Emotional bonds with nature as determinant of environmental awareness
The missing link for saving our environment?

Master Thesis submitted in partial fulfilment of the requirements
for the degree of a Master of Science by:

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ABSTRACT

Views of nature are part of human worldviews, and take part in defining the way people perceive themselves in relation to the natural environment, i.e., views of nature influence their environmental ethics. It is hypothesised in this paper that a deep emotional bond with nature positively influences a person’s environmental awareness. The thesis investigates if this hypothesis can be maintained, in the context of Germany. An online-questionnaire was distributed and four semi-structured in-depth interviews were conducted. The analytical framework specifies environmental awareness as consisting of the three sub-concepts environmental knowledge, environmental attitude, and environmental behaviour. As theoretical background, an overview of different views of nature is presented, and a short review of historical influences shaping European worldviews and therewith environmental ethics is given. As an alternative environmental ethic suggesting a relationship to nature on a cognitive basis, the fields of deep ecology and ecopsychology are brought forward. The study makes use of nominal data from 96 replies to an online-questionnaire covering views of nature, attitudes on environmental protection, and emotional relationship to nature. The results show clear correlations between emotional bonds to nature and increased environmental sensitivity, which supports the hypothesis. In order to further intensify the discussion, four in-depth interviews were conducted in order to intensify the understanding of what environmental bonds to nature are in the first place, and in which ways they possibly influence environmental awareness. Correlation between emotional bonds to nature and particularly environmental attitudes can be shown from the questionnaire results. It is discussed to what extent environmental attitude translates into environmental behaviour. It is argued that a deep emotional bond to nature, in combination with ecological knowledge, can create an ecological consciousness. An ecological consciousness fosters environmental behaviour. It is concluded that an emotional bond to nature per se does not make an environmentalist, but can constitute a strong contribution.
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1. INTRODUCTION

Everybody likes nature. Such a statement overemphasises the general perception that nature has a good “image.” This positive perception might also explain why many products are being advertised with attributes or images of nature. On the individual level of experience, it may be a walk in the forest, hiking in the mountainside, enjoying the seaside – almost everyone enjoys being outdoors, breathing fresh air, feeling the tranquillity of nature. Most people would agree to loving at least one of these activities. From the observation that people like being outdoors and obviously enjoy being in nature, I deduce that humans can develop emotional bonds to nature. Enjoying being outdoors myself and at the same time being interested in environmental issues, I have been asking myself the question, if there is a connection between an emotional bond with nature and a particular concern for the environment. In other words, I was eager to find out whether an emotional bond to nature has a positive effect on environmental awareness.

Environmental awareness is an important issue in environmental protection. It is assumed that people who are more environmentally aware, are more likely to tolerate and participate in measures that lessen the burden on the environment. Furthermore, most activities undertaken to protect the environment affect the lives of people at some point. In order to guarantee the population’s toleration – and desirably participation – of primarily political action, the awareness is aimed to be high. In Germany, as in many other countries, this lies in the interest of the state striving for support of its environmental policies. It is in the interest of environmental groups as well, which wish for the population’s active participation. For the named actors, it is important to gain knowledge concerning the factors that raise environmental awareness. Efforts to raise awareness usually focus on education as the classical method, e.g. in educational institutions (kindergartens, schools, universities). But media coverage (newspapers, radio, television, and internet), topics on the political agenda, and campaigns focussing on emotional involvement of the population also help to direct public attention to environmental issues and rise the awareness.

The question raised above is based on the following idea: people, who have emotional bonds with persons or things, do respect these in their actions and decisions. In other words, a loving father takes his child into consideration, which might affect the child – whether in a positive or a negative way – and adjust his decision to the greatest benefit of his child. A person, whose life and passion are cars, will most likely consider the value of the car, when deciding whether or not to take dirty and bumpy roads, which might harm the vehicle.

In the same line of thinking, the question is whether a person with a profound emotional bond to nature considers nature’s well-being in a similar manner? In order to close the circle to the environment, I translate nature’s well-being into environmental protection.
1.1. Statement of purpose

It is the purpose of this thesis to investigate whether or not positive nature experiences lead to an attitude and a behaviour, which is more environmentally sound. Furthermore, this thesis attempts to answer the question, if scientific knowledge can be supplemented by instinctive knowledge or belief. Moreover, the role of nature experiences is going to be discussed as a potential key experience for the personal role within the environment and in environmental protection.

**Research question:** Does a deep emotional bond with nature have a positive influence on environmental awareness?

In order to facilitate the handling of the research question, it is supplemented by a corresponding hypothesis.

**Hypothesis:** A deep emotional bond with nature has a positive influence on environmental awareness.

1.2. Analytical framework

The hypothesis is based on the conviction that a person, who feels emotionally affiliated to someone or something will consider the good for this someone or something in her/his decisions. In the case at hand, this something is nature. Obviously, nature is a very abstract and especially large entity. However, in the relatively recent fields of deep ecology and ecopsychology, a new perspective of the human soul has been developed. By using thinking from ecology, which is the science of the interconnectedness between entities of ecosystems, these two subjects claim that just as the human body is made of and connected with the earth, the human soul is interactive with the earth (see section 3.3.). In this context, I replace “earth” by “nature” to make the term manageable.

The aim is to find out whether or not people with a profound emotional bond with nature show more concern for the environment in comparison to people with a less profound emotional bond with nature. I make the logical deduction that people, who feel particularly affiliated with nature, take nature’s well-being more into account. Taking nature’s well-being into account can be measured, I presume, in terms of increased environmental awareness.

Before going any further, I firstly present what I understand by environmental awareness. Previous research defined environmental awareness as being subdivided into three parts: environmental knowledge, environmental attitude, and environmental behaviour (first presented by Maloney 1975, cited in de Haan and Kuckartz 1996). Figure 2 provides a visualisation.

![Figure 2: Visualisation of the three parts of environmental awareness](image)

The presented differentiation of environmental awareness generally embraces the following categories (adopted from de Haan and Kuckartz 1996):

- **Environmental knowledge** is referred to as the level of information and understanding a person has concerning nature, about trends and developments in environmentally relevant issues, about methods, conceptions and traditions with respect to environmental questions.
Environmental attitude includes fears, indignation, anger, normative orientations and willingness to act. These aspects all influence the person to regard the present environmental situation as unbearable and to be emotionally and mentally opposed to the perceived problems.

Environmental behaviour means the actual behaviour concerning the environment in everyday life.

Regarding these three fields, the thesis is mainly concerned with finding out more about environmental attitude and environmental behaviour. Environmental knowledge is in fact considered to be an important determinant of environmental attitude and behaviour in the first place. However, it does not lie in the scope of the thesis to investigate further into the influence of environmental knowledge on environmental attitude and behaviour. In this sense, the thesis is based on previous research in the field, summarised by de Haan and Kuckartz (1996). Figure 3 below shows the basic concept of causal relations between the three parts of environmental awareness.

![Figure 3: Causal relations between the three dimensions of environmental awareness. Adapted from de Haan and Kuckartz (1996).](image)

This model contains three different causal relations, the directions of which are symbolised by arrows. They are the following:

1. Environmental knowledge produces positive environmental attitude.
2. Environmental attitude influence environmental behaviour.
3. Environmental knowledge directly influences environmental behaviour.

The aspect of an emotional bond with nature has not been explicitly taken into account in the concept of environmental awareness. The definition of environmental attitude above does embrace emotional reactions to environmental issues. What I refer to by ‘profound emotional bond with nature’, however, is more. A person, who is considered to have a profound emotional bond with nature, should perceive:

- nature as a source of relaxation and inspiration,
- nature as the all-embracing system of life,
- herself or himself as an integrated part of nature,
- the human soul as being connected to nature, or earth.

These criteria imply that a profound emotional bond with nature is more than just expecting nature to provide calmness and quietness, but it extends to a cognitive dimension. It embraces the way a person perceives herself or himself in relation to nature. She or he believes that there is inherent value in natural entities apart from humans. Acknowledging these criteria, an emotional involvement, as described in the concept of environmental attitude above, is considered to be different. The aim of this thesis thus is to broaden the understanding of the significance of a profound emotional bond with nature into rising environmental awareness.

The frequent use of the concept of ‘nature’ requires a certain elaboration concerning the variation of different meanings the word can imply. A short such elaboration is given in the chapter ‘What is nature?’ (ch. 2.1., next page).

Please note that in the course of the thesis, the expressions for ‘profound emotional bond with nature’ differ. For reasons of variation, it is called ‘affiliation to nature’ or ‘deep emotional relationship with nature’, or similar expressions. From the respondents of the questionnaire, a group is identified, which is aimed to represent people with the above-named characteristics. They are referred to as “nature-lovers”.

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2. THEORETICAL BASIS: FROM VIEWS OF NATURE TO CODES OF BEHAVIOUR

In order to investigate the question whether an emotional relationship to nature has a relevant influence on environmental awareness, it is important to elaborate on – as opposed to an attempt to define – the meaning of the term ‘nature’, which can indeed have manifold meanings and different implications. A brief overview is given in chapter 2.1. What is nature?

The following section (chapter 2.2.) provides an overview of different views of nature. It is described, how environmental ethics link to views of nature by moral implications, which they carry (Kellert 1993). Different views of nature are thus investigated more thoroughly in this chapter as to clarify, and links to environmental ethics are described.

Chapter 2.3. shows how views of nature are determined and are constantly influenced by different factors. Views of nature find their expression in literature, art and entertainment, science, and personal history. In this sense, our views of nature are strongly shaped by history, as all these cultural factors are build upon some foundation laid earlier in history (Hargrove 1989). Two of the important factors that have had an enduring influence on Western thought – as e.g. Hargrove (1989), Ponting (1991) and Callicott (1994) suggest – are presented here: Greek philosophy and Christian tradition.

Furthermore, the meaning of a deep nature experience and the connection to environmental ethical worldviews are elaborated more thoroughly in this chapter. In this context, deep ecology and ecopsychology are presented as alternative philosophical and psychological currents, aiming at a renewed human-nature relationship.

2.1. What is nature?

A definition – as it lies in the nature of the word – usually aims to be a final, conclusive and objective statement of the meaning of a word, phrase, etc., “the state or condition of being clearly defined or definite”, as Collins English Dictionary (2000) constitutes. Therefore, the aim to give an objective definition of such a dynamic and subjectively perceived concept as nature, seems like a difficult task.

Consulting the classic Encyclopaedia Britannica does not offer support in the search for a tentative definition of nature – there is no reference to nature. Collier’s Encyclopaedia (1996) for example deals with the term ‘nature’ as something “we handle […] confidently despite its complexity of senses” (p. 212) without really defining it, but several expressions and contexts are shown, which give an idea of what nature actually embraces. It seems easier to give a meaning to the term nature by contrasting it with terms such as “artificial, man-made or supernatural” (Collier’s Encyclopaedia 1996, p. 212). But although nature seems to be more a dynamic and therefore changing concept consisting of changing values (Clarke 1993), some objective definitions can be found in dictionaries that were consulted. Etymologically the word nature has its roots in Latin (natura, from natus, past participle of nasci to be born) and came via Old French during the 13th century into the English vocabulary.

The three most significant explanations that reoccur in all consulted dictionaries are that nature is, “1: the whole system of the existence, arrangement, forces, and events of all physical life that are not controlled by man, 2: all natural phenomena and plant and animal life, as distinct from man and his creations, 3: the fundamental qualities of a person or thing; identity or essential character” (Collin’s English Dictionary
Collin’s English Dictionary is quoted here, but similar arguments can be found in several German dictionaries¹.

Another attempt to define nature is by opposing it to ‘culture,’ which is “the change of nature by the use of tools and, being based on it, the entirety of the ways of life of a human group (people, class, conditions)” (Wahrig Universalwörterbuch 2002). Or, as Collin’s English Dictionary (2000) defines it, culture is “the total of the inherited ideas, beliefs, values, and knowledge, which constitute the shared bases of social action”. By comparing nature and culture, the perception of nature being something outside of human alteration evolves. This concept is, however, challenged by Hughes (2001), who states that “[t]he distinction, first made by the ancient Greeks, between ‘nature’ […] and ‘culture’ […] is not an absolute one; in an important sense, culture is part of nature because culture is the product of a species of animal, the human species” (p. 5).

Dealing with the emotional bond to nature, human attitude towards nature and environmental behaviour, these cultural aspects are of vital importance. In this thesis, the term nature is rather used as a concept of nature. As Clarke (1993) does, nature is treated as a concept of different images of nature. He states that it “is not so much nature itself as so many different pictures or models which, like other human products, have a history. In a sense we do not experience reality direct, but rather in a form which is filtered through the lenses of our conceptual and symbolic creations – through our mythologies, sciences, philosophies, theologies, through language itself” (p. 4). This understanding suggests that the images of nature people have are determined to a large extent by the cultural context in which they live, and therewith are assumed to vary in different countries.

In the case of Germany the cultural context is – from a very generalized point of view – part of the so-called Western historical and philosophical background. Many authors dealing with environmental ethics and its historical roots in a larger context refer to the “Western” world as having common ethical standards concerning nature and the environment². This generalisation, of course, neglects existing particularities of the German context. One particularity noteworthy is the “very romanticising” perception of nature “is characteristic for Germans,” and “more common than in other European countries” (Federal Environment Agency 2002, p. 52). This romanticisation of nature can be traced back to the Romantic movement in 18th century, which had its centres in England and Germany, and which perceived the philosophy of the initiating scientific and industrial revolution as “too limited concerning the richness of the natural world” and “the deep imaginative powers” of humans (Clarke 1993, p. 113). A recent article in the distinguished German newspaper “Die Zeit” (43/2003) on how Germans experience nature, also recognises the romanticised perception of nature. The article quotes the nature sociologist Brämer, who recognises the appreciation of alienated nature in a new kind of nature religion, which embraces forests and natural reserves as sanctuaries (Grefe 2003). Furthermore, while nature has in the past rather been perceived as the highest power, nature is nowadays perceived as victim; the power in nature’s place is now reserved for humans (Grefe 2003). The article rightly argues that the experience of the majority of people does not go beyond the cultivated cultural landscape of agricultural scenery consisting of fields, forests and parks; its characteristics have accordingly influenced the people’s perception of nature (Grefe 2003).

I am aware that this discussion is limited in its scope and is intended to provide a superficial overview. To address the complexity of the concept of nature in its entirety is beyond the limits and purpose of this thesis.

¹ compare: Wahrig Universalwörterbuch; Wahrig Fremdwörterlexikon; www.wissen.de GmbH, Gesellschaft für Online-Information
2.2. Different views of nature

Societies have got certain predominant views of nature. That is the way, in which the population perceives nature and, more decisive, the relationship between nature and man. Obviously, each individual in a society can have her or his personal view of nature; obvious as well, this does not mean that each person has got her or his own well-reflected mental concept of the man-nature relationship. However, it can be seen that societies at large own moral codes in connection with nonhuman relationship (Miller 2002). These codes define which position man sees for himself in the overall structure of the earth. Additionally, they define what treatment of nature is morally legitimate. In other words, they give people an answer to the question of where they are situated in nature; are humans an integral part of nature, or are we the lawful dominators over the rest of the planet? Moreover, they determine what humans allow themselves to do in the interaction with nature.

