Exploring recreation behaviour and predicting recreation outside paths

Implications for the duty of care in the nature areas of Geldersch Landschap & Kasteelen

Sanne Mees

Author   Sanne Mees
Reg. no.: 900110553030
GEO 80436
Cultural Geography Group
Wageningen University (WUR)
September 2014

Supervisors   dr.ir. K.B.M. (Karin) Peters
dr.ir. M.H. (Maarten) Jacobs

M.E.G. (Marjan) Visscher
A.J.M. (Ton) Roozen

Exploring recreation behaviour and predicting recreation outside paths
Implications for the duty of care in the nature areas of Geldersch Landschap & Kasteelen

"A path is a path because people use it,
not because a sign says it's a path."

- Manager Gelderse Poort

Table of contents

List of tables

List of figures

List of text boxes

Preface

This thesis was written for the master programme Leisure, Tourism and Environment. As I combined this programme with the master programme Forest and Nature Conservation, I wanted to make a combination of these two studies in my final research project. I was lucky that I could do this at Geldersch Landschap & Kasteelen, a nature and culture conservation organisation in the province of Gelderland, the Netherlands. The headquarters of this organisation is Huis Zypendaal in Arnhem; a beautiful castle surrounded by a forest and a park. The surroundings have given me lots of inspiration during my research and in the lunch breaks I often went outside with my camera to photograph the lovely environment. Sometimes I even went off the paths to experience my research topic for myself! The photographs on the title page and at the beginning of each chapter are the result of these walks.

I would like to thank a few people, firstly the colleagues at Geldersch Landschap & Kasteelen. Thank you so much for the fun times in between the work! I would also like to thank my supervisors Marjan Visscher and Ton Roozen from GLK and Karin Peters and Maarten Jacobs from the WUR for their support, guidance and suggestions during the project to help improve my research.

Sanne Mees
September, 2014

Summary

Geldersch Landschap & Kasteelen (GLK), a nature and culture conservation organisation in the province of Gelderland in the Netherlands is exploring the concept of wandering in nature. Wandering in nature is about choosing your own route and not having to stay on the paths. GLK is also evaluating their duty of care practices. For nature conservation organisations, duty of care means that their properties need to be safe for visitors. Trees need to be checked for safety along roads and paths and in other crowded locations. When these measures are not taken properly and a visitor gets hurt, the owner could be deemed responsible. Wandering and duty of care are strongly connected. When GLK would allow visitors to wander in their nature areas, duty of care efforts might need to be extended to the whole nature area instead of solely along the paths when many people would like to do this.

GLK does not know what type of people visit their nature areas and do not know whether their visitors would like to go off the paths. This research finds out what type of visitors visit nature areas in Gelderland and an online survey was conducted among residents of this province. Through the survey, behaviour of going off the paths was linked to several predictors that might predict this by conducting multiple regression analyses. Potential predictors were recreation motives, recreational activities, personality traits and demographics. The categorisation of recreation motives of Goossen and de Boer (2008) were used; people can recreate with five different motives: amusement, change/escape, interest, love for nature and challenge. The recreational activities were activities that could be done on as well as off the paths, from common activities such as walking to rarer activities such as geo-caching. Personality traits were measured with the Big Five mini IPIP (Donnellan *et al.*, 2006). Five personality traits have been proven to be stable factors for each individual person. These are openness to experience-intellect, conscientiousness, extraversion, agreeableness and neuroticism. Demographics used in the research were age, family composition, sex, education level, postal code and membership of one or more nature conservation organisation(s). Behaviour of going off the paths was separated into how often respondents go off the paths, how far they generally go, whether they would go more often off the paths if they would be allowed to do so (currently this is prohibited in many nature areas) and what they experience to be a limitation when wanting to go off the paths. These limitations, or obstructions, differ from grass to a dense forest.

