourism venues and providers market the natural environment or aspects of the natural environment in attracting visitors. Therefore this survey will cover the following key areas:

A. YOUR TOURISM PREFERENCES AND OPINIONS.
B. YOUR ATTITUDES AND FEELINGS ABOUT THE ENVIRONMENT.
C. SOME THINGS ABOUT YOU AS A PERSON.

A. YOUR TOURISM PREFERENCES AND OPINIONS

We are interested in the specific activities people prefer when choosing a holiday, trip or tourist venue.

Please indicate how important each of the following activities is to you when you go on holiday or visit an attraction or tourist destination.

Please use the Scale 1 to 7 for your answers. Please circle 1 if the activity is not at all important and circle 7 if the activity is very important.

Example:

<table>
<thead>
<tr>
<th>A. Theme parks (if extremely important to you)</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water sports (if somewhat unimportant to you)</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
</tbody>
</table>

1. Please indicate the importance of each of the following activities to you when you choose a holiday, trip or attraction by circling a number.

| a) Sun and surf | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| b) Wilderness and undisturbed nature | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| c) Shopping | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| d) Tropical forests and indigenous bush | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| e) National parks | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| f) Lakes and streams | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| g) Gambling | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| h) World heritage status areas | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| i) Exciting nightlife | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| j) Learning about nature | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| k) Power boating or 4-wheel driving | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| l) Taking photographs of landscape and wildlife | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| m) Wine/food tasting | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| n) Historical sites/museums | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| o) Learning about other cultures | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
2. Understanding what is important to tourists when visiting attractions helps providers tailor packages to suit different needs. Please indicate your opinion on the following travel and tourism related issues.

<table>
<thead>
<tr>
<th></th>
<th>Strongly disagree 1</th>
<th>Disagree 2</th>
<th>Mildly Disagree 3</th>
<th>Unsure 4</th>
<th>Mildly Agree 5</th>
<th>Agree 6</th>
<th>Strongly agree 7</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>As a tourist I believe that I am entitled to travel anywhere and anyhow I choose as I have paid for the personal experience.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>b</td>
<td>I support the closure to the public of some national parks and wilderness areas to protect the environment from harm due to human activity.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>c</td>
<td>As a tourist I feel I am entitled to use as much water/power/resources during my visit as I think fit for my own enjoyment.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>d</td>
<td>I believe I should definitely consider my impact on the earth and other cultures when I make my travel choices</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>e</td>
<td>I prefer leisure activities and tourism experiences where I can just have fun, relax, and spend money on doing what I like how I like</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>f</td>
<td>I would be happy to contribute an extra 5% of the cost of a tourism package towards conservation of wildlife and the natural environment, (i.e. $5 in every $100).</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>g</td>
<td>I would be happy to contribute an extra 10% of the cost of a tourism package towards conservation of wildlife and the natural environment, (i.e. $10 in every $100).</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>h</td>
<td>People seem to love interacting with dolphins and whales, but I support strict regulations and controls about not moving too close to the animals or stressing them in any way by tourist activity.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
</tbody>
</table>

Many organisations and tourism providers are adopting best practice sustainable tourism policies and systems. Such systems include what has been called “green” accreditation for travel and tourism, and an example has been summarized below.

‘Green’ accreditation ...... signifies better environmental performance, improved community interactions, and savings through using fewer resources...’ and... ‘includes key performance areas such as reduction of greenhouse gas emissions; energy efficiency, conservation and management; management of freshwater resources; ecosystem conservation and management; management of social and cultural issues; land use planning and management; air quality protection and noise control; waste water management; and waste minimization, reuse and recycling’. (2001, GREEN GLOBE Limited, p.4)
3. It would be helpful if you would indicate how important such a system is to you, if at all, in choosing a tourism product or attraction.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Mildly Disagree</th>
<th>Unsure</th>
<th>Mildly Agree</th>
<th>Agree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. As a tourist it is very important to me that tourism products, services and venues are part of a similar “green” accreditation system to the one described above.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>b. I would choose a tourism product or service which adopts a “green” accreditation system over one which does not if the choice is available.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
</tbody>
</table>

4. It is also useful to understand what values in life are most important to you and how these values may be related to preferences with regard to tourism destinations and attractions. It is for this reason that we would be grateful if you could indicate, by circling the relevant number, how important each of the following values is AS A GUIDING PRINCIPLE in your life, on a scale from 1 (not at all important) to 7 (extremely important). If you are opposed to a particular value, you can mark the 0 column to the right of the scale.