Miller (2002) speaks of ‘environmental worldviews’ in this context and summarises different currents. Figure 4 gives an overview of general types of environmental worldviews. Most views of nature (or environmental worldviews) can be divided into atomistic (individual-centred) and holistic (earth-centred). Atomistic views have a tendency to be anthropocentric or biocentric. Biocentric views in this stream are focussed on specific species or individuals (Miller 2002).

Differing views of nature have a strong implication as well on what people think is right or wrong environmental behaviour – they assign values (Kellert 1993). Values, as opposed to attitudes, “include confession to a more deeply rooted conceptions about a set of phenomena” (Lindén 1997, p. 16). Lindén (1997) states furthermore that basic values go back to early socialisation and serve as standards for evaluation of situations during lifetime. Considering this, it becomes apparent that there is a strong ethical connotation about views of nature. The ethics in focus are referred to as environmental ethics. “Ethics tell us what we should do, how we should act” (Low 1999, p. 1). Specifically, as a social ethic imposes limitations on personal freedom in relation to society, “an environmental ethic would impose limitations on human freedom of action in relationship to non-human natural entities and to nature as a whole” (Callicott 1994, p.1). One can coarsely distinguish between human-centred and not human-centred environmental ethics, as Elliot (1995) does. According to his view, human-centred concern about environmental degradation has a welfarist orientation. The interests and well-being of humans are at the core of environmental activism in this school. It includes the aspects of intra and intergenerational equity, health concerns in relation to pollution and other present or potential future threats to humans. I think it is rightly to claim that most environmental action today is based on human-centred ethics. The human-centred approach “may well underwrite the support for environmentalism and the adoption of green policies” ( Elliot 1995, p. 8). Human-centred environmental ethics are, however, questioned by some opponents to have moral flaws. The currents in environmental ethics, which ask for a revision of moral principles in the field, undertake foundational discussions in traditional ethical principles, and invite new reflections on old aspects like the role of non-humans in ethical theories and appropriate political
arrangements (Elliot 1995). One of these relatively new currents is deep ecology. The principles of which are presented later in this chapter.

Attempts have been made to classify different views of nature. Kellert (1993) gives an useful overview over common “values of nature”, as he calls them (see table 1 below). It is important to note, however, that one person can denote a value to nature, which consists of a combination of different variations.

Table 1: A Typology of Views of Nature

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>Utilitarian</td>
<td>Practical and material exploitation of nature</td>
<td>Physical sustenance/security</td>
</tr>
<tr>
<td>Naturalistic</td>
<td>Satisfaction from direct experience/contact with nature</td>
<td>Curiosity, outdoor skills, mental/physical development</td>
</tr>
<tr>
<td>Ecologicistic-Scientific</td>
<td>Systematic study of structure, function, and relationship in nature</td>
<td>Knowledge, understanding, observational skills</td>
</tr>
<tr>
<td>Aesthetic</td>
<td>Physical appeal and beauty of nature</td>
<td>Inspiration, harmony, peace, security</td>
</tr>
<tr>
<td>Symbolic</td>
<td>Use of nature for metaphorical expression, language, expressive thought</td>
<td>Communication, mental development</td>
</tr>
<tr>
<td>Humanistic</td>
<td>Strong affection, emotional attachment, “love” for nature</td>
<td>Group bonding, sharing, cooperation, companionship</td>
</tr>
<tr>
<td>Moralistic</td>
<td>Strong affinity, spiritual reverence, ethical concern for nature</td>
<td>Order and meaning of life, kinship and affiliational ties</td>
</tr>
<tr>
<td>Doministic</td>
<td>Mastery, physical control, dominance of nature</td>
<td>Mechanical skills, physical prowess, ability to subdue</td>
</tr>
<tr>
<td>Negativistic</td>
<td>Fear, aversion, alienation from nature</td>
<td>Security, protection, safety</td>
</tr>
</tbody>
</table>

Source: Kellert and Wilson 1993, p. 59

2.3. Change of views of nature and of environmental ethics

In the following, it is described in what ways and due to what influences views of nature can be subject to change. This change occurs over periods of time, i.e. they are not static but dynamic. It also means that it is a process, which has not come to an end or even reached a climax. It is constantly going on, very slowly however, and barely noticeable in one’s personal life. The prevailing environmental ethics of a society have an important influence on the perception of what behaviour towards the environment is right and what behaviour is wrong.

Along with the change in predominant views of nature, the predominant ethics towards the environment change, and vice-versa (Callicott 1994). I deduce that either one of the two concepts can in practice lead to a change and harmonisation of the other. One case is that a strong philosophical current can – from effects initiating in the fields of science – influence the way society as a whole perceives the environment (Boudon 1986; Capra 1996) and understands the human role within nature. The other way around, if a formerly appropriate ethic does not represent the reality of people’s lives, an ethic will be developed, which reflects the ideas that emerged in practice in an improved way (Boudon 1986; Callicott 1994). Figure 5 shows the principle in an abstracted form.

![Figure 5: Views of nature in society and of individuals mutually influence each other](image-url)
In the context of discussing hegemonic worldviews, Germany does not need to be separated from the rest of Europe, or more precisely from Western Europe. Several authors like Ponting (1991), Clarke (1993) and Callicott (1994) refer to the unspecified concept ‘Western world’, when presenting the main determinants of environmental ethics in this part of the world. I understand this ‘Western world’ to be made up of North America, Australia, and Western, Central, and Northern Europe. Since Germany is situated in Central Europe, it is presumed that it belongs to the intangible group of cultures referred to as ‘the West’. It is therewith not assumed that German people have the same views of nature and environmental ethics as US Americans or French people. It is instead taken for granted that each nation has specific influences and particularities with respect to their relation with nature. However, this relation can be diverse between individuals surely also within a given national context. The relation is hence considered to be too complex in order to be captured here. A mere attempt is made to shed some basic light of understanding on the issue of the change of views of nature.

Two important origins of European thought about the relationship between humans and nature can be discovered in ancient Greek philosophy and Judeo-Christian tradition (Ponting 1991). These two influences on Western worldview are presented in some detail in the next two sections (2.3.1 and 2.3.2). Even though I have decided to present these two, there are many other important influences on worldviews, especially from the field of philosophy. There are to be named philosophers like Descartes and Bacon, who promoted the perception of nature as machine and therewith laid the foundation for controlling nature (Hargrove 1989; Clarke 1993). However, Greek philosophy and Christian tradition are presumed to have had a persistent effect on developments in science and philosophy, and on the way people cope with everyday life (de Swaan 2001).

Dating back even longer in history are religious traditions of the Mesolithic and Neolithic, when hunters and gatherers lived in speculatively matriarchal communities, serving an earthly Goddess (Callicott 1994). The influence of an earth-related complex of beliefs is indisputably present again nowadays (Taylor 2001). However, it is not stated here for the reason of being deeply rooted in the European view of nature, but because it has on the contrary been rediscovered in many variations in the last decades as a countermovement to the dominant ethics of the last two centuries (Merchant 1992). This ruling paradigm – as widely accepted belief systems can also be referred to (Boudon 1986) – are seen as the source for environmentally destructive behaviour by many authors (e.g. Merchant 1992; Evernden 1993; Pepper 1996; Capra 1996). For this reason, the ideas of two currents from this field, namely deep ecology and ecopsychology, are presented in chapter 2.4.

### 2.3.1. Greek philosophy

Much of the Western worldview is based on the works of Greek philosophy. Callicott (1994) states that it “has exerted an enduring influence on Western concepts of nature” (p. 29). If we take a brief look at Greek mythology, we learn that the idea, of how the world came into being, was a process of procreation. That means that it was not created all “at once” by some divine power (as e.g. described in the Bible), but that it originates from an essentially organic process. The earth is sacred. Moreover, all living things are members of one family. Accordingly, humans are an integrated part of nature. This suggests that humans might have lived a biocentric ethic. On the other hand, godly anthropomorphism contributed to a corresponding anthropocentrism. (Callicott 1994)

However, as proposed above, Greek philosophy had the larger effect compared to Greek mythology. Dominantly, the influence is of an anthropocentric view of the world. As Ponting (1991) reports, Greek thinkers such as Socrates were sure that “within the overall plan it is clear that these animals are only produced and nourished for the sake of humans” (p. 142). It seems to have been a predominant
understanding that nature is made according to a plan, which provided everything so well for humans. This led to the conception that humans “must indeed be the most important beings on earth” (Ponting 1991, p. 142). Respect and admiration for nature were nevertheless present in Greek philosophy, and other writers drew attention to the aesthetic, but always utilitarian aspects of nature. Humans were understood to be orderers of a raw creation. (Ponting 1991)

Callicott (1994) describes dualism and atomism as the two concepts from ancient Greek philosophy, which influenced the European worldview most. By dualism, Pythagoras refers to the idea of the divisibility of body and soul. In case of death, the body would die and decompose, while the soul is immortal and would be either born again into a human or animal body, or the soul could attain final liberation. Life on earth was perceived no pleasure in a thoroughly alien environment. The prospect for the soul of being reincarnated in a human or animal body was not optimistic one. The ultimate goal was the liberation of the soul from life in a body and therewith on earth. This Pythagorean view represents a “philosophy of the soul [that] is fundamentally and profoundly antiethical to an environmental ethic”. Plato carried this Pythagorean concept on into his philosophy, which had “enormous influence [and] it became virtually institutionalised in Western cognitive culture” (both citations from Callicott 1994, p. 28). (Callicott 1994)

Although this concept is not unknown in Germany today, I do not feel that it still has a dominating character as Callicott describes it. Rather, it had an influence on generations of European scientists and philosophers, who in their turn developed an ethic from this starting point in the Renaissance, which can be perceived as the initiation of modern scientific investigation.

Atomism came into being when in the fifth and sixth centuries B.C., ideas about what the basic material of things might be were developed. Leucippus and Democritus presented the hypothesis that everything was made of indivisible solid parts. These particles were called atoms (Atom, Greek for “indivisible”). The atoms were said to possess mass, shape, and size, and they could move in space. Their primary characteristics could be expressed in quantitative terms. All other perceived qualities of things were secondary and the effects of the primary characteristics on the human senses. Resulting from this, all natural processes could be described mathematically, since the primary characteristics could (at least theoretically) be known. Later, a philosophical school was named “atomism” based on this hypothesis. In the physical world, as it is seen by atomists, “nature is inert, material, quantitative, mechanical, and reducible to its parts” (Callicott 1994, p.28). After the Renaissance, the triumph of Newtonian mechanics led to a general acceptance of the atomic theory in Western thought. (Callicott 1994)

From an environmental ethical point of view, these two philosophical concepts lie at the basis of an environmentally destructive view of nature, which Callicott (1994) describes as

“one in which nature is essentially profane, while man, because of his soul, is essentially divine and metaphysically distinct from nature. The profane, reductive, material, and mechanical picture of nature suggests that the environment can be readily rearranged and violently transformed without destroying its organic integrity – since it has none. And man’s separateness from and superiority over nature suggest that he has a right to radically rearrange and to violently transform the natural environment and that he is disassociated from the harmful consequences of doing so, if any there be. […] From a contemporary environmental point of view, Greek philosophy is a part of the problem – indeed, a very big part – not the solution.” (p. 29)

Without Greek philosophy being a visible part of German dominant views of nature, its impact is said to be still present. In fact, it lays at the foundation of modern philosophical inquiry. From this point of view, it has indirectly and enduringly affected the Western worldview.
2.3.2. Christian Tradition

The worldview in Germany is also influenced by the Christian religious tradition. Especially during medieval times Christian belief and the church have been the most important institution for the definition of values and ethical codes. It is until today, that Christian belief and the church are among the important sources in forming moral standards.

There are different interpretations about the role, which God designates to man in relation with nature. The problem of reaching clarity starts with the fact that the bible provides two different creation myths, which hold an important part, when it comes to understanding man’s role within creation. However, there is little disagreement among scholars that the notion in the bible has a utilitarian tendency, despite the fact that there have always been minority thinkers (e.g. Francis of Assisi) suggesting a biocentric ethic (Ponting 1991; Callicott 1994). Anyway, the interpretations of the biblical texts have also been changing over time. From a dominionistic ethic (despotic interpretation) the mainstream view switched to a still utilitarian, but preserving, ethic (stewardship interpretation).

Among the most cited verses in this context are from the book Genesis chapter 1:26-28 (taken from Callicott 1994):

26 And God said, Let us make man in our image, after our likeness: and let them have dominion over the fish of the sea, and over the fowl of the air, and over the cattle, and over all the earth, and over every creeping earth that creeps upon the earth.

27 So God created man in His own image, in the image of God created He him; male and female created He them.

28 And God blessed them, and God said unto them, Be fruitful and multiply, and replenish the earth and subdue it; and have dominion over the fish of the sea and over the fowl of the air and over every living thing that moves upon the earth.

These verses make it indeed no difficult task, in my eyes, to observe the basis for a strongly anthropocentric worldview, which suggests a dominionistic environmental ethic. This understanding would then represent a despotic interpretation (Callicott 1994). Ponting (1991) rightly describes the creation of man as the climax of God’s previous five days work. The climax suggests an anthropocentric worldview, since humans can perceives themselves as the highlight of creation. This impression is supported by - similar to Greek mythology – the anthropomorphism expressed by “Let us make man in our image, after our likeness”. The word “dominion” is spelled out, automatically suggesting a dominionistic environmental ethic.

The other creation myth of Adam and Eve (Genesis chapter 2) can as well be interpreted along the above lines. Male man (Adam) is created first, then nature (symbolised by the Garden Eden), and finally woman (Eve); in this myth too, nature is created for the benefit of man and it is Adam who gives the animals their names (Ponting 1991). This again shows the superiority of man over nature.

The early and medieval Christian scholars largely accepted the view inherited from the biblical writing that had given humans the right to utilise plant and animal life to their full benefit. “Nature is not seen as sacred and therefore it is open to exploitation by humans without any moral qualms – indeed humans have the right to use it in whatever way they think best” (Ponting 1991, p. 144). Man has been placed between nature and God, i.e. above all other living beings. Thus, humans are not perceived as being part of the natural world, but placed into it by God. The relationship that matters is the relationship of the individual with God – and not with nature. (Ponting 1991)
Even though admitting exceptions, Ponting (1991) puts forward the opinion that “Christian theology produces a highly anthropocentric view of the world which was to have a profound and enduring impact on later European thought even when it was not specifically religious” (p. 145). I tend to agree with Ponting to a certain extent, especially in the context of Germany. However, the more recent developments in the church’s teachings and its convergence to presumably higher environmental moral standards in recent decades are important to be notify. There also are positive facets of both the Bible and Christianity that can function as sources for ecological wisdom (Kinsley 1994).