A major finding regarding the recreation motives was that all motives showed significant positive correlations with each other. This means that they all measure the same construct. When a respondents scored high on one motive, they would also score high on all other motives. As a result, the motive index was introduced, a single variable representing the degree of motivation. Due to wishes of GLK, the five motives were still used in this research as they use this categorisation to see whether their properties offer enough diversity for their visitors. Other important findings were that recreational behaviour was mostly determined by membership, sex and age. Members participate more often in wander activities - such as birding, wandering, picking forest fruits and photographing – and go more often off the paths while doing those activities. Female respondents score higher on the personality traits agreeableness and neuroticism and male respondents generally went further away from the paths when they go off them. Young respondents go more off the paths than older respondents and experience obstructions to be less limiting. Neurotic respondents consider all obstructions to be limiting when wanting to go off the path, however, they do not go less often off the paths than non-neurotic respondents. Overall, the majority of respondents stay on or close to the paths. Current duty of care practices will not be much affected when GLK would open up their nature areas. Only very few respondents wander far away from the paths and chances of accidents are minimal.

1 Introduction

1.1 Context

Geldersch Landschap & Kasteelen (GLK) is a nature and culture conservation organisation that manages nature areas and castles in the province of Gelderland in the Netherlands. For the last 85 years, Geldersch Landschap has been dedicated to conserve nature and landscapes. 10 years ago they became one organisation together with Geldersche Kasteelen to conserve nature and culture for the benefit of the heritage of the Dutch society (van den Tweel, 2014). GLK encourages people to visit their properties and wants them to feel welcome. GLK has a citizen-driven Advisory Board which looks critically at the current policies. They sometimes ask for the possibility of easing up on the rules the visitors encounter while recreating. One of the rules GLK is currently exploring is the rule that forbids visitors to go off the roads and paths and wonder whether they can remove this rule. In other words, GLK is exploring the concept of wandering in nature. *Struinen* is the Dutch word for this concept and is often used in combination with the word *struinnatuur*, literally translated into wander-nature. However, these two concepts do not mean the same thing. *Struinen* is wandering, choosing your own route while recreating and not necessarily sticking to the paths, whereas *struinnatuur* inhibits more; it refers to a particular type of nature in which people can wander (De Vries and Beentjes, 2000). An English word does not exist for this type of nature, so *struinnatuur* will be used in Dutch and *struinen* will be translated to wandering in this thesis.

Currently, GLK is also evaluating their duty of care measures, which is called *zorgplicht* in Dutch. Duty of care means that people are responsible for any damage they inflict, directly or indirectly, on others (Brunel Legal, 2010). For nature conservation organisations this means that they should implement proper management in their nature areas in order to prevent any damage to anyone. When someone gets hurt by, for example a falling branch, and takes legal action, organisations can show that they implemented proper management activities and may not be deemed responsible (Westerink, 2005). Wandering and the duty of care are concepts that are strongly connected. At present, only trees along roads and paths are checked to make sure there are no loose branches and that no one can get hurt. However, when people are allowed to go anywhere, the question arises whether GLK needs to check the trees everywhere for safety.

1.2 Problem and significance

GLK does not know their visitors as well as they would want to. Are people interested in wandering in nature? What do people actually do when they recreate in nature? What type of people recreate in nature areas? In the past, studies have been conducted regarding leisure behaviour. Ranging from how to influence people's behaviour (e.g. Manfredo, 1992) to what causes certain behaviour (e.g. Musa *et al.*, 2010). Many different factors influence behaviour and researchers often focus on one or a few factors in relation to a certain behaviour. For example, Musa *et al.* (2010) look at demographics, personality and experience regarding the underwater behaviour of scuba divers. Goossen and de Boer (2008), Mehmetoglu and Normann (2013) and Nyaupane *et al.* (2006) look at visitor recreation motives and activities to find out how those concepts influence leisure behaviour. Driver and Knopff (1977) and Barnett (2013) looked at the relationship between personality and leisure behaviour.

There has been no previous research on connecting the behaviour of recreating outside paths with either of the above mentioned factors. However, these factors could be influencing this behaviour. When GLK knows what type of recreationists like to recreate in nature, and whether they like to go off the paths, GLK could decide to adjust their policies and explore the consequences for the duty of care.