<table>
<thead>
<tr>
<th>Value</th>
<th>Not at all important</th>
<th>Extremely important</th>
<th>I am opposed to this value</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Family security, safety for loved ones</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>b. A world at peace, free of war and conflict</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>c. Honouring parents and elders, showing respect</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>d. Authority, the right to lead or command</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>e. Self discipline, self restraint, resistance to temptation</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>f. Social justice, correcting injustice, care for the weak</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>g. Protecting the environment, preserving nature</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>h. Wealth, material possessions, money</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>i. Influential, having an impact on people and events</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>j. A varied life, filled with challenge, novelty, and change</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>k. Respecting the earth, harmony with other species</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>l. Equality, equal opportunity for all</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>m. An exciting life, stimulating experiences</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>
5. If all of the following 6 tourism packages were similar prices and you had your choice, what would be your preference in order from 1 to 6? Please rank the following packages from 1 being your first preference or most preferred, 2 being your second preference, and so on… to 6 being your last preference or least preferred package.

- Traditional sun and surf package (e.g. beach holiday)
- Traditional ecotourism or nature based package
- Wildlife watching or wildlife photography package
- Luxury resort package
- Volunteer eco-tourism package, (i.e. paying for a holiday where you work to help with scientific environmental and wildlife conservation)
- Nightlife, gaming and shopping package

6. Why have you chosen your first preference tourism package?

-------------------------------------------------------------------------------------------------------------------
-------------------------------------------------------------------------------------------------------------------

7. What do you feel are the main benefits you get out of this type of experience?

-------------------------------------------------------------------------------------------------------------------
-------------------------------------------------------------------------------------------------------------------

B. YOUR ATTITUDES AND FEELINGS ABOUT THE NATURAL ENVIRONMENT

8. It is important to understand people’s attitudes towards the environment and the relationship of this to their choices and preferences, so that tourist packages of experiences can be better tailored to suit the needs of the tourist.

<table>
<thead>
<tr>
<th></th>
<th>Strongly disagree 1</th>
<th>Disagree 2</th>
<th>Mildly disagree 3</th>
<th>Unsure 4</th>
<th>Mildly agree 5</th>
<th>Agree 6</th>
<th>Strongly agree 7</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>Human skill and ingenuity will ensure that we do NOT make the earth unliveable</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>b</td>
<td>Humans are severely abusing the environment</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>c</td>
<td>Humans have the right to modify the natural environment to suit their needs</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>d</td>
<td>Humans were meant to rule over the rest of nature</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>e</td>
<td>Humans will eventually learn enough about how nature works to be able to control it.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>f</td>
<td>If things continue on their present course, we will soon experience a major ecological catastrophe</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>g</td>
<td>The balance of nature is very delicate and easily upset</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>h</td>
<td>The so-called “ecological crisis” facing humankind has been greatly exaggerated</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
</tbody>
</table>
We are approaching the limit to the number of people the earth can support.

When humans interfere with nature, it often produces disastrous consequences.

The earth has plenty of natural resources if we just learn how to develop them.

Plants and animals have as much right as humans to exist.

The balance of nature is strong enough to cope with the impacts of modern industrial nations.

Despite our special abilities humans are still subject to the laws of nature.

The earth is like a spaceship with very limited room and resources.

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9. Please circle the picture below that best describes your relationship with the natural environment. How interconnected are you with nature?