A more modern understanding is the “stewardship interpretation”. As the expression indicates, man is still the centre of creation and the other human beings are there for his benefit. However, being in this special position does not only confer special rights and privileges on human beings (as in the despotistic interpretation) but also special duties and responsibilities (Kinsley 1994). Callicott supposes that “paramount among these responsibilities is man’s duty wisely and benignly to rule his dominion, the earth. To abuse, degrade, or destroy the earth is to violate the trust that the regent (God) placed in His viceroy (man)” (1994, p. 16). In Genesis 1, God declares each part of His making as “good”, thereby giving intrinsic value also to the nonhuman entities of the creation. And this is more than mere utilitarian value. The Garden Eden myth of Genesis 2 has also been interpreted seeing a responsible, but utilitarian stewardship. God gives the Garden to Adam “to dress and keep it”, meaning that he should use nature to his benefit but to preserve it and not to overuse it. (Callicott 1994)

In this way, Christian thought cannot solely be blamed to have had a negative implication for the environment, especially not in recent decades. However, its overriding influence has for the most time been the anthropocentric teaching of human mastery over nature.

2.4. The hidden dimension – a deep connection between soul and nature

I perceive it as an imperative to include ideas in this discussion, which focus on the relation between humans and nature on a cognitive basis. This is to state that the centre of interest of this thesis does not only lie in the physical human dependence on the natural environment as a source of shelter, nutrition and life-supporting conditions. In fact, a considerable dimension is to be found as well in the mental dependence of the human mind on nature as a potential source for emotional energy exchange, which is crucial to well-being. It is the aim to investigate as well the cognitive dimension of the human-nature relationship. For this reason it is important to get an insight into what the cognitive-psychological dimension of this relationship is about.

There are several theories, which ask for a new human-nature relationship. Such a relationship postulates equality and partnership between humans and nature. Moreover, it includes that nature is included in the array of relevant items for human well-being. The eventual objective is reciprocal well-being of humans and nature. Two of the prominent theories in the field are deep ecology and ecopsychology, which are briefly presented in the following. They have many similarities, but they tackle the issue from different sides in the first place. Deep ecology from the natural scientific side, and ecopsychology from the psychological side

2.4.1. Deep ecology

In 1972, Arne Naess introduced the principles of deep ecology. Since then, deep ecology – as opposed to ‘shallow’ ecology – has been criticising the legal and institutional fixes as reactions to environmental
pollution, instead of searching and striving for fundamental changes in human relationship with nonhuman nature (Merchant 1992, Pepper 1996). Thus, deep ecology emerged from a perspective of nature conservation.

One characteristic of deep ecology is that it asks different questions (Capra 1996, Pepper 1996). “Before asking how to secure a supply of material goods, deep ecologists would question whether we really need so many goods in the first place, with a view to lowering our demands on the planet’s resources” (Pepper 1996, p. 17). Deep ecology entails an ecocentric ethic which denotes equal value to all parts of the ecosystem, including humans (Merchant 1992). The concept rejects the dualism of humans and nature but states that human and nature are indeed one (Pepper 1996). Human life should thus be lived with nature, not against it.

Deep ecology identifies the current prevailing worldview of anthropocentrism and the emergent dominionistic environmental ethic as the source of environmental problems. “Deep ecologists call for a total transformation in science and worldviews that will replace the mechanistic framework of domination with an ecological framework of interconnectedness and reciprocity” (Merchant 1992, p. 11). Pepper (1996) stresses that the aim of social change is focussed on transformation of individual consciousness; this transformation entails a change of values, attitudes, and lifestyle towards respect for and cooperation with nature. Merchant (1992) states that in the context of deep ecology, a new individual philosophy of self is required. It would embrace a consciousness, which gives way to a free mindset in favour of an interconnected community. Modern minds ruled by self-consciousness of power over planet change their mindset to planet consciousness. Merchant (1992) thinks that, “[a]lthough the new worldview advocated by deep and spiritual ecologists may not lead the social transformation, it can nevertheless foster and support the new economic and social directions taken” (p. 14). Opposing this view, Capra (1996) finds that a radical revision of previous assumptions in terms of worldviews (as described earlier in this paper) is already underway. He believes that we have been going through a social paradigm shift, 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 organises itself” (Capra 1986, quoted in Capra 1996, p. 6). As the new social paradigm, Capra sees an ecological view, if the term ‘ecological’ is used in a much broader sense than usual. He identifies deep ecology as the most important in the philosophical schools of ecology.

The principles of Deep Ecology in Box 1 include that the worldview changes from an egocentric to a more ecologic, holistic perception of human existence as integrated part in nature. The equality idea of all species is based on ecology, which attributes equal importance to all constituents of an ecosystem. “Deep ecological awareness recognises the fundamental interdependence of all phenomena and the fact that, as individuals and societies, we are all

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**Box 1: Principles of Deep Ecology**

1. The well-being and flourishing of human and nonhuman Life on Earth have value in themselves (synonyms: intrinsic value, inherent value). These values are independent of the usefulness of the nonhuman world for human purposes.

2. Richness and diversity of life forms contribute to the realization of these values and are also values in themselves.

3. Humans have no right to reduce this richness and diversity except to satisfy vital human needs.

4. The flourishing of human life and cultures is compatible with a substantial decrease of the human population. The flourishing of nonhuman life requires such a decrease.

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

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

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

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

*Source: Devall and Sessions (1985, p. 70)*
embedded […] in the cyclical processes of nature” (Capra 1996, p. 6).

Additional to ecological science, deep ecologists rely on emotional and intuitive knowledge for their conclusions. Where scientific knowledge is not obtainable, intuition should tell us not to do anything that could cause long-term environmental damage. The holistic philosophy, which derives from the application of the principles of deep ecology, was named ‘ecosophy’ by Naess. Ecosophy is what guides the ecologist, “not purely information gained through the methods and philosophies of classical science” (p. 21). (Pepper 1996)

A change of worldviews as promoted by deep ecology brings along strong political implications and brings to mind radical political action by environmentalists’ groups. Pepper (1996) reports, however, that Naess’ intention was not the transformation of society through confrontation. Accordingly, consensus is possible, if opposing sides see the value in the others’ positions. A plurality of worldviews is tolerated. Deep ecology does not provide social values or rules. However, all worldviews and mindsets should be according to the principles set up by deep ecology.

### 2.4.2. Ecopsychology

The field of ecopsychology further elaborates on the connection between the fields of psychology and ecology, already touched upon in the section above on deep ecology. Theodore Roszak, a cultural historian, was the first who coined the term ‘ecopsychology’ in 1993, in his book *Voice of the Earth*. There, he calls for a new synthesis of psychology, cosmology, and ecology as an answer to mental alienation from nature and environmental degradation at the same time. He says “[w]e need a new discipline that sees the needs of the planet and the person as a continuum and that can help us reconnect with the truth that lies in our communion with the rest of creation” (Roszak 1993). Ecopsychology draws upon principles of understanding the role of humans in the world from ecology. In this understanding, humans are as well part of the ecosystem as all other species on earth. It includes the idea that humans – as other living and non-living entities, as well – are only intermediate patterns of matter. This matter has been in the universe from the moment it came into being. In ecopsychology, the web of life extends to the whole universe. Ecopsychology thus adds to ecology the fact that the mind is an integral part of the web of life, as well. The basic idea is that the human self does not have its boundaries where the body ends.

The personality expands outside the self. The mind is connected to the outside world and the history of the cosmos. Roszak (1993) describes his point in poetic language: “Salt remnants of ancient oceans flow through our veins, ashes of expired stars rekindle in our genetic chemistry” (p. 320). This implies that an inherent knowledge is inside ourselves. It is what ecopsychology refers to as the ‘ecological unconscious’, the core of the mind.

Roszak admits that the idea of an ‘ecological unconscious’ is speculative (Roszak 1995). He holds against it that psychology is inherently speculative. However, he sees ecopsychology as a commitment to understand “people as actors on a planetary stage who shape and are shaped by the biospheric system” (Roszak 1995, p. 14/15).
Ecopsychology is rather a field within the discipline of psychology than ecology. Authors in the field even refer to it as a psychiatric therapy. The main objective is to heal the human mind from increasing alienation from nature, especially in industrial society. “For ecopsychology, repression of the ecological unconscious is the deepest root of collusive madness in industrial society” (Roszak 1993, p. 320). In a different sense, as well, ecopsychology has implications on ecology; or to be more precise: on environmental soundness of the earth. The sane of the psyche is connected to the sane of the planet. As soon as humans recognise this, the act of preserving the planet will at the same time benefit the well-being of the human mind. In turn, the discovery that psychological well-being is dependent on biospheric well-being will make nature preservation a naturalness as part of self-protection. The list of principles of ecopsychology in box 2 aims to give a condensed overview of the basic ideas of the theory.

**Box 2: Principles of Ecopsychology**

1. The core of the mind is the ecological unconscious. For ecopsychology, open access to the ecological unconscious is the path to sanity.

2. The contents of the ecological unconscious represent, in some degree, at some level of mentality, the living record of cosmic evolution, tracing back to distant initial conditions in the history of time. Contemporary studies in the ordered complexity of nature tell us that life and mind emerge from this evolutionary tale as culminating natural systems within the unfolding sequence of physical, biological, mental, and cultural systems we know as “the universe.”

3. The goal of ecopsychology is to awaken the inherent sense of environmental reciprocity that lies within the ecological unconscious. Other therapies seek to heal the alienation between person and person, person and family, person and society. Ecopsychology seeks to heal the more fundamental alienation between the person and the natural environment.

4. For ecopsychology, as for other therapies, the crucial stage of development is the life of the child. The ecological unconscious is regenerated, as if it were a gift, in the newborn’s enchanted sense of the world. Ecopsychology seeks to recover the child’s innately animistic quality of experience in functionally “sane” adults. The goal is to create the ecological ego.

5. The ecological ego matures toward a sense of ethical responsibility with the planet that is as vividly experienced as our ethical responsibility to other people.

6. Among the therapeutic projects most important to ecopsychology is the re-evaluation of certain compulsively “masculine” character traits that permeate our structures of political power and drive us to dominate nature as if it were an alien and rightless realm.

7. Ecopsychology holds that there is a synergistic interplay between planetary and personal well-being. The contemporary ecological translation of the term might be: the needs of the planet are the needs of the person, the rights of the person are the rights of the planet.

Source: modified from Roszak 1993, p. 320/321
3. METHODOLOGY

In order to test the hypothesis of the thesis, two methods of inquiry have been applied: an online-questionnaire, which yielded 96 replies, and four semi-structured in-depth interviews.

3.1. Questionnaire

An online-questionnaire was designed aiming to investigate respondents’ views of nature, environmental attitude and emotional relationship to nature. The questionnaire in form of a link was originally distributed among about 400 people by e-mail containing some explaining text. The majority of recipients was reached through existing mailing lists of students’ unions of different faculties of Brandenburg Technical University in Cottbus, Germany. The students were mainly from the fields of environmental engineering and architecture. Other recipients were pupils, students of other German universities, and people in work life. The recipients were encouraged to distribute further the link to the questionnaire. This is assumed to have risen the number of recipients. There is no control or estimation concerning the number of recipients, who participated additionally besides the original recipients. After a period of six weeks online availability, 96 answers to the questionnaire were collected. For design, administration, and analysis of the questionnaire and the results, the online-programme E-Val was used.

The main aim of the questionnaire is to find out if people, who can be categorised as having a profound emotional bond with nature, do actually care more about the environment than people, who cannot be categorised as described. The respondents’ concern about the environment was to be examined through their view of nature and readiness to question their lifestyle in order to take pressure off the environment. Additionally, the questionnaire is understood as a means of collecting a certain range of attitudes and to show the reaction and intuitive answers of people, who typically are unprepared for such questions.

Please note that it was not the objective of the questionnaire to create representative results. With the group of recipients’ characteristics, which does obviously not reflect an average of German society, this aim would not be achievable. The mere intention was to collect a compilation of qualitative basis for the investigation of the hypothesis. Moreover, the results of the questionnaire represent a suggestion of possible diverting views and attitudes.

3.1.1. How the questionnaire works

In the beginning of the questionnaire, the respondents are asked to indicate their gender, profession (choices: pupil, student, in work life), and age (20 years or younger, 21-25, 26-30, 31-40, 41-50, 51-60, 61-70, 71 or elder). In the proceeding, the actual questionnaire is split up into three different sections: 1. Views of nature, 2. environmental attitude, and 3. emotional bond with nature. Section 1 contains five questions; section 2, as well as section 3, contains eight questions. In total, the questionnaire contains 21 contextual items. Table 1 presents an overview of each section and the contained questions. The questions are mostly formulated as statements and the respondent is asked to indicate her or his degree of agreement on a given nominal scale. The four possible answers are: “I fully agree”, “I rather agree”, “I rather don’t agree”, “I don’t agree at all”. With respect to different ways of putting a statement, the words can differ for some answers. The principle is, however, the same. See box 1 for an example.

<table>
<thead>
<tr>
<th>“Nature would be in peace and harmony, if man only left it alone.”</th>
</tr>
</thead>
<tbody>
<tr>
<td>I fully agree</td>
</tr>
<tr>
<td>I rather agree</td>
</tr>
<tr>
<td>I rather don’t agree</td>
</tr>
<tr>
<td>I don’t agree at all</td>
</tr>
</tbody>
</table>

Box 3: Example of a statement from the questionnaire
Most of the statements contain words, expressions and concepts that leave room for different interpretations. The concepts were consciously not made any more concrete in order to give participants the opportunity to answer intuitively. Their replies were given according to the context they applied to the unspecified concepts. There was a box for comments following each question, which the participant can use to give comments or to specify the given degree of agreement. The usage of the comment box was voluntary. However, many respondents made use of the opportunity to give comments. The comments were helpful to understand and interpret the given answers close to the intention in which they were meant. Please note that all statements and comments taken from the questionnaire or its results were translated from German into English by the author.

Table 2: The questionnaire and the contained questions (translated). Part of the questions were adapted from Uddenberg 1995; and Federal Environment Agency 2002.

<table>
<thead>
<tr>
<th>Section 1: Views of nature</th>
<th>Section 2: Environmental attitude</th>
<th>Section 3: Emotional bond with nature</th>
</tr>
</thead>
<tbody>
<tr>
<td>“Man should respect nature, because not only humans have got a right to live, but also animals and plants.”</td>
<td>“Nature protection serves humans since we never know if certain plant species are going to be important for humans and the economy.”</td>
<td>“I regularly feel the need to be in an environment which is not made by man. For this reason I like to go out to nature.”</td>
</tr>
<tr>
<td>“Nature would be in peace and harmony, if man only left it alone.”</td>
<td>“Sustainable environmental behaviour begins in one’s own mind.”</td>
<td>“Spending time in nature gives me a feeling of relaxation and harmony.”</td>
</tr>
<tr>
<td>“I feel no need to be out in nature.”</td>
<td>“With adequate technology, all environmental problems can be solved.”</td>
<td>“My parents always encouraged me to spend a lot of time in nature.”</td>
</tr>
<tr>
<td>“I live in harmony with nature.”</td>
<td>“I think, environmental problems are being exaggerated.”</td>
<td>“I fully feel as being part of the natural web of life.”</td>
</tr>
</tbody>
</table>
| “In the following, four different conceptions of nature are presented. Please select one of the alternatives that corresponds best with your own opinion.
A: Nature is sturdy.
B: Nature does not forgive anything.
C: Nature can withstand certain pressures.
D: Nature is unpredictable in its behaviour.” | “Environmental protection is not to stand back behind natural resource extraction.” | “People, who claim that the human soul is connected to the earth, do not live in reality.” |
| (shortened version) | “For someone like me, it is hard to do much for the environment.” | “I would always prefer spending time with my friends to spending time in nature.” |
| | “To what extent are you willing… …to pay higher prices for products that are less environmentally harmful?” | “If a close person said that you are someone who loves nature very much, would this person be right or not?” |
| | …to cut back on your standard of living for the environment’s sake? E.g. less car use, less flying, less imported fruits, no air condition, etc.” | “I have made one or more spiritual experiences in nature.” |
3.1.2. Identification of the “nature lovers”

For the purpose of testing a hypothesised correlation between the respondents’ emotional affiliation to nature and their environmental awareness, the whole group of 96 respondents is split up into two subpopulations. In a comparative manner, the subpopulations are then compared to investigate the respective particularities. Special interest is placed on the subpopulation with respondents, who have special characteristics with respect to their emotional relationship to nature; this subpopulation is called the group of “nature-lovers”. The comparison group, which consists of and is formed by those respondents, who are not part of the “nature-lovers”, will be referred to as the “non-nature-lovers”. It should be stated clearly that the respondents, who are grouped as “non-nature-lovers”, are not automatically blemished as abnormal “nature loathers”. It rather is the other way around, namely that the “nature-lovers” represent the group with an extraordinary emotional bond with nature.