1.3 This research

Currently, GLK has no insight in the behaviour of their visitors and whether those visitors would actually want to go off the paths when recreating. Together with the consequences regarding the duty of care, it is the aim of this research to give insight in this matter. First, it will be studied how behaviour can be explained. Secondly, knowledge about recreationists will be acquired to find out what they like to do when recreating; whether they like to go off the paths and what type of person they are. Third, the duty of care is examined, what the exact rules are and how other conservation organisations deal with these in combination with recreation outside the paths. This knowledge will not only be useful for GLK, it will be useful for many Dutch nature conservation organisations. In the Netherlands, people and nature are geographically close to one another; there are many hikers, bikers and people walking their dogs everywhere in nature areas as the distances between cities and nature areas are small (Westerink, 2005). This makes it very important to know what type of visitors there are and how this relates to conservation practices.

1.4 Outline of the thesis

In this chapter, an introduction to the research was given. The next chapter provides an overview of the concepts relevant for this study, namely the expected behaviour, possible obstructions limiting people from going off the paths, recreation motives and activities, and personality traits and demographics. This chapter concludes with a set of research questions and accompanying hypotheses. Chapter 3 provides an overview of the methods and methodology used in this research. After that, chapter 4 shows the findings of the data analysis and chapter 5 explores the duty of care, its laws and rules and experiences from other nature conservation organisations. Lastly, the results of this research are discussed and a conclusion is drawn.

2 Theoretical framework:

Exploring and explaining behaviour

2.1 The behaviour: recreation outside paths

The behaviour that is explored in this thesis is recreation outside paths, so-called wandering. This type of recreation is very popular among the Dutch and it can be seen in the Gelderse Poort near Nijmegen that the economy fairs well because of this (Luttik *et al.* 2006). However, it does not necessarily mean that all Dutch go off the paths while recreating. The examined behaviour is therefore studied by looking at two aspects of this behaviour: Do people actually go off the paths and what do they experience as obstructions when wanting to go off the paths? These questions are further elaborated on in this section. The other sections of this chapter discuss how this behaviour could be explained.

2.1.1 Expected behaviour

The expected behaviour of going off the paths links most strongly with the duty of care. When many people want to go off the paths, GLK may wish to allow people to do this. As a result, GLK may need to adjust the duty of care to make nature areas safe for people who like to recreate outside paths. This behaviour includes whether people stay close to the paths or wander further away. This also affects the decisions that are made regarding the duty of care. When most people stay close to the paths, then GLK only needs to check the trees in the areas close to the paths. Checking the trees in every area is very time-consuming, so customised management activities are needed.

2.1.2 Perceived obstructions

As there are no studies done specifically regarding recreation outside paths, there are also no obstructions or obstacles known that would discourage people to go off the paths. This is especially the case as in this research these obstructions are mainly connected to the physical environment. Mostly social structures are studied when behavioural obstructions or constraints are researched, for example discrimination preventing people from participating in leisure activities (e.g. Livengood and Stodolska, 2004). The obstructions studied in this research are the obstructions people face when wanting to go off the paths. These are of both the immediate natural environment and the physical constraints of the recreationist. Obstructions of the immediate natural environment could be a fence, barbed wire, dense undergrowth of bushes, blackberries, ferns or young trees, no undergrowth but leaves on the soil, grass, heath, shifting sand, large animals, muddy soil and ditches. Physical constraints of the recreationists are fitness and the type of shoes – fancy shoes, everyday shoes or hiking boots – they are wearing. The weather could also play a role; when it is sunny and dry, people may go off the paths more often than when it is raining. Also the possibility of getting ticks and fear of getting lost might play a role. Lastly, the presence of signs forbidding people to go off the paths and the fear of disrupting nature may hold people back to go off them.

2.2 Outdoor nature recreation

The above explained behaviour is different for everybody. People go into nature for different reasons and activities, resulting in going off or staying on the paths. The concepts that are looked at to study this are *recreation motives* and *activities*. These two need to be looked at separately as people recreating with the same motive do not necessarily carry out the same activity. One would want, for example, some peace and quiet and go biking, while someone else might take a walk for that same reason (Lengkeek, 2001; Goossen and de Boer, 2011). These two components can be summarised in one sentence: why do people recreate in nature and what do they do?