![Diagram of relationships between 'Self' and 'Nature']
Many tourism destinations such as the Gold Coast and surrounding region focus attractions and activities around the natural environment. The following series of statements asks you to examine your feelings towards the natural environment; it would be very helpful if you would look carefully at each of these questions and indicate your feelings on the scale from 1 – 7. There are no right or wrong answers.

<table>
<thead>
<tr>
<th></th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Mildly Disagree</th>
<th>Unsure</th>
<th>Mildly Agree</th>
<th>Agree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>When I am near what appear to be very old trees in the environment, I often experience a feeling of wonder and respect</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>b</td>
<td>When I am in nature, I often feel a sense of oneness with the mountains, rivers, oceans, and other features of the natural environment</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>c</td>
<td>When in natural settings, I feel emotionally close to nature</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>d</td>
<td>I feel joy just being in nature</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>e</td>
<td>I feel that I am part of nature</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>f</td>
<td>I enjoy learning about nature</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>g</td>
<td>I feel that closeness to nature is important for my wellbeing</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>h</td>
<td>I find nature and the natural environment fascinating</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>i</td>
<td>When I am close to nature, I feel a real sense of oneness with nature</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>j</td>
<td>I feel content and somehow at home when I am in unspoilt nature</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>k</td>
<td>I feel that the natural environment and I are interconnected</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>l</td>
<td>I feel a deep love for nature</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>m</td>
<td>I feel that the awe-inspiring and wondrous grandeur of unspoilt nature is close to a religious/spiritual experience for me</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>n</td>
<td>I feel it is my personal responsibility to look after nature in any way I can</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>o</td>
<td>I often feel emotionally close to nature</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>p</td>
<td>When I spend time in unspoilt nature I feel that my day-to-day worries seem to dwindle away in the face of the wonder of nature</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>q</td>
<td>Protecting the wellbeing of nature for its own sake is important to me</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Strongly Disagree</td>
<td>Disagree</td>
<td>Mildly disagree</td>
<td>Unsure</td>
<td>Mildly Agree</td>
<td>Agree</td>
</tr>
<tr>
<td>---</td>
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</tr>
<tr>
<td>r</td>
<td>I feel spiritually bound to the rest of nature</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>s</td>
<td>I feel a personal sense of interconnectedness with the rest of nature</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>t</td>
<td>I often feel a sense of awe and wonder when I am in unspoilt nature</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>u</td>
<td>I often feel a strong sense of care towards the natural environment</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>v</td>
<td>I feel I must protect nature from harm any way I can</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>w</td>
<td>I need to have as much of the natural environment around me as possible</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>x</td>
<td>I would be willing to pay much higher prices for many goods and services in order to protect the environment</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>y</td>
<td>I would be willing to accept cuts in my standard of living in order to protect the environment</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>z</td>
<td>Even though logging families’ traditional livelihood is at stake, I strongly support the protection of remaining old growth forests from clear felling and logging, and setting these forests aside for national parks or world heritage sites</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
</tbody>
</table>

11. Please answer each of these questions in terms of the way you generally feel. There are no right or wrong answers.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Mildly disagree</th>
<th>Unsure</th>
<th>Mildly Agree</th>
<th>Agree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>I often feel a sense of oneness with the natural world around me</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>b</td>
<td>I think of the natural world as a community to which I belong</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>c</td>
<td>I recognize and appreciate the intelligence of other living organisms</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>d</td>
<td>I often feel disconnected from nature</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>e</td>
<td>When I think of my life, I imagine myself to be part of a larger cyclical process of living</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>f</td>
<td>I often feel kinship with animals and plants</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
</tbody>
</table>
I feel as though I belong to the earth as equally as it belongs to me. 

I have a deep understanding of how my actions affect the natural world.

I often feel part of the web of life.

I feel that all inhabitants of earth, human and nonhuman, share a common ‘life force’

Like a tree can be part of a forest, I feel embedded within the broader natural world.