How are the “nature-lovers” identified? As criteria for identification, four questions were selected from the questionnaire. All four of which are dealing with the respondent’s emotional relationship with nature, i.e. these questions are part of section 3 in the questionnaire. Those respondents, who indicated a positive emotional relationship with nature in all the four selected questions, were identified as “nature-lovers”. Table 2 shows the four questions and the combination of answers, which “qualifies” respondents as “nature-lovers”.

Table 3: The critical four questions for identifying the “nature-lovers” and the respective results. Respondents, who answered all four questions within the lighter grey fields, qualified as “nature-lovers”.

<table>
<thead>
<tr>
<th>Question</th>
<th>Fully agree/fully right</th>
<th>Rather agree/rather right</th>
<th>Rather don’t agree/rather not right</th>
<th>Don’t agree at all/not right at all</th>
<th>undecided</th>
</tr>
</thead>
<tbody>
<tr>
<td>“Spending time in nature gives me a feeling of relaxation and harmony”</td>
<td>67 (70%)</td>
<td>22 (23%)</td>
<td>7 (7%)</td>
<td>28 (29%)</td>
<td></td>
</tr>
<tr>
<td>“I fully feel as being part of the natural web of life”</td>
<td>23 (24%)</td>
<td>32 (33%)</td>
<td>34 (35%)</td>
<td>55 (57%)</td>
<td></td>
</tr>
<tr>
<td>“People, who claim that the human soul is connected to the earth, do not live in reality.”</td>
<td>3 (3%)</td>
<td>35 (37%)</td>
<td>31 (32%)</td>
<td>10 (10%)</td>
<td></td>
</tr>
<tr>
<td>“If a close person said that you are someone who loves nature very much, would this person be right or not?”</td>
<td>0</td>
<td>3 (3%)</td>
<td>11 (12%)</td>
<td>0</td>
<td>3 (3%)</td>
</tr>
</tbody>
</table>

The numbers show how many respondents answered in what way to the respective question. In order to be grouped as a “nature-lover”, a respondent had to vote in all of the four questions within the lighter fields. As soon as one or more questions were answered within the darker fields, a person is grouped with the “non-nature-lovers”.

Note that it is not possible to see from the table, how many or which respondents qualified for which group. Figure 4 visualises the principle according to which the group of “nature-lovers” is formed. Each circle represents the set of respondents, who answered positively to one of the selected questions. In order to be grouped as “nature-loving”, however, all four questions had to be answered.

Note that the proportions do not correspond to the actual distribution. The figure merely aims to visualise the way of finding the group of “nature-lovers”.

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3 Please note that the proportions do not correspond to the actual distribution. The figure merely aims to visualise the way of finding the group of “nature-lovers”.

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20
positively. The intersection of the four circles then defines the answers of the “nature-lovers”, i.e. the ones that meet the requirements of all four questions at the same time. Following this method, a group of 24 “nature-lovers” is identified. The comparison group “non-nature-lovers” thus consists of the remaining 72 respondents. This distribution therewith exactly corresponds to one quarter in the one, and three quarters of all respondents the other group.

The four selected questions and their respective results are going to be presented in the results in chapter 4.1.1. This is done to give the reader an impression of why these four questions were chosen as criteria, and what implications follow the selection of these questions.

3.1.3. The respondents

**Gender distribution**

More men replied to the questionnaire than women did. Only 38 of the 96 participants were female, constituting a share of 40% (note table 3 for the distribution). The majority of men can tentatively be explained with a higher share of men in the study courses the questionnaire was sent to. Mainly, these are technical and engineering sciences, which traditionally have higher numbers of male students. It is thus expected that the gender distribution among the respondents reflects the gender distribution among the recipients of the questionnaire.

Taking a look at the gender distribution in the two subdivided groups, the data does not indicate a considerable difference between the comparison groups. The fraction of “nature-lovers” among women with 26% is marginally higher than that among men (24%). That means that there are slightly more females among “nature-lovers” than the average of 25% or respondents identified as “nature-lovers”. But a difference of 26% to 24% does not represent a sufficient indication of gender-related differences, especially considering the low number of persons in the group of “nature-lovers”. Generally, the gender composition of the respective groups is very similar to the overall composition. For this survey, consequently, it does not allow any conclusions on whether or not affiliation to nature is gender-related.

**Age distribution**

The age distribution of the sample population differs considerably from Germany’s overall age pattern. The sample population is relatively young. 80 out of 96 respondents are younger than 30 years old, corresponding to a fraction of 83%. Figure 5 gives a visual impression of the overall distribution. This clear emphasis on young adults emerges from the fact that the questionnaire was sent out primarily to students. Additionally, the students were encouraged to send the questionnaire to people they knew. With this presetting, the emphasis on relatively young people becomes reasonable.

Are there particularities in the age pattern of “nature lovers”? Table 4 shows that differences in age distribution...
can be observed. However, it is difficult to recognise a consequent pattern. Older people could be expected to be overly represented among the “nature-lovers”. Such a pattern cannot clearly be identified.

It is noteworthy, however, that all four under 20 year-olds qualified as not nature-loving; the respondents 21-25 years old qualified as “non-nature-lovers” by 77%. These numbers could be seen as an indication that young people are not as likely to have a profound emotional relationship with nature as older people. Consequently, one might accept the idea that older people feel affiliated more to nature. On the other hand, the percentages for the older age groups do not indicate a straight pattern in this direction. Additionally, the marginal age groups are only represented by individual cases. Hence the numerical basis is too limited as to draw conclusions from these observations.

**Professional distribution**

The overall distribution of professions shows a dominance of students (62%). 28% of the replies came from professionals, 6% from pupils and 4% from others (specified as retired or PhD researcher). For corresponding quantities, see table 5.

Taking a closer look at the professionals’ specifications in comments, it can be seen that at least (since not all specified their profession) 15 out of 27 have an academic education. The four people, who have answered “other”, are specified as having an academic background, as well. This results in a fraction of at least 81% of participants that either is currently experiencing or has experienced university education.

A majority of people, who have specified their field of work or education, is dealing with different occupations – as students or in work life – in environmental issues (22 of 78 specified). Other fields noteworthy are engineering, architecture, and economics. An overly represented fraction of people in the environmental field can be explained by the fact that one of the student unions the questionnaire was sent to is the union of environmental engineers. They can be assumed to be more interested in the issue than the average. It is not intended to investigate environmental awareness as such; this is being accomplished by a biennial national survey. The purpose of the thesis is to shed light on the qualitative interrelationship of an emotional-spiritual bond with nature and environmental awareness, is not affected by the sample population at hand.

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4 The national survey is commissioned by the Federal Environmental Agency (Umweltbundesamt). Its results can be inspected on the website [www.umweltbewusstsein.de](http://www.umweltbewusstsein.de).
The diagram in figure 6 compares the distributions of professions of the “nature-lovers” and the “non-nature-lovers”. Small differences are noticeable. Students are similarly represented in each group, with some tendency to be more abundant among “non-nature-lovers”. Otherwise, observations made here can be seen in accordance with observations made in the age distribution. The percentages given in the diagram represent the abundance of “non-nature-lovers” within the specific profession group. Note here, that the average abundance of “non-nature-lovers” is 75%. For the groups of pupils (A) and work life (C), some difference is noticeable. The fact that pupils are underrepresented, and at the same time professionals are overrepresented among “nature-lovers”, is interpreted as a matter of age rather than a matter of living conditions. This interpretation is further confirmed by the fact that in the investigation of the specified fields of study or work, no clear tendencies can be discovered. No correlation between field of professional occupation or field of study and love to nature can thus be detected.

3.2. Interviews

Four interviews were conducted in order to get a better impression and more thorough understanding of (1) what an emotional bond with nature is, (2) how it shows in different people, and (3) how it affects environmental awareness. The method of interviewing was a semi-structured in-depth interview (Kvale 1996). The duration of the talks was between one and two hours. They were recorded. This method enabled me to fully concentrate on the interview, without taking notes at the same time. While listening to the recording afterwards, I took notes of passages that were relevant to me.

It was my objective to get information about the following fields, with differing emphasis for each interview partner. The fields that were discussed eventually differed considerably between the interviewees, depending on the evolving dynamics of the talk. These different items were used as a basis for the in-depth interviews:

- factual knowledge about basic environmental problems and their backgrounds,
- environmental attitude,
- opinion about the origins of environmental destruction,
- personal environmental behaviour, and whether they feel personally responsible for the environment,
- the role of the state in environmental protection,
- emotional relationship to nature, and what experience they base this relationship on,
- feelings when being in nature,
- a possible interaction or communication with nature or natural things,
- the relationship between nature experience and environmental behaviour.

3.2.1. The interviewees

The interviewees were all men, between the age of 26 and 67. They all have different personal, educational and professional backgrounds, but have one thing in common: they claim to have an emotional bond with nature. The interviewees are people I knew before I met them for the interview. From previous discussions and experience with them, I found that these men’s views on the issue would be of relevance to the topic.
There were no women among the interviewees. Gender was not considered to be of primary importance, since the aim was (as mentioned above) to enlarge the understanding of different forms of emotional bonds with nature by listening to individual cases. I think that the respective experiences and views can be equally different between two men, as they can differ between a woman and a man. I do not assume that the occurrence of female individual experiences in this context would have contributed particularly different insights. In this framework, in which it is the purpose to broaden the base of understanding, it is assumed that there are no differences between men and women that could be identified.

In the following, each of the interviewees is briefly presented. The names of the interviewees are changed for reasons of respect for privacy:

**Siegfried**, born in 1975, is winemaker in the region of Rheinhessen, Germany. Together with his father, he has a winery. He is involved in all activities concerning wine-making, which also involves going to the vineyards to do the various works around the grapevines. Siegfried is professionally and therewith economically dependent on nature. He is interesting for the interview not only for this reason. In the context of his education to become a winemaker he went to Switzerland and South Tyrolia (Italy) for four months each. These stays have changed his life, as he himself states. Nature experience in the high Alps play an important part in this context.

**Manfred**, born in 1948, is a research professor in the field of pharmaceutics by means of computer modelling. He lives in a suburb of a large university city in Germany. The environment of his home is rather rural, nevertheless in close proximity to urban structures and services, situated in a large industrial region. He grew up in an industrial city dominated by coal mining and metal industry, not far from his present home. His family has, however, not been employed in industry, but owned a pharmacy.

**Eberhard** was born in 1936 into a large family in the lower Rhine region of Germany. He is the youngest of six sisters and brothers. His profession was in physiotherapy. He has always been very interested and active with anything technical, with handicraft and occupations related to gardening. He retired a few years ago. Since then, together with his wife, he has primarily enjoyed taking care of his own house and garden and sometimes helps out in his neighbours’ gardens and houses.

**Karl** was born in the Eastern part of Berlin (German Democratic Republic) in 1977 and also grew up there. Today, he studies Environmental studies at Cottbus university. His parents taught him the respect for and knowledge of nature. Moreover, they lived according to their conviction with him and his brother. The parents were active in environmental groups, which used to be very uncommon then, because such groups were not allowed in the GDR. Today, Karl has a spiritually inspired ecological consciousness, which dominates his philosophy of life. He has made many positive nature experiences in combination with community experiences in outdoor festivals like Rainbow gatherings.
4. RESULTS AND THEIR DISCUSSION

4.1. Questionnaire

In this section, the results of the questionnaire are going to be presented. The methodology section gives information about the structure of the questionnaire, the distribution, and the participants. The total population of respondents has been subdivided into two groups (“nature-lovers” and “non-nature-lovers”) by selection of four questions that functioned as deciding questions. The procedure of subdivision is shown in the methodology. The four distinguishing questions with their respective results are presented and shortly discussed here. The paper’s hypothesis is going to be investigated from different angles to check its validity. This is done by comparing the answers of the two subdivided groups to one question at a time. Similarities and differences are identified and discussed.

4.1.1. The four deciding questions identifying the “nature-lovers”

1.) “Spending time in nature gives me a feeling of relaxation and harmony.”

More than two thirds of the respondents fully agree to the statement and an additional 24% rather agree. This leaves only 6 respondents to rather not agree (3) or undecided (3). No participant decided not to agree at all. Table 7 displays the indications of agreement to this statement.

<table>
<thead>
<tr>
<th>Overall distribution</th>
<th>%</th>
<th>#</th>
</tr>
</thead>
<tbody>
<tr>
<td>fully agree</td>
<td>++</td>
<td>70%</td>
</tr>
<tr>
<td>rather agree</td>
<td>+</td>
<td>24%</td>
</tr>
<tr>
<td>rather don't agree</td>
<td>-</td>
<td>3%</td>
</tr>
<tr>
<td>don't agree at all</td>
<td>--</td>
<td>0%</td>
</tr>
<tr>
<td>undecided</td>
<td></td>
<td>3%</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>100%</td>
</tr>
</tbody>
</table>

This question is intended to investigate the emotions that people connect with being out in nature. An effect of relaxation and harmony clearly denotes a positive connotation. For this reason, this question was selected to be one of the four critical questions for finding the “nature-lovers”. As can be anticipated from the clearly “agreeing” overall distribution, the distinguishing effect of this question between the two comparison groups is very limited. Admittedly, it is very common that people speak of nature as having a calming effect. However, in order to qualify as a person, who has a strong emotional bond with nature, it includes to gain a feeling of relaxation and harmony to spend time in nature.

The broad acceptance of the statement is impressive considering the distance to and independence from nature that most people live in in Germany. However, many respondents seem to tap nature as a source for relaxation. Besides the fact that nature is perceived as a source of relaxation, the high degree of agreement is additionally assumed to be traceable to a generally positive, somewhat romanticised view of nature. It should not be concluded consequently from this question, however, that almost all respondents have a profound emotional affiliation to nature.
2.) “I fully feel as being part of the natural web of life.”