2.2.1 Recreation motives

Geldersch Landschap & Kasteelen (GLK) has categorised visitor motives in her recreation policy. These categorisations are used to anticipate the needs of visitors (Visscher and Roozen, 2011). GLK uses five visitor motive categories, namely Amusement, Change/Escape, Interest, Love for nature and Challenge. These recreational visitor motives were designed by Goossen and de Boer (2008), who derived them from previous studies from Cohen (1979) and Elands and Lengkeek (2000). First, the theories from Cohen and Elands and Lengkeek will be discussed followed by the theory of Goossen and de Boer, which will be the theory that is used in this thesis.

Cohen developed his modes of tourist experience in 1979. He criticised on tourists being generalised and on universal models to understand the dynamics of tourism (Cohen, 1979). The motive typology he created is based on the degree to which people alienate themselves from their familiar surroundings (the centre) and get attached to the Other and the unknown (a foreign place; the centre-out-there) (Cohen, 1979; Lengkeek, 2001). The first mode Cohen (1979) described was the *recreational mode*. When people travel with this mode they take just a small step from their normal daily life in search for merely entertainment, not in search for identifying with other cultures. In the *diversionary mode,* people do not connect to their centre nor to the centre-out-there. Travelling is an escape from the boredom of their daily routines. Tourists travelling with the *experiential mode* find that their daily lives lack richness and authenticity. They experience other cultures to have these missing qualities. In the *experimental mode*, tourists go a bit further; they experiment with other ways of life to discover a new centre. People travelling with the *existential mode* have found this new centre and becomes their new home.

Elands and Lengkeek (2000) tested the theory of the modes of tourist experience of Cohen (1979) to see if they could find "consistency in the construction of typologies" (Elands and Lengkeek, 2000:2) and not to develop a new classification. They started out with following the theory of Cohen, but during their research, they felt the need to change his typology to be more generally applicable for nature tourism. The *mode of amusement* replaces the recreational mode. The term recreation was found to be too broad, and the term amusement better underpinned the light character of the recreational activities, experienced not far from their daily lives (Elands and Lengkeek, 2012). The mode of amusement represents tourists who mainly like to have fun during their time off. They often go to places that attract a lot of tourists that are fun and busy. These people like to go on holiday, but they also like to go home again (Elands and Lengkeek, 2000 & 2012). The diversionary mode was labelled as the *mode of change* as this better represents the actual change from the usual routine than the term diversionary (Elands and Lengkeek, 2012). Tourists that go on holiday with this mode need to go out once in a while to escape from their daily activities. During their holiday, they mostly recharge their batteries. They like to relax and have a rest from busy environments. They do not really care where they go on holiday, as long as it is away from home (Elands and Lengkeek, 2000; 2012). The experiential mode was changed, as Elands and Lengkeek argue that all modes are experiential. They renamed this mode to the *mode of interest*, as "change turns into more defined interest in something else" (Elands and Lengkeek, 2012:33). People who travel with the *mode of interest* like to hear stories and interesting things of the area they are visiting. The first thing they usually do is going to the local tourist office to ask for specific information about the area and to get a map. They like to visit churches, castles or historic city centres while being on holiday and want to see new things all the time. Cohen's experimental mode was renamed to the *mode of rapture* as they found this word represents the mode better. Tourists that go on holiday with this mode like to be active during their time off. They like to do strenuous activities like long treks and cycle tours. During these activities people get to know themselves better and are often alone in the great outdoors for hours at a time. They often do not know where they will be going and they challenge themselves to

live in the most primitive circumstances. Lastly, the existential mode was renamed to the *mode of dedication*, as all modes are existential to some extent. Dedication much more reflects the distance from their original centre (Elands and Lengkeek, 2012). People travelling with the mode of dedication are looking for something more than just visiting a country or culture. They would rather be a part of it and 'go native'. Therefore they often go to the same place every time as they experience an emotional bond with the place. If they would be able to live in their holiday destination, they would. However, when 'their' place is discovered by tourism and it becomes too touristy, they will not come back (Elands and Lengkeek, 2012).