When I think of my place on earth, I consider myself to be a top member of a hierarchy that exists in nature.

I often feel like I am only a small part of the natural world around me, and that I am no more important than the grass on the ground or the birds in the trees.

My personal welfare is independent of the welfare of the natural world.

12. PLEASE INDICATE HOW OFTEN you would do the following things?
Please use a 4 or 5.

<table>
<thead>
<tr>
<th></th>
<th>Always</th>
<th>Mostly</th>
<th>Occasionally</th>
<th>Never</th>
<th>No opportunity available</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>How often do you practice recycling</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b</td>
<td>How often do you use public transport to minimize your car use?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c</td>
<td>How often do you conserve energy (fuel, electricity, etc.)?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d</td>
<td>How often do you conserve water</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>e</td>
<td>How often do you use energy or water efficient household devices (e.g. low flow toilet flush/shower heads, solar hot water, low energy lighting, etc.)?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>f</td>
<td>How often do you make special effort to buy products that are environmentally friendly?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>g</td>
<td>How often do you make a special effort to buy paper and plastic products that are made from recycled materials?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>h</td>
<td>How often have you boycotted or avoided buying the products of a company because you felt the company was harming the environment?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>i</td>
<td>How often do you vote for a candidate in an election at least in part because he or she is in favour of strong environmental protection/conservation?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Always | Mostly | Occasionally | Never | No opportunity available
--- | --- | --- | --- | ---
j. How often do you sign petitions in support of promoting protection of the environment when they are presented to you? 

k. How often do you read newsletters, magazines, or other publications written by an environmental group?

13. Please indicate if you currently belong to, or donate to, an environmental organisation whose main function is to conserve or protect wildlife and/or the environment (e.g. Planet Ark, WWF, Australian Conservation Fund, or similar)?

□ YES  □ NO

C. SOME THINGS ABOUT YOU AS A PERSON

1. Gender
   □ Male
   □ Female

2. What is your residential postcode? ________________

3. In what year were you born? ___________

4. In which country were you born? ____________________

5. Which of the following statements best describes where you mostly grew up?
   □ A capital city
   □ A provincial city
   □ A country town
   □ A rural area

6. What is your employment status?
   □ Working full time
   □ Working part time
   □ Unemployed and looking for work
   □ Retired or on a pension
   □ Mainly doing home duties
   □ Studying
   □ Other – please specify ________________________________________________

7. What is your highest level of education?
   □ Completed primary school
   □ Completed Year 10
   □ Completed high school (Year 12/HSC/VCE)
   □ Completed trade qualification, TAFE Diploma
   □ Completed on the job training (e.g. nurse)
   □ Undergraduate degree or equivalent
   □ Postgraduate degree
   □ Other please specify ________________________________________________

8. I believe that this visit has increased my understanding and love for wildlife and the environment.

   □ Strongly disagree  □ Disagree  □ Unsure  □ Agree  □ Strongly agree

9. My visit here has not changed my thinking or feeling in any way towards wildlife and the environment.

   □ Strongly disagree  □ Disagree  □ Unsure  □ Agree  □ Strongly agree
10. As a result of my visit here I feel ….. towards wildlife and the natural environment.
   □ Less caring □ About the same □ More caring

11. When purchasing a holiday/trip/tourist visit (e.g. theme park, zoo, natural site, etc.) in order to help with wildlife and environmental protection I would be willing to pay an extra:
   □ Nil □ $1 – 5 □ $6 – 10 □ $11 – 20 □ $21 – 30 □ more than $30

12. What do you feel are two (or more if you wish) of the most important benefits, if any, to you from your visit here?
   a. ..............................................................................................................
   b. ..............................................................................................................

13. What are your two (or more) favourite aspects of your visit here?
   a. ..............................................................................................................
   b. ..............................................................................................................

THANK YOU VERY MUCH FOR YOUR VALUABLE CONTRIBUTION TO THIS RESEARCH