The distribution is relatively even among three categories, with “rather don’t agree” being the largest class (35 respondents). It is interesting to note that only three respondents decided for the adjacent category (“don’t agree at all”). From its peak value, the distribution has a clear tendency towards positively accepting the statement. Accordingly, 22 participants fully agreed, 32 of them rather agreed, together comprising 56% of responses. This tendency should, however, not distract from the fact that most respondents decided for one of the central options. See table 8 for the statistics and figure 10 for a diagram.

The comments given in these categories give some hint for explaining this observation, e.g.: “I live in a large city, how can I feel as a part of a natural web of life?” and “I rather feel as person of civilisation.” One person, who fully agreed, is for instance aware that “I belong to this system, as well.” It is this notion of the question that I think qualifies the question to be part of the criteria. A person, who has a profound emotional relationship with nature is – in this context – expected to feel as being part of a natural whole, the often-quoted “natural web of life”.

It can be seen that this question has a relatively strong distinguishing effect. 42 respondents answer in such a way that they cannot qualify as “nature-lovers”. One can imagine that people, who love nature very much, would anyway not agree to the statement, for reasons as mentioned.

3.) “People, who claim that the human soul is connected to the earth, do not live in reality.”

The distribution appears to be relatively wide-spread. On the first glimpse, the two central categories dominate, indicating that the issue is not a simple one to decide on. When looking coarsely at the distribution and combining the answers in groups (“agree” vs. “not agree”), they form almost equally sized groups (41 to 42). 13 respondents remain undecided.

The statement includes one of the fundamental ideas of deep ecology and ecopsychology that the human soul is connected to the earth and an intimate part of nature. It was put into the questionnaire in order to find out people’s understanding and reaction to these ideas, which are further specified in chapter 3.3.

Do people understand the idea in the first place, do they sympathise with it, or do they completely reject this conception? The hypothesis embraces the idea of a spiritual relationship between earth and soul, or nature and soul. It is neither my expectation to have a group of “nature-lovers”, who all are fond of spirituality; nor are they supposed to be familiar with the concepts of deep ecology. It is however, important for the investigation of the
hypothesis, to gather those respondents, who are at least not against the idea. In this case, it means that they “rather don’t agree” or “not at all”.

The large number of 13 undecided respondents cannot be ranked to tend to either one side or the other, as the comments indicate – some rather tend to agree, others do strongly refrain. The high number of undecided respondents suggests that the conception is very controversial. This controversy might depend on deeply rooted convictions such as religion and the question of the origin and phenomenon of life.

Nine of the eleven respondents, who did not agree at all to the statement are grouped as “nature-lovers”. This shows that most people, who believe that there is a connection between the human soul and the earth, also answered to the other critical questions in the required manner in order to qualify for the “nature-lovers”. So, those who feel also mentally connected to the earth, are very likely to enjoy being out in nature, to feel as part of the natural web of life, and to indicate that they love nature.

4. “If a close person said that you are someone who loves nature very much, would this person be right or not?”

The results are predominantly distributed to the side of agreement. 29% of respondents find that a close person, who says that she or he loves nature very much, would fully be right. Therewith they express that they love nature very much. The majority of 57% thinks that the close person would rather be right. This means that, in sum, 86% percent of respondents said that they love nature. Ten participants (10%) indicated that their relationship to nature would rather not deserve the term “love”. Three respondents remained undecided. The numbers are given as well in table 10 on the right, figure 12 provides a visualisation with the answers that possibly qualify as “nature-lover” marked in darker colour.

<table>
<thead>
<tr>
<th>Overall distribution</th>
<th>%</th>
<th>#</th>
</tr>
</thead>
<tbody>
<tr>
<td>yes, fully right</td>
<td>++</td>
<td>29%</td>
</tr>
<tr>
<td>yes, rather right</td>
<td>+</td>
<td>57%</td>
</tr>
<tr>
<td>no, rather not right</td>
<td>-</td>
<td>10%</td>
</tr>
<tr>
<td>no, not right at all</td>
<td>--</td>
<td>0%</td>
</tr>
<tr>
<td>undecided</td>
<td>--</td>
<td>3%</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>100%</td>
</tr>
</tbody>
</table>

This is this question, which deals with love to nature in the most direct way of all questions asked in the questionnaire. With this characteristic, it forms a central part of the criteria for identification of “nature-lovers”. The eventual group of “nature-lovers” (24 respondents) includes 14 respondents, who fully agreed, and 10 respondents, who rather agreed. That means that 14 participants, who indicated that they love nature very much, are not grouped as “nature-lover” (28 minus 14). A closer look at these 14 participants reveals that eleven of them are not among the group of “nature-lovers”, because they do not believe that there is a connection between the earth and the human soul. This gives further evidence that the question on the soul’s connection to the earth had a strong distinguishing effect.

4.1.2. Investigating the hypothesis

In the following, it will be aimed to shed light on the differences between the subpopulations. It is of interest, if there is considerable variation in voting behaviour between “nature-lovers” and “non-nature-lovers”. Particular notice will be paid if the group with special emotional affiliation to nature votes in
such a manner that a stronger environmental attitude can be assumed. In addition to environmental attitude, however, the views of nature of the two groups are also compared. Concepts of nature were found earlier to be attributable to correlation with pro-environmental attitudes (Iwata 2001).

To accomplish this aim, I would like to present the results to selected questions from the questionnaire’s sections “Views of nature” and “Environmental attitude”. The presentation is going to be arranged in a comparative manner, confronting the respective answers of the two previously formed groups of “non-nature-lovers” and “nature-lovers”. Each question is shortly introduced stating the purpose of the question. Additionally, particular connotations and the relevance of the question are discussed, i.e. the presentation also includes some critique.

Unfortunately, it would go beyond the limits of this thesis to cover all questions and the respective results. That is why only results of particular relevance are presented. They attempt, however, to give a general impression of the full section. All questions of the questionnaire can be found in the methodology. It was attempted to make a balanced and unbiased selection of the questions that are presented here.

**Views of nature**

“Man should respect nature, because not only humans have got a right to live, but also animals and plants.”

Agreement with this statement is generally very high. 98% of all respondents either fully or rather agree with it, as can be observed in table 11. This high degree of agreement suggests a high empathy for other living beings, including plants.

Taking a look in this respect at the two isolated groups, we can see in figure 13 hat the “nature-lovers” stress the right to live for animals and plants even more than the “non-nature-lovers”. 88% of the “nature-lovers” fully agree to the statement, no one disagrees. While agreement among the respondents not qualified as having a particular emotional bond with nature is generally high, values are somewhat lower. 71% of them fully agree, 26% rather agree and the two respondents of the whole population, who did rather not agree, can be found in this group. One can thus see a tendency of “nature-lovers” assigning more right to live to animals and plants than “non-nature-lovers”.

With expressing a high degree of empathy with nature, the overall results could be interpreted as articulating a basic tendency of love towards nature. Without intending to question the basic tendency, this statement is, as far as I see it, not appropriate as such to predict any attitude or behaviour change towards being environmentally more friendly. This distribution should in my opinion not be ranked too highly. The statement that animals and plants have got a right to live is relatively weak. Neither does it imply an extraordinary relationship to nature, nor does it require any direct action as a consequent step. It is quite easy to express this kind of respect for “the other”, the nonhuman life. Similar to a tolerant political attitude, as it is common among
many young people in Germany. Stating the opposite, i.e. that animals and plants would not have the right
to live, would be considered ruthless by most people in this cultural context. So, it is not surprising that a
majority of participants (75%) even fully agrees to the statement. The reservation with this statement as
discussed above infringes upon the usefulness of this question to function as an identifier of the influence
of an emotional relationship to nature and its effects on the views of nature.

A partial conclusion for this question thus is that people with a profound emotional bond with nature
show more agreement to the statement that animals and plants have got a right to live. The difference
admittedly is minor. Considering the contextual weakness of the statement, it is not considered a strong
indicator for measuring a correlation between emotions for nature and attitude towards nature.
Nevertheless, the results to this question were included here in order to critically discuss the usefulness of
the question and to give an example of limited explanatory power.

“I live in harmony with nature.”

It was the purpose of this question to find out, in what position the respondent experiences her/himself in
relation nature. This experience can also go beyond the individual and describe the experience as being
part of a society, which either does or does not live in harmony with nature. I intended to receive rather
intuitive answers to this question. The statement as such has a certain “esoteric connotation” (from
comments), which some respondents might possibly feel refrained from.

This statement is an interesting one to be investigated, because of the way many respondents reacted to the
statement. Almost all participants tend to answer with either one of the “rather” alternatives (93%), with each of
them being equally distributed. Figure 14 underlines this observation graphically. As mentioned, we can see from
this distribution that very few respondents actually have a strong opinion on that statement. Taking a closer look at
the comments given, we can find what many respondents had in mind when they answered. Several remarks (15
out of 29) observe that such a statement is not appropriate for the living conditions in Germany. Many
participants comment with similar opinions as for example: “This is hardly possible in our living
conditions”. Comments throughout all categories articulate comparable thoughts: the opportunity to live
in harmony with nature is perceived as hardly existing in the German society.

In what way do the “nature-lovers” decide in this context? It can be observed in figure 15
that the “nature-loving” group has a tendency towards agreement with the statement. While
17 of 24 people (71%) in this group either fully or rather agree with the statement, “the
non-nature-lovers” agree only to an extent of 43%, thus forming an adumbrated reverse of
distribution. One quarter of the “nature-lovers” do rather not agree, more than half of
the respondents from the comparison group do rather not or not at all agree. One person
in each group remained undecided.

These distributions indicate quite a strong difference between the two groups. As could be anticipated, the “nature-lovers” feel more as living in harmony with nature. A closer look at the comments points to an interesting observation. Adding to the general remark above that comments throughout all categories question the actual possibility of living in harmony with nature, a majority of “nature-lovers” indicates a wish rather to live in harmony with nature than actually saying that they do live in harmony with nature.

The view that it is hardly possible to live in harmony with nature in our kind of civilisation is more distinct in the group of “non-nature-lovers”.

This distribution at hand and the comments given suggest the thought that the “nature-lovers” perceive themselves as living more in harmony with nature than the “non-nature-lovers”. The results are interesting from the point of view of a different view of nature, but its significance for environmental awareness is not clear. It is not assumed to be a distinctively meaningful question.

“In the following, four different conceptions of nature are presented. Please select one of the alternatives that corresponds best with your own opinion.

**Alternative A:** Nature is sturdy. No matter what we do, nature always finds its way back to its initial position.

**Alternative B:** Nature does not forgive anything. Nature is very sensitive against any kind of interference. Small interferences only can bring nature out of balance.

**Alternative C:** Nature can withstand certain pressures. To a certain extent, interferences in nature can be made. Only after a certain point is exceeded, nature overbalances.

**Alternative D:** Nature is unpredictable in its behaviour. If we interfere with nature, we do not know, whether this will have good or bad consequences. Nature’s behaviour is unpredictable.”

This question served as to find out about the respondents’ conceptions of nature. These conceptions can be helpful to understand the way people interpret nature. They deal with the stability of ecosystems. The conceptions furthermore form the basis of how we act with respect to nature. The conceptions and parts of the interpretation are adopted from the “Cultural theory” by Thompson et al. (1990) (quoted in de Haan and Kuckartz 1996).

Alternatives A and B represent extreme conceptions. Alternative A suggests that nature has sufficient recovery mechanisms in order not to be disturbed in a lasting way. It implies the thinking that it does not matter what humans do to nature, since our impact would only be temporary. An unrestricted utilitarian ethic could be seen as the philosophical counterpart to alternative A. Alternative B illustrates the opposite view to A. Any interference with nature could have negative impacts and bring it out of balance. This conception does not allow trial and error, but any interference with nature has to be carefully weighed up. Alternative C contains that interferences with nature can be made to a certain extent. Nature is there to be utilised by humans. And this is not only because humans try to subdue nature, but because they actually cannot survive without having an influence on nature. Alternative D conceptualises nature as incalculable in its behaviour. I assume that this conception includes the feeling that humankind does not know enough about nature and the earth, as to claim to be able to predict the outcomes (especially long-term and large-scale) of any interference. A connotation of caution – maybe even fear – can be assigned to the statement.

The results show a majority for alternative C. Alternative C received 60% of votes, 30% of participants favoured alternative D, followed by B (6%), undecided participants (2%), and alternative A was chosen by only one respondent (see figure 16, next page). Standing for rather extreme positions, it is not very surprising that neither alternative A, nor B received many votes. The prediction by the provocative
commentator did not quite come true – but indeed a majority of 60% chose to vote for alternative C, which turns out to be fitting best the respondents personal mindset. Almost one third of all respondents find alternative D to be closest to their own concept of nature.

Investigating the comments to this statement, the clear picture from the statistical distribution becomes somewhat disturbed. 25 respondents commented, and the vast majority of them tells that their decision was not a clear one. Particularly the ones that decided for alternative C or D indicate that they also sympathised with either one or more of the other ones, as well. This observation shows that conceptions of nature are not something clear-cut, i.e. that many people can identify with parts of different conceptions at the same time. Many people seem to recognise for themselves that their knowledge about the natural world is not sufficient in order to make a definite assertion. Alternative C is probably the least controversial of the four offered conceptions. It is “easy” to agree, since there is no exact specification of “how much” interference or “in what ways”. This leads to the situation that people with actually different conceptions can agree to this statement, because it leaves the most room for interpretation.

A first look at the comparison between “nature-lovers” and “non-nature-lovers” shows a deviation from the overall distribution. From the diagram in figure 17, the most striking difference is the disparity of agreement between the groups to alternative C. All other alternatives show different distributions compared to the overall pattern, as well. The one person, who decided for alternative A, contributes with impressive – but misleading – 4% of the “nature-lovers”. This can be called surprising, since the conception implies that nature can be used by humans with practically no reservations. This combination of love to nature and utilitarianism does not fit into the concept of the hypothesis. Alternative B was chosen by 13% of the “nature-lovers” in comparison to only 4% among the “non-nature-lovers”. While the absolute numbers (three and three votes) of this distribution are too small to draw statistical conclusions, the tendency still suggests that people with a strong emotional affiliation with nature tend to be more cautious concerning interference with nature. The distribution of answers to alternative D can be seen to support this interpretation, as well. Here again, the “nature-lovers” seem to sympathise to a larger extent with the conception of nature, which stresses nature’s unpredictability. This goes along the implied need for caution with any interference with nature. Alternative C is overly popular among the “non-nature-lovers”. Here again, as in the foregoing question, the “non-nature-lovers” position can be interpreted as being closer to a utilitarian ethic. Nevertheless, one should not ignore that also among “nature-lovers” alternative C is preferred by the majority of respondents.

In conclusion, the group of “nature-lovers” expressed a more cautious approach with nature. In comparison to the “non-nature-lovers” they think to a lesser – but still major – extent that nature can be utilised within limits. In my interpretation, this goes along well with an environmental attitude of
precaution in the interference with nature. That means that a tendency of “nature-lovers” can be observed to have concepts of nature, which tolerate less potentially harmful interference with nature.

**Environmental attitude**

“For someone like me, it is hard to do much for the environment.”