The above discussed modes of tourist experience of Cohen and the modes of experience of out-there-ness of Elands and Lengkeek have been designed to typify tourists and not day-trippers. The main difference between these two is that tourists stay overnight at their destination (Leiper, 1979; Hall and Page, 2002) and day-trippers only spend maximum a day at their destination (Hall and Page, 2002). Goossen and de Boer (2008) felt that the mode of rapture and of dedication were not applicable for day-trippers and altered these to *love for nature* and *challenge* (Goossen and de Boer, 2008 & 2011). The focus of this research is on recreation and day-trippers and therefore the theory of Goossen and de Boer (2008) will be used to study recreation motives. A short description of all the motives as categorised by Goossen and de Boer is given here.

The motive *amusement* is about enjoying activities together with friends and family. These activities can be having a drink, sitting in the sun or doing nothing. The active leisure activities are usually organised and are fun to do. These activities do not take up too much time and effort. Having fun is the most important factor. People recreating with this motive most likely will not go off the paths and will probably experience obstructions to be limiting when they would want to go off the paths. The motive c*hange/escape* is about escaping from daily routine and being able to recharge batteries. People are able to clear their minds and stress will disappear while being outside. Visiting nature areas is an escape from daily life and the green environment is a good scenery in which people can relax. They do not really mind what type of activity they do, as long as it is an escape from daily routine. Visitors recreating with the motive *interest* like to go out and at the same time learn something about nature and culture. Information panels inform these people about the area they are visiting. A guided excursion would give an extra dimension to the visit. People visiting areas with the motive *love for nature* like to know everything about birds, mammals and other flora and fauna present in the area. When these visitors do not recognise a species, they will look it up in a book. These visitors would probably want to go their own way in the area; they will not stick to the paths or a particular route if they see or hear something interesting away from the paths. These people like to do this alone or with someone that has the same interest in nature. Lastly, visitors recreating with the motive *challenge* like to stay healthy by doing sportive activities such as mountain biking, long distance walking, running or any other form of exercise. The exercise needs to be challenging and healthy. A green environment is a suitable decor for the exercise, but the experience is mainly about the challenge than about the environment.

2.2.2 Activities

As there is no previous research on recreation outside paths, activities done off the paths have also not been studied before. Therefore, other studies (Barker and Dawson, 2010; Arnberger, 2006; Thapa, 2010) were drawn from to create a list of activities applicable for this research. A requirement for the activities to be relevant for this study is that they could be done on as well as off the paths. Also, the activities had to be relevant for the Netherlands. For example, in one study

(Thapa, 2010) hunting is a popular activity, however, in the Netherlands this is not often done by recreationists. The relevant activities chosen for this study are walking, running, biking, mountain biking, horseback riding, walking the dog, survival, boot camp, picking forest fruits, playing with children, photographing, wandering, geo-caching and looking for animals and/or plants. All of these activities speak for themselves, except wandering needs some explanation. When people wander, they go about without a specific goal in mind. Their goal is going wherever they please and people feel it brings them closer to nature. Wandering does not necessarily happen outside roads and paths, people can also wander on the paths (Coeterier and Schöne, 1999).

2.3 Individual characteristics

Recreationists not only have different recreation motives and activities, they are also different people. People have different 'outsides' and 'insides', the first referring to their *demographical information* and the latter referring to their *personality traits*. On the outside an individual can be categorised by age, family composition, sex, education level, postal code and membership of one or more nature conservation organisation(s). The inside of an individual can be named his or her personality, consisting of five personality traits that remain relatively stable throughout someone's life: openness to experience-intellect, conscientiousness, extraversion, agreeableness, and neuroticism (Barnett, 2013; Howard and Howard, 1995; McCrae and Costa, 1987). These two components, demographics and personality traits, have been studied before in relation to leisure and have been proven to influence people their behaviour. Therefore, these two components are relevant for this research and represent the individual characteristics of the recreationist. They are described here.