The purpose of including this statement in the questionnaire was to investigate the relevance the individual appoints to herself or himself in the context of the environment. When a person agrees to the statement, it means that the person does not see much of an effect of her or his individual behaviour on the environment. Agreement to the statement might as well hint to a certain frustration, connected to a feeling of helplessness. “It doesn’t really make a difference what I do, does it?” is a typical statement, which can be met when discussing issues of individual behaviour. In contrast, respondents, who do not agree, are assumed to see a possibility for their contribution in improving the environmental situation. Moreover, they see that their contribution is valuable and that it lies in the hands of the people to make a difference. It seems plausible that environmentally active people in general see more opportunities for themselves to modify their lifestyle in such a way that it would be more environmentally sustainable.

![Figure 18: The overall distribution to the statement “For someone like me, it is hard to do much for the environment.”](image)

The overall distribution of answers to this statement is relatively wide. There is a tendency that respondents do not agree with the statement, as can be seen in figure 18. Indeed, almost three quarters of all respondents do “rather not” or “not at all” agree, whereas one quarter of participants positively agrees to the statement. It seems that a majority of people sees the importance and relevance of the individual behaviour and participation in environmental issues. This can probably be brought into connection with public environmental initiatives like e.g. waste separation, which has been seeking for the population’s participation. One commentator underlines this presumption: “[r]ecycling, separating waste, not using the car, etc. Everyone can make a contribution!” A different person thinks that “[e]very person can help and take the initiative”, but “[d]oing nothing means that one is lazy!” This view is even supported by a “penitent”, who admits that “[i]t is not difficult, I am just too lazy.” Being somewhat doubtful, another respondent finds that “[I] can do a lot, and it is still not enough!!”

![Figure 19 shows a comparison the respective distributions of “nature-lovers” and the “non-nature-lovers”](image)

How does the group in focus, the “nature lovers” respond? The diagram in figure 19 shows the individual distribution of the group and the comparison group of “non-nature-lovers”. The share of respondents, who agreed to the statement is smaller among the “nature-lovers”. 80% of “nature-lovers” does generally not agree to the statement, whereas 71% of “non-nature-lovers” tends in this direction. In these 80%, the portion of those, who did not agree at all is overly represented with 38%. The figure for the comparison group is 22% only.

The overall distribution for this question suggests that the respondents’ opinion generally recognises the significance of the individual in the context of environmental behaviour. It can be observed that the group
of emotionally affiliated people recognises this significance even more than the average. This hints to an environmental awareness above norm. The “nature-lovers” show especially strong disagreement to the statement. Weak confirmation for the hypothesis is noted.

“To what extent are you willing...

...to pay higher prices for products that are less environmentally harmful?”

...to cut back on your standard of living for the environment’s sake? E.g., less car use, less flying, less imported fruits, no air condition, etc.”

The two questions were asked sequently in the questionnaire and formed one complex. They are rather similar in kind, that is why the results are presented jointly, as well. They touch upon people’s willingness to pay for the good of the environment – either in monetary terms for products, which are less harmful for the environment – and in terms of a decreased standard of living.

These two questions are the ones that get closest to actually testing an individual’s environmental behaviour. This “closest” is, however, relative. This behaviour could be named verbalised intention. It is not guaranteed that actual behaviour would correspond to the verbalised willingness. However, some previous evidence suggests that the questions serve to identify environmentally active people. Those people, who show a high willingness to pay, are the ones, who also agree on leading their lives environmentally sound (Kuckartz 2002). Under these circumstances, we have got an interesting opportunity to find out, whether or not, and to what extent, “nature-lovers” show higher willingness to pay higher prices and cut back their standard of living in order to protect the environment. If this is the case, we can suspect them to be environmentally more aware than average.

<table>
<thead>
<tr>
<th>Overall distribution</th>
<th>Willing to pay higher prices</th>
<th>Willing to reduce standard of living</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>%</td>
<td>#</td>
</tr>
<tr>
<td>absolutely willing ++</td>
<td>19%</td>
<td>18</td>
</tr>
<tr>
<td>rather willing +</td>
<td>65%</td>
<td>62</td>
</tr>
<tr>
<td>rather not willing -</td>
<td>12%</td>
<td>12</td>
</tr>
<tr>
<td>absolutely not willing -</td>
<td>2%</td>
<td>2</td>
</tr>
<tr>
<td>undecided</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Total</td>
<td>100%</td>
<td>96</td>
</tr>
</tbody>
</table>

Before investigating into the differences between the two subdivided groups, the overall pattern is presented. The distribution of both questions’ results show comparable shapes (see table 12 for the distribution, and figure 20 for a diagram). Generally, willingness both to pay higher prices and to cut back living standard is quite high: 84% with prices and 73% with standard of living. It is noteworthy that more people are absolutely willing to cut back their living standard than are absolutely willing to pay higher prices (23 vs. 18). Contrasting that, there are in sum 22% of respondents, who are rather not or not at all willing to reduce their living standard, while only 14% would not want to pay higher prices in order to protect the environment. When looking at the overall results, with additionally taking the comments into consideration, the picture is relatively positive for both the willingness to pay higher prices and the willingness to lower the standard of living. The differences between the two are existent, but not large. What does the situation look like for the individual distributions of the “non-nature-lovers” and “nature-lovers”?"
The willingness of “nature-lovers” to pay higher prices for environmentally less harmful products is without “blemish” – 100% of respondents in this group are either absolutely (29%) or rather (71%) willing to pay higher prices. As figure 21 visualises, also the “non-nature-lovers”’ agreement is large (78%), whereas one fifth is rather not (17%), or absolutely not (3%) willing to pay higher prices. The fraction of “nature-lovers”, which is absolutely willing to pay higher prices (29%) is almost double in comparison to the “non-nature-lovers”’ fraction in the same category (15%). This distribution visibly supports the hypothesis in tendency.

Figure 21: The answers of the two comparison groups concerning willingness to pay higher prices.

The distribution for the results to the question, whether people would be willing to cut back their standard of living for the environment’s sake supports the hypothesis, as well. While in this case, there also are “nature-lovers”, who are rather not willing to jeopardise their standard of living (8%), willingness is nevertheless larger than among “non-nature-lovers” (in sum: 92% vs. 71%). Especially the fact that 42% of respondents with strong emotional affiliation with nature are absolutely willing to reduce their living standard in comparison to only 18% among the “non-nature-lovers”. About the same percentage in each group is rather willing to reduce the living standard for the sake of the environment. Figure 22 provides a diagram of the distribution.

The results indicate that the “nature-lovers’” verbalised willingness to both pay higher prices for products that are less environmentally harmful and cut back on their standard of living for the environment’s sake is stronger than the “non-nature-lovers’” willingness. Thus the hypothesis that emotionally affiliated people are more environmentally aware is backed by the results to these two questions.

4.1.3. What we learn from the questionnaire results

The questionnaire results showed that respondents with a profound emotional affiliation to nature (“nature-lovers”) have views of nature that differ to some extent from the rest of the respondents. The “nature-lovers” are found to respect the right to live for nature more. Furthermore, they agree stronger to live in harmony with nature. “Nature-lovers” are moreover found to have a more cautious opinion concerning the interference with nature. They are detected to have a less utilitarian concept of nature than “non-nature-lovers”.

Correlation between an emotional bond with nature and environmental attitudes can generally be found in three questions that were analysed by comparing the results of the two isolated comparison groups of “nature-lovers” and “non-nature-lovers”. The same is true also for the results of those questions, which are not presented in the paper due to lack of space. The results are interpreted as “nature-lovers” having an environmental awareness above average, because they see a stronger responsibility in the environmental context with themselves; additionally they show particularly higher willingness to make
sacrifices for the sake of the environment. It must be noted that correlations are generally not strong. From these findings I argue that the hypothesis is supported by the questionnaire results.
4.2. Interviews

In this chapter, the results from four semi-structured interviews are presented. The interviewees were selected because of their emotional relationship to nature. The interviews were intended to shed more light on the issue of what an emotional bond with nature actually is, and equally important in what ways it shows in different people; furthermore, the interviews attempted to clarify how people acquired an emotional bond with nature. Moreover, the interviews dealt with the examination of the interviewees’ environmental attitude and behaviour, in order to get an impression of if the interviewees’ attitudes and behaviour can be brought in connection with their nature experience and emotional bonds with nature.

4.2.1. The interviews: Emotional relationship to nature

The four interviewees have made quite different experiences and show different attitudes, when it comes to their emotional relationship to nature. A short profile of each of them is given at the side in box 4 as a reminder. I am now presenting the degree of consciousness of that emotional relationship as revealed in the interviews. I try to demonstrate how their convictions manifest in their lives.

In Siegfried’s eyes, “nature is perfect.” In nature Siegfried relaxes and finds a way to reach a balance within himself. Siegfried describes an interaction between himself and nature as a flow of energy, of emotional energy. “In contrast to physical energy, emotional energy cannot be measured.” Siegfried has a whole concept based on this kind of energy. He found out about the positive effect that nature had on him when he spent four months all by himself in a Swiss village in the Alps for. He was there in connection with his education to be a wine-maker. He mostly spent his spare time out in the mountains hiking or cycling. However, he only noticed the influence that nature had on him, when he did not spend time in the mountains for some time. “There was something missing for my well-being.” He found out, that his energy balance was ‘in debt’.

Once Siegfried had realized that nature meant a significant source of energy for him he allowed it to have an important impact on his life. In receiving energy from nature, he found the quietness and strength to face his worries and problems. He could be confronted with himself, with his own personality; he questioned himself and had discussions with himself. In nature, he says, “there is no distraction from essential thoughts”, indeed it comes to “confrontation with oneself.” By finding nature he found his own truth. With the energy he managed to receive from nature, he was able to find himself. Siegfried described the input of nature’s energy as a way to discover the core of his own personality and soul. He came to terms with himself. These observations match rather well with the theories of deep ecology.

He thinks that not only him but many people make exactly these or similar experiences in nature, “in fact, only few reflect on them.” He knows now that he made such experiences earlier in his life, However, neither had he noticed the causal relations in them, nor had he realised what potential they offered to him.

I asked Siegfried in this context, whether he thinks that humans have generally lost a certain contact with nature – or flow of energy, to remain in this vocabulary. He does not think so. “We are not losing the connection to nature. There are just so many other things that have become more interesting than nature.” He refers to all kinds of achievements of modern life like cities, technology, cars, or TV and attractions that came along with them.
Siegfried is very critical of the idea that people will actually be able to change their view of the world to see nature as an important factor in their lives. “Nature will never rank first in people’s minds – no matter what happens.” He owes this perception to the idea that humans think short-sightedly. “We only start acting, when it’s already too late.” This is a widespread, somewhat frustrated view of things also to be found among many environmentalists.

I find it noteworthy to present Siegfried’s energy concept that we spoke about extensively during the interview. According to this idea in order to feel well, we need emotional energy all the time. His idea of an emotional energy budget, which determines the well-being is, in fact, not restricted to be replenished by interaction with nature only. We constantly spend/use energy and refill our energy balance. Also – and primarily – by interaction with other people, we increase or decrease our energy budget all the time. The energy, which is exchanged between people is still the same as one receives from nature. People can use up each others’ energy, e.g. by arguing or making fun of someone. One person is left behind poorer in energy, that means feeling worse than before. The other person feels better off by having gained energy from the other one. In situations of fights, it is also common that both (or more) people lose energy and feel worse after the fight. On the other hand, people can also give energy to each other. For instance, by laughing with each other, showing trust, or having an inspired conversation. These are cases of a mutual increase in energy. An increase in energy can also be accomplished by deliberately giving away energy because of subjection.

Siegfried’s sole experiences in the Swiss Alps sensitised him for the existence of his energy level. By and by, he figured out the significance for his life and well-being. Since then this conception has been accompanying him, bringing more focus into his life, he says, about what he wants and what he does not want.

“Yes, definitely,” Manfred has an emotional relationship to nature. To the question, where he developed an emotional bond with nature, he replies that, “for me, the strongest interactions in nature were to be seen in deserts. […] In Persian deserts – it is simply very beautiful!” He can, however, not explain the emotions which he felt in those situations, since “they took place were 30 years ago.”

Manfred also says that nature is a very important place to release stress for him. Nature for Manfred in this context is garden, or just ‘outside’. “It is easier to release stress outside than inside the house.” For this reason he enjoys summer especially, because he can make full use of his nice garden, where the interview took place.

I asked Manfred if there was anything like communication between him and nature in moments of relaxation. In his reply, he modifies ‘communication’ to “interaction with nature rather; since I change in this interaction.” This change during interaction leads him to a state of higher relaxation. Not surprisingly, the interaction is connoted positively. Do you gain energy from being in nature? “Definitely!” he replied. Manfred does not have a sophisticated theory on the issue of energy exchange as Siegfried does. However he, too, agrees to, the observation of reaching a higher degree of well-being, as well. Some sort of scepticism and unease become tangible however, when I relate to respective ideas in science. “I probably have the disadvantage that I am a rationally directed scientist. […] Science itself is not emotional, but tries to be logical and rational.” In his view, science is free of emotions and has to remain free of emotions. Otherwise, it is not science anymore. He is critical about the scientific authenticity of social sciences, in general. “It is difficult, as the fields are blurred.”
Eberhard’s emotional affiliation with nature shows in a different way. Asking him about the origins of his love to nature – or “everything natural”, as he prefers to call it – he impulsively and excitedly starts talking about his childhood. Through his father mainly, he adopted this connection with nature. He describes his father as a hobby ornithologist, as someone who observed the clouds and predicted the weather from that. When Eberhard used to be a child, he went for walks to the forest with his family. “Going for walks always meant taking a bag to collect mushrooms, beech-nuts, acorns.” In his early memories, the involvement with natural products almost always entailed economic activity, as well, since during the years of war and after his family had almost nothing (roughly 1940 to beginning 1950s). Using freely available natural products was a way to have at least something. The garden of the family was solely dedicated to subsistence farming. Still today, Eberhard finds that “producing food for yourself in the garden creates a connection [with nature].” I can see for myself that he still puts this attitude into practice taking/having a walk through his garden. During his childhood, his family was involved in agriculture. In this context as well, he had very much contact with natural products. He vividly described how they isolated the barn’s outer walls by filling leaves into the walls’ hollow space. Still today, he believes in the quality and almost mystical superiority of natural products compared to industrially manufactured products, because “they live, they are warmer, they circulate.” From these childhood memories one can deduce that Eberhard already early in his life obtained respect and love for nature by education from his father and continued close contact with natural life.

Today, nature has a truly inspiring effect on Eberhard, as he gets excited when telling about the work he does in his garden. In fact, nature is life itself for him; when he tells about his garden routines, he gets into a rave: “This is gratefulness that I feel! It is nicer than a Christmas present, when I can shift the compost heap!” Continuing with a shine in his eyes, “I have to watch out that the robin [bird species] doesn’t jump on my shoes. They look at you! They live with you! This is a heartfelt connection…all quiet, I don’t have to talk then…. These pictures, these experiences. These are things you can feel in no film, nowhere else.” The picture in figure 23 shows the compost heap he enjoys shifting so much.

The interaction with the natural surrounding makes him feel good and fascinates him. It is more to him than a mere way to pass his time, or to take care of his garden. It is a passion in its best sense. He observes, he prepares for nature, he enjoys the fact that plants develop and when his surroundings are attractive to animals as well. Apart from birds, he also mentions the cats that roam in the neighbourhood, mice, which enjoy the compost heap, hedgehogs, squirrels and martens, which he loves to observe in warm summer nights, when he lies on the bench in his garden. Eberhard loves to be with three of his granddaughters, who live just next door. He enjoys that the girls (aged between 4 and 8 years) are open to nature without reserve. “They even put an earthworm in their pocket, they have no problem with that. That is so nice. And they [the earthworms] are anyway cleaner than us, despite all our soap, and stuff that we have.” Sometimes, when he is digging up the vegetable bed in his garden, he tells the children of the nearby kindergarten stories about the earthworm. “I tell them that I do the same for the earthworms as their mothers do when they fluff the beds for the children. You should see how happy they are then!”, says Eberhard with an equally happy face.

Eberhard is fascinated by the smells that nature provides us with. Since the interview took place on the terrace of his garden, he readily makes me go to various plants and small bushes around the terrace and
asks me to touch them, joggle them, and smell the different strong odours the plants emit. “I can tell you many things here around us that not only impart strong activities in terms of seeing, hearing and feeling, but also in terms of smelling.” For him, the intense odours directly turn into a quality of life: “These plants give you a nice, aromatic way of life.”

“Yes, of course!” Karl feels strongly connected with nature. “But,” he adds to the statement “I am not only connected with nature – everything is connected with everything.” In his childhood, he went out with his parents to the natural areas surrounding Berlin to enjoy their spare time. During this free time he learned about trees and animals. For him, there have never been unimportant or annoying animals, nor pest plants. “Anything in nature is there for a reason”, he was told.

In this way, Karl very early became acquainted with an aspect of reality in his human life, as he puts it that is inseparably connected with the world around him. This world around him includes the people around him, their deeds and activities, and nature. He said that he reached this ecological consciousness already early in his life. One can recognize this as a very early manifestation of an ecological thinking. The understanding of the necessity of protecting the environment, he said, was mainly acquired in the urban context of waste generation, pollution, and traffic. So, he did not become environmentally conscious after having made nature-related experiences, but was already sensitised beforehand.

The moment when he realised that he was actually part of this world, part of this earth, and part of nature, was later in his youth. It was when he was in Greece on an island’s beach, dancing to the rhythm of music. He suddenly noticed that he is one with everything. The first step was to realise his very existence: “I suddenly realised: Aha! I am! My mind and my body are one!” Karl gets excited remembering this important moment. The following step was to realise his connectedness with the environment. Music played an important role in this context. “I am one with the surrounding. The music moves body and soul in the same rhythm. Body and mind are on the same level. Transcendental consciousness!” This transcendental consciousness is the key for him to experience and explore the unity of all things.

It was during his late teenage stage, before finishing school, when it suddenly became obvious for him that the only logical job would be in environmental protection. Today, he studies the interdisciplinary course “Environmental and Resource Management”. Before that, he started a course in environmental engineering, but decided to change, because it seemed that the engineers were apparently not willing to include a multidisciplinary approach in the education, which Karl thinks is essential.

4.2.2. The interviews: Environmental attitude and behaviour

Siegfried has a realist’s attitude to environmental protection. “Practically seen, it is of exceeding priority that the natural space is preserved, but: I am realistic enough to say that environmental protection is very, very, very important, however, there are more important things,” he says somewhat hesitatingly. With this he expresses that he basically is of the opinion that the environment should be protected and that this is of utmost importance. Yet it is more important, that social and economic well-being are flourishing. Siegfried thinks that “before we protect nature, the basic means of livelihood have to be met.” I think no one would want to protest against the fact that the basic means of livelihood should be met. It is rather the question, what ‘basic means of livelihood’ actually are. On top of that the assumption that the protection of nature and well-being are contradictions as such has to be dispelled.

“I see myself powerless” is Siegfried's answer to the question whether he feels responsible for taking his share in environmental protection. Siegfried sees the responsibility mainly with the legislator, who sets the framework for the citizens’ lives. He himself does not feel that he could take the right decisions,
because his knowledge on the issue is not sufficient. “People, who have a clue about these things must develop reasonable concepts.” With this attitude, he definitely represents the opinion of many Germans. I consider it understandable to think this way, especially if people have little insight into the field and no particular interest in it. But limited insight and missing interest do rather reflect that the issues of sustainability are not sufficiently part of public discussion and citizen involvement. Apparently of a different opinion, Siegfried’s perception tells him that with respect to environmental protection, “we are on the right track – at least in Europe.”

For Siegfried, the combination of environmentally positive behaviour and a high standard of living are difficult to imagine. “The comfort of a fridge is more important to me than the energy that I save by not having one.” Being aware that his somewhat self-righteous attitude apparently annoys the interviewer, he regretfully adds that “of course this [environmental degradation] is bad, but basically I want to go on holiday by car.” Another indicator for environmental behaviour is whether people buy ecological products. Siegfried does “not consciously buy ecological products.” With respect to his job, it is important to Siegfried that he does not conduct practices that would harm the environment excessively. But he is uses herbicides and pesticides to such an extent that allows him to reach his primary goal of achieving the best quality grapes. He strictly pays attention that the amounts he applies, and the times of application guarantee the highest possible efficiency per volume of plant protectant.

Figure 24: Can people find the mindset to care about the environment in beautiful landscapes?

Manfred is convinced that, “everyone definitely has a personal responsibility – me too, of course!” Nevertheless, he does “rather little [for the environment].” He cannot think of anything he changed in his lifestyle solely ascribable to an environmental purpose. His family sold one of their two cars, which has had a positive effect on the environment. Being aware of that fact, he admits that “this was not for environmental reasons primarily, to be honest.” He only uses public transport, for example, in case there is no other way. He would not use it for environmental reasons only. He can easily see the advantages increased public transport would have for the environment, but he finds that its convenience is too low. So, for him the environment is not a sufficient reason to change from a predominant use of the car to buses and urban trains instead.
I ask Manfred whether he thinks his emotional experiences with nature have had any influence on his environmental attitude. He replies, “I think so, because I learned to regard nature as something, which is worth conserving.” Asking further, whether this thought closes the gap between his everyday life and his awareness of nature – that would represent the step from attitude to behaviour – he says, “this is difficult to accomplish.”

Manfred feels he would actually like to contribute with more for protection of the environment than what he is currently is doing. But he finds his practical knowledge of how to behave environmentally correct is just not sufficient. This is in accordance with what Siegfried said earlier. Manfred sees knowledge as the prerequisite for a change in behaviour. As a way to improve his and the overall situation of ignorance, he says that information strategies on environmental issues should be changed. Especially, “TV could do a lot more. […] There is a lot of information available, but it is presented in a bad way.” He finds that present information either excessively stresses the complexity of environmental problems and makes them incomprehensible to the viewer, or strives for sensation or fear. Both ways are not appropriate to promote the population’s ability to understand the dimension of the problem and to encourage the population to make a contribution to solution of the problem. Information should instead be presented “in a practical way and it must be easy to understand”.

Later in the interview, I ask Manfred again – this time stating clearly the implied connection between emotions towards nature and environmental behaviour – whether he sees his environmental behaviour being influenced by his emotional affection to nature. He states once again, this time more directly that “in fact I have these emotions for nature, however, they have not positively affected my environmental behaviour.” I conclude from this that his daily decisions are not influenced by his emotions towards nature.

Comparing Manfred's and Siegfried's attitudes we can say that their environmental awareness is as far developed as that of many Germans. There is a general awareness of environmental problems. But there is no particular interest in the field, no membership in an environmental organisation. Especially with Manfred, interest is suspected to be rather a part of general interest in current topics. Both recognise the environment as an important factor to be considered. Their emotional relationship to nature cannot be brought in correlation with a particular environmental behaviour. Although Manfred recognised an influence on his environmental attitude, the thought was more theoretical. Siegfried seems to logically disconnect his emotional affiliation with nature from the implications that his attitude and behaviour have on the environment. Environment and nature seem to be perceived as different concepts.

Similar to Siegfried and Manfred, Eberhard’s environmental awareness is rather a form of good citizenship than an expression of concern about an environmental problem. I believe that Eberhard’s environmental awareness can be brought into association with his principles of use of material. It is “the unnecessary waste of material” that makes him angry. He himself sees a particular reason for that: “I grew up in times of war.” In those days he learned that the things, which were available had to be used. This attitude still shows today: “I can’t throw things away. I might still need them. This is why it hurts me nowadays to see how computers are smashed up, how products become worthless right away. They are produced – and then they are good for nothing. This is crazy, it cannot continue this way, it just cannot continue this way.” He partly sees the implications that has for the environment, but not primarily. When in our interview I tend to share his view and tell him that this is a complaint also made by environmentalists, he agrees; however, he sees the situation rather in a large economic and ethical context: “For me this is the conflict of our times that there are no more people, who repair things. We think that the time is not available anymore. But do we need so much time to repair it? Does it not take
more time to make a new product? We just don’t want to do it. We want to sell, we want to make money fast.”

We can see from these words that the driving force for his awareness is not really environmental concerns as such. It is rather an underlying critique of the economic and social development of the last decades that comes to light here. His views anyhow match very well with principles of resource and waste management, which aim at lower resource intensity. Reduction of material and re-use of products instead of purchasing new products can contribute to the accomplishment of this aim. The attitude that Eberhard has concerning the use of, high quality material and longevity of products are at the core of environmentally sustainable living patterns.

Moreover, his critique embraces a philosophical dimension. He complains that obviously nowadays the time is not available anymore to repair things. I think he implies that life has become too rushed, too stressed. He favours a slower, more thoughtful way of life. This is tangible at one point in the talk, when he uses the simile an old dying tree in his garden to describe his feelings: “I feel sorry, when a tree dies, because it has history. It was here, when there was nothing around him. And if you then think how such a tree has endured quietly and peacefully, year after year… we idiots get excited and stress ourselves about minor problems. How much fuss we make about ourselves. And the tree stands quietly and peacefully, yields fruits and gives them to you.” These words describe well the kind of connotation nature has for Eberhard. It serves as a kind of role model for him that we humans should calm down our lifestyle, look around and enjoy our time on earth. Nature is a place, where he feels at home, where he feels familiar and comfortable.

Eberhard’s environmental behaviour goes along quite well with his environmental attitude. He does not believe in eco-products, since he is convinced they are only a business that pays. Concerning his work, he does not want to make compromises: “My work is more important to me than using ‘eco’. […] I prefer to use my eco-power for good material”. He gives the example of the fence in front of his house, which he was currently repainting. “The fence was painted 18 years ago with diligence [and common paint]. No one can tell me that this harms the environment.” By this, he means that the way he does things they would function for a long time without having to be renewed. In this way, he claims to have served the environment by having saved paint for many years. And now, when he eventually has to renew the paint, he uses the conventional paint, because it is better processable, as he says.

For Karl it plays a major role that his parents educated him in such a way that he became environmentally aware. He said, that when he threw some plastic on the ground as a child, his parents told him that it would remain there for a thousand years, in case he would not take it with him and dispose off properly. Waste was never regarded as waste in his family. They took for granted that waste was just an intermediate stage of material or matter, and that they would either be useful again for humans or would be harmful to the environment. During school time, he was often made fun of by his class-mates for collecting the valuable trash, such as aluminium foil. Of course, he did not like being made fun of, but at some point he accepted his role and later developed it into his field of expertise, and it became his path in life: dealing with the protection of the environment. Another instance in his childhood, which influenced the awakening of his environmental conscience was when he walked with his parents through the streets of former East Berlin, investigating whether the trees were healthy or not, how they were planted in the asphalt, and if there were any possible correlations to be made between the state of the tree and surrounding industries, traffic etc.

Today, Karl tries to minimise his environmental impacts. He knows that it often is not easy to live sustainably. For example, when he wants to go by car to transport things. Flying is also difficult not to do,
he says. Especially because travelling gives important experience and enriches one’s life. Karl heeds environmental advice firstly by buying new products only when it is really necessary and secondly buying products of high quality and last but not least producing little waste. Karl is the only one of the interviewees, who shows earnest effort to let his convictions influence his environmental behaviour. On the other hand, he also is the one who presumably has the best environmental knowledge due to his environmental studies and interest in the field.

For Karl, nature experience was not the primary factor to influence his environmental attitude or behaviour. However, nature played an utterly important role in reaching his state of consciousness. This consciousness is the conviction that he is intimately related and connected to everything – which nature is part of eventually. In this way, it is nature that gives Karl the spiritual conviction to “be”. “To be,” he repeats this again and again. He tries to explain something he cannot express in words. It is just a feeling, a state of mind, an awareness of life. The conviction to be embedded in nature forms the spiritual and emotional framework to his rather rational knowledge-based environmental attitude and behaviour. Parallels to deep ecology can be seen here.

### 4.2.3. What we learn from the interviews

From the interviews, the hypothesis cannot be proven or refused in a clear-cut manner. It becomes apparent that a direct causal link from an emotional bond with nature to an increased environmental awareness and improved environmental behaviour cannot be deduced.

All four interviewees state to be emotionally affiliated with nature. However, their emotional affiliations show in different forms, and it is therefore not possible to draw uniform conclusions for the four of them. However, the interviews served well to present four variations of emotional relationships to nature. The cases cannot be regarded as more than individual cases. Nevertheless, they provide a basis for discussion.

All of them claim to be environmentally aware. Closer investigation and discussion illustrated that their awareness does not exceed recognition of the importance of environmental protection. That means, their environmental attitude is observed to be present and high. However, except for Karl, none of them indicated to make a deliberate effort to behave environmentally friendly. Karl, in turn, is the one who probably has the most expertise in the field of environmental science. He fully feels as part of a whole, which gives him an ecological consciousness.
5. SYNTHESIS

The questionnaire results showed a general positive correlation between emotional affiliation to nature and environmental attitude. The correlations varied from question to question, but were, in general, not strong. This seems to be common for correlations of this kind, since the observation is in accordance with what de Haan and Kuckartz (1996) conclude after a review of numerous social psychological and pedagogical studies, which investigated the factors that influence environmental attitude and behaviour. None of the reviewed studies included emotional bonds, though. They find that in all studies, the presumed correlations between environmental knowledge, affectedness by environmental problems, attitude and verbalised behaviour exist only rudimentarily, “and where significant correlations can be found, their magnitude is not appreciable” (de Haan and Kuckartz 1996, p. 127). This conclusion does not seem to host much trust in this field’s research. However, they admit themselves that environmental behaviour – with the change of which being the ultimate goal of the inquiry – is not a uniform construct, but a concept influenced by so many factors that it is difficult to see through its structure (de Haan and Kuckartz 1996). Bearing the fact in mind that there are no causal relations, which work with the same intensity for every person, but are indeed very different between individuals, even weak overall correlations are considered to show relevant hints to existing interrelations. Now this point of view can be criticised as well by asking: If causal relations are so weak, why do we keep on trying to use them as a basis for intended behaviour change? I suppose we do so, because there is not really a different method, which would allow us to investigate the relation between factors and the affected attitudes.

But what is really the value then of knowing that there is some correlation between an emotional bond with nature and environmental awareness? Especially for environmental policy it is important that environmental awareness among the population is high, in order to have support by the population for policies and reforms, which affect the people (Troge 2002\(^5\)). If awareness is consequently aimed to be high, the strategies to increase awareness are sought-after. Establishment and support of programmes that aim at halting people’s alienation from nature, or that in other words focus on strengthening people’s emotional bond with nature, are identified as possible method to strengthen environmental awareness\(^6\). Emotional bond with nature can in this sense be seen as a promoter of environmental awareness. Due to the implications of awareness on attitude and behaviour (as described in the theoretical framework), the correlation between emotional bond and awareness suggests that an emotional bond has a causal influence on environmental attitude and behaviour. The following section elaborates on the connection between attitude and behaviour.

Discrepancy between attitude and behaviour

Even if it can be agreed upon the view that an emotional bond with nature indeed raises environmental attitude, it is not guaranteed that people do actually behave more environmentally friendly than with a weaker environmental attitude. In the interviews it became apparent that there is a clash between general environmental awareness and environmental behaviour. Although a person indicates to be concerned


\(^6\) An example of such a programme is “Fahrtziel Natur – Erleben. Erholen. Erhalten.” [Destination Nature – Experience. Relax. Preserve.], a cooperation between German Railways and four NGOs (BUND, NABU, VCD, WWF Germany). The cooperation aims to promote sustainable tourism in Germany, promote nature reserves as attractive destination, and to increase the use of railway transport for leisure activities. (www.fahrtziel-natur.de)
about the environment and willing to do something for the good of the environment (verbalised commitment), the actual behaviour does not correspond to the attitude. Manfred, for instance, is concerned about the environment, he thinks that everyone has got a certain individual responsibility in the context of environmental sustainability. Additionally, he is well informed – at least as informed an interested citizen can be, without particular scientific interest in the field. Nevertheless he does not behave ‘particularly environmentally aware’. One can observe here that attitude and behaviour do not coincide well. This raises doubts as well concerning the verbalised commitment of the respondents in the questionnaire. One raises the question to what extent behaviour is determined by attitudes.

Fishbein, and Fishbein and Ajzen together have conducted extensive research on the correlation of attitude and behaviour, and developed the ‘Theory of Reasoned Action’, first introduced by Fishbein in 1967 (Fishbein and Manfredo 1992). Fishbein and Manfredo (1992) explain that, “this theory is best seen as a series of hypotheses linking (1) behavior to intentions, (2) intentions to a weighted combination of attitudes and subjective norms, and (3) attitudes and subjective norms to behavioral and normative beliefs” (p. 30). From this series of causal relations it follows that behaviour is eventually determined by underlying beliefs, which leads to the view that changing behaviour can be seen as a matter of changing the underlying cognitive structure (Fishbein and Manfredo 1992). This concept supports the idea that a changed mindset – e.g. a deep ecological consciousness – can determine people’s behaviour in a way that is environmentally sound.

But one has to pay attention here that the ‘Theory of Reasoned Action’ only produces accurate predictions, when specific intentions (‘behavioural intentions’) are considered (Fishbein and Manfredo 1992). Only having a certain attitude does not make a person have behavioural intentions. Behavioural intentions require the person to have a precise idea – or at least to think to have a precise idea – of what the appropriate behaviour is to realise a certain attitude and subjective norm. That is why it is not possible to apply the ‘Theory of Reasoned Action’ here. At the same time though, it gives a hint to what might be a general problem in the aim of changing environmental behaviour. The theory’s perspective could give a hint to answer why despite the fact that attitude is present and positive, corresponding behaviour lags behind: individuals have not got the right ideas at hand how to realise their basically right attitude. This corresponds to what Manfred said in the interview. He stated that he would be willing to contribute with environmentally sustainable behaviour, if he was informed appropriately. This underlines the importance of environmental education. This education should focus on modes of behaviour that are understandable by anyone, and do not require profound scientific knowledge. Perhaps the environmental research community tends to be somewhat arrogant as well, in this context when not communicating environmental problems in sufficient simplification to the “ignorant man.”

Are “love to nature” and “deep ecology” identical?

The thesis was also set out to find out if there are people, who think according to such a concept, and in case there are, whether or not their environmental attitude is actually better than that of other people. The respondents to the questionnaire have been divided into two groups, the “nature-lovers” and the “non-nature-lovers”. Can “nature-lovers” and ecologically conscious people be referred to as sharing the same views?

In the theoretical background, deep ecology has been presented as a possible philosophical framework principle. It promotes a deep ecological consciousness. As presented by the theory, a deep ecological consciousness, which also embraces the natural environment as entities of moral relevance, is imperative for environmental protection. I do not claim that all participants, who have been separated as “nature-lovers”, have an ecological consciousness. However, when selecting the critical questions for identification of the people with a profound emotional bond with nature, a variety of questions was included, with which I aimed to embrace aspects of emotionality, role in nature, and a certain spirituality.
With doing this, it was hoped that a subpopulation could be formed, which at least leans towards the tendency of having an ecological consciousness. With people who have an ecological consciousness, I mean individuals whose thinking corresponds largely to the principles of deep ecology. It shall rest with the individual to decide what she or he considers an ecological awareness eventually, having the theoretical considerations in mind. Or maybe you have got a friend or someone you know, of whom you think they have got such an awareness; maybe you consider yourself to be deep ecologically conscious.

Talking about the consciousness of a person, or the mindset, it is very difficult to know to what extent the answers given in a questionnaire, or the relatively few statements in an interview do represent the true and complete attitude and emotional landscape of a person. The identification of a worldview or type of consciousness is, in practice, a complicated task. The philosophies laid out so neatly in theory, do not correspond one to one to what is observable in people’s mindset. There are only few aspects coinciding between theory and real life, especially with respect to such a complex field as the human mind. The view of nature of a person can, for example, consist of a utilitarian ethic, but at the same time combine aesthetic and negativistic elements. What in theory looks like contradicting concepts, can coexist in a person’s mindset.

Closing the circle

It was one of the first questions of the thesis to answer the question whether or not those people with such a profound emotional bond with nature actually have an increased environmental attitude and behaviour. I believe that the evidence from the questionnaire hints to answering that question with yes. The yes is not a strong yes, and needs some additional investigation. However, as de Haan and Kuckartz (1996) noted, correlations between all kinds of investigated factors acting on environmental attitude are typically low (see above). The interviews do not allow a straight answer to the question, since the interviewees differed too much from each other. Anyhow, I believe the cases of Eberhard’s and Karl’s orientation can be taken as examples of a self-perception that realises the self as an intimately integrated part of nature. Eberhard, without particular environmental knowledge, intuitively, and based on his philosophical principles, is assumed to live environmentally sound. Karl, having gained ecological awareness, at the same time being familiar with concepts of ecology, environmental science, deep ecology, and spirituality, is fully into it. His awareness is definitely considered deeply ecological.

As the question is answered, if a deep emotional relationship influences environmental attitude and behaviour, then the question remains, how it influences it.

After having gained some insight from the results part on the quality of emotional relationships to nature (interviews) and the effects of emotional bonds with nature on environmental attitude and verbalised behaviour (questionnaire), let us take one step back and take a look at the causal chain proposed by de Haan and Kuckartz (1996) that was described in the theoretical framework.

According to this model (figure 25), knowledge creates attitude and attitude changes behaviour. Knowledge can also influence behaviour directly. The question now is, at what point in the causal chain deep emotional bond with nature comes into the picture. Can it replace knowledge? Does it act simultaneously as a second drive next to environmental knowledge? Or is its influence negligible?

I have learned that the general logic can be maintained, also under recognition of a profound emotional bond with nature or deep ecological consciousness. As I see it, the emotional setting of the person rather creates a prolific atmosphere for the causal chain to operate. So, it is not that ‘emotional bond’ could be
added to the causal relations to act on any of the items specifically. It much more creates the cognitive environment, which fosters the true importance of the available knowledge through understanding.

Knowledge cannot be replaced. Since some kind of basic insight is paramount, knowledge has to be present. It does not necessarily have to be scientific knowledge, it can also be accomplished by experiential knowledge on the interrelations in nature and the effects of humans on nature. The point in this context is that this knowledge leads to a supposed change in attitude. Following a changed attitude – which desirably is more environmentally conscious – the environmental behaviour is expected to change for the better. Even though it has been shown above that there generally is no strong correlation between attitude and behaviour, it is hypothesised that the consciousness under influence of an emotional bond with nature will give knowledge an atmosphere of deeper understanding. In this context it is important to elaborate on the difference of knowledge and understanding.

**Knowledge vs. understanding**

What seems to be important is to work out a distinction of the term ‘knowledge’. One can distinguish knowledge into information and understanding. Information is understood as still unreflected data or knowledge. Understanding is a higher form of knowledge. In understanding, information has been processed by an individual and put into a personal context by experience. Understanding happens, when there is a frame given to knowledge. Understanding could also be seen as a form of enlightenment, when knowledge incorporates into a person’s control.

In the case of Germany, information on the environment is available. Also, practices of how to conduct everyday life more environmentally friendly are easy to access and many times even part of common knowledge. A usual phenomenon that can be observed – and I am sure everyone knows situations like this from personal experience – is that the actually better behaviour is dismissed in favour of accustomed behaviour or comfort.

Behaviour changes are more likely to happen when conviction drives the individual (Jensen 2002). Conviction happens through understanding. Understanding should be perceived as the enlightening moment, when knowledge and experience come together. Possessing understanding does not only mean that a person has got knowledge on an issue, but that this knowledge makes sense in the person’s context and reaches the level of consciousness. The point I want to make here is that knowledge needs the right surrounding to “sprout”. The implementation of knowledge must be based on the belief of doing the right thing (Laszlo and Laszlo 2002).

**Summarising the circle**

The findings from the questionnaire and the interviews indicate to me that an emotional relationship to nature is able to influence environmental attitudes positively. It is not likely, however, to influence environmental behaviour. The relatively extensive work on this topic, which included not only working with the results of the questionnaire and the texts of the interviews, but also lots of discussion with many people, who had not thought about the issue beforehand, lead me to a theory. A deep emotional affiliation with nature of the type ‘ecological consciousness’ – as in the case of interviewee Karl for instance – can act as a strong “nutritious basis” of a distinct environmental attitude and behaviour. This is supported by Maiteny (2002), who says that pro-environmental behaviour change is more likely when a person’s “heart is in it”. Such a mindset would be an ecological consciousness. The emotional bonds with nature, as we have seen them in the cases of Siegfried and Manfred, are not considered to go as far as an ecological consciousness. The observation also reflects what Kollmuss and Agyeman (2002) found; they “see environmental knowledge, values, and attitudes, together with emotional involvement as making up a complex we call ‘pro-environmental consciousness’. This complex in turn is embedded in broader personal values and shaped by personality traits and other internal as well as external factors” (p. 256).
Figure 26 summarises my gained understanding in a symbolised form. It includes the causal chain presented above in figure 25. The tree symbolises environmental attitude. Environmental knowledge (the soil) is necessary for the tree to stand and grow. That means that knowledge is a prerequisite for environmental attitude to evolve. The fruits growing on the tree symbolise environmental behaviour. Please note that the fruits do always grow on the tree of environmental attitude, but at varying degrees of intensity, depending on the available sunlight. The sun and its rays symbolise a deep emotional bond with nature. The stronger the sun is shining (the more a person feels intimately integrated to nature), the bigger and better the fruits (environmental behaviour will be). The cloud symbolises alienation from nature. It shades the sunlight from the tree, dampens its growth and the development of the fruits.

This thesis could thus be seen as an affirmation of deep ecology or ecopsychology. They promote a new philosophy of mind that would recognise the natural world as equal partner. Accomplishment of a different worldview on a large scale would take a lot of time. There are philosophers, who see the transformation already under way (e.g. Capra, Roszak). This positive view towards radical social change is opposed by a view, which might be called more realistic. Anderson (1996) does not dislike the ideas as such, he just does not think that it will accomplish its objective in a reasonable – and limited – time frame. He says that “[i]f we wait for the whole world to convert to goddess-worship or spiritual ecology, we will all be dead” (Anderson 1996, p. 98). He holds that instead, a minimum of basic points has to be established, which does not only appeal to “eco-radicals, but also to liberals and conservatives as well” (Anderson 1996, p. 98). I am afraid that Anderson is right. Solutions have to be found in the existing political fora. Even though a social transformation might be underway, the belief that exactly such a worldview will be the next dominant one, is very optimistic, to say the least. Anyhow, the emotional bond with nature is not a phenomenon of contemporary relevance only. It will remain a good reason for nature protection in the future.

I end with Fritjof Capra’s words, which condense much of the thought presented in this thesis.

“Logic does not lead us from the fact that we are an integral part of the web of life to certain norms of how we should live. However, if we have deep ecological awareness, or experience, of being part of the natural web of life, then we will (as opposed to should) be inclined to care for all of living nature. Indeed, we can scarcely refrain from responding in this way” (Capra 1996, p. 12).
6. CONCLUSIONS

The hypothesis that a deep emotional bond with nature has a positive influence on environmental awareness, is supported by the results of this thesis. However, one has to distinguish carefully. Assuming that environmental awareness consists of environmental knowledge, environmental attitude, and environmental behaviour, findings differ for the three items.

Environmental knowledge:

The presumed influence of knowledge is approved. It was found that specific knowledge is a crucial prerequisite for a concrete behaviour change. The thesis additionally attempted to answer the question, if scientific knowledge can be supplemented by instinctive knowledge. Some evidence was found that instinctive understanding of ecological cycles and that humans are an integral part of nature, can foster the comprehension of what environmentally destructive practices are.

Environmental attitude:

Environmental attitude was found to be notably raised for respondents with a deep emotional bond with nature. This showed by the “nature-lovers” living in closer relation with nature, having a more cautious opinion concerning human interference with nature, and having a less utilitarian concept of nature than “non-nature-lovers”. Furthermore, “nature-lovers” take stronger personal responsibility in the environmental context, and they show higher willingness to make sacrifices for the sake of the environment. Correlation between an emotional bond with nature and environmental attitudes can thus generally be found. It must be noted that correlations are generally not strong.

Environmental behaviour:

While environmental behaviour is difficult to measure by means of a questionnaire, and the verbalised willingness to make sacrifices is interpreted as attitude rather than behaviour, further understanding was gained from the interviews. While all four interviewees stated to be committed to environmental protection, interviewees that rather showed a ‘service-oriented emotional bond with nature’ (in contrast to deep emotional bond with nature) indicated that they do not behave deliberately in favour of the environment. One interviewee was found to be environmentally behaving; less from the intention to deliberately do so, but rather emerging from his philosophy of life, which he learned from life in proximity with nature. Another interviewee, who has university training in environmental science, and at the same time a “transcendental consciousness” (his own observation), tries to live his life with as little environmental impact as possible. The small number of interviews does not allow generalisations, though.

Departing from these results, it is argued that a deep emotional bond to nature, in combination with ecological knowledge – scientific or intuitive – can create an ecological consciousness. Ecological consciousness includes the conviction to be an integral part of nature. A connection to nature on a cognitive basis is implied. An ecological consciousness potentially fosters environmental behaviour. The relevance of the theory of deep ecology is approved to be of relevance. It is concluded that an emotional bond to nature per se does not make an environmentalist, but can indeed constitute a strong contribution.
7. REFERENCES

Books, Articles, and Reports:


Interviews