2.3.1 Personality traits

Five personality traits have been determined to be stable factors for each individual person. These traits stay relatively consistent during one's life course (Laverdière *et al.*, 2013; Barnett, 2013). The five traits, also known as the Big Five, are: openness to experience-intellect, conscientiousness, extraversion, agreeableness and neuroticism (Barnett, 2013; Howard and Howard, 1995; McCrae and Costa, 1987). These five dimensions each have a few facets belonging to that dimension, see table 2.1 (Barnett, 2013; Howard and Howard, 1995).

   People that score high on the *openness to experience-intellect* dimension need novelty, variety, complexity and have a deep appreciation for new experiences. They are looking for new experiences, new thoughts and new ideas that tickle their minds. On the other side, when people score low on this dimension, they prefer familiarity and simplicity and often have difficulty understanding other perspectives and seem inflexible. They also lack a sense of self and are easily dominated by others (Barnett, 2013; McCrae and Costa, 1987). When translating this trait to outdoor recreation, people scoring high probably want to have new and stimulating environments to recreate in. They want complexity and might choose another route every time. They may want to explore and go off the beaten track into the forest. People scoring low, on the other hand, might choose to recreate in the same place each time, taking the same familiar route. They might not want to go off the paths, as this may lead to unexpected experiences. It is unpredictable with what motives people recreate that score high on this trait and what activities they participate in.

   People scoring high on *conscientiousness* are rational and thoughtful in what they do. They have control and follow social norms and rules. They like order and neatness, they are stable people and hard workers (Barnett, 2013; McCrae and Costa, 1987; Howard and Howard, 1995). Conscientious

people are much less likely to break any sort of rule or norm; from committing crimes to eating unhealthy (Barnett, 2013). On the other side of the spectrum, people that score low on this dimension, are easy going, disorganised, impulsive, take risks and lead less stable lives (Barnett, 2013; McCrae and Costa, 1987; Howard and Howard, 1995). People scoring high on conscientiousness are most probably going to stay on the paths in areas where they are not allowed to go off the paths. They will keep to the rules presented at the beginning of the recreation area. Whether they will go off the paths when allowed is unclear. They will probably go with what everybody else is doing, as they have a strong sense of social norms. People scoring low on conscientiousness are very unpredictable and might do anything, from staying on the paths to going off them. It is also very unpredictable with what motive they recreate or what activities they participate in.

Table 2.1 Big Five dimensions and facets (Howard and Howard, 1995; Barnett, 2013)

Dimension	Facets
Openness to experience - Intellect	Fantasy, Aesthetics, Feelings, Actions, Ideas, Values
Conscientiousness	Competence, Order, Dutifulness, Achievement striving, Self-discipline, Deliberation
Extraversion	Warmth, Gregariousness, Assertiveness, Activity, Excitement-seeking, Positive emotion
Agreeableness	Trust, Straightforwardness, Altruism, Compliance, Modesty, Tender-mindedness
Neuroticism	Anxiety, Hostility, Depression, Self-consciousness, Impulsivity

The *extraversion* dimension is about the outgoingness of people. People scoring high on this dimension are very social beings with many relationships (Howard and Howard, 1995; Barnett, 2013). They seek interpersonal bonds, show warmth and affection towards others (Barnett, 2013; McCrae and Costa, 1987). They develop relationships with others and this satisfies their need of belonging and connectedness. Extraverts often experience positive emotions and are optimistic beings even when being alone or in new social situations (Barnett, 2013). Introverts, people scoring low on extraversion, tend to be more reserved around people (Barnett, 2013; McCrae and Costa, 1987). They are quiet in groups, seem shy (John and Srivastava, 1999) and are more comfortable with being alone than most people are (Howard and Howard, 1995). Extraverts are people that recreate more for the people than for the environment, so it is unpredictable whether they might recreate on or off the paths. It could predict though that extraverts recreate more with the motive amusement. Introverts might often recreate alone and try to avoid people and may recreate more with the motive change/escape. They may go off the paths when it is too crowded to their liking on the paths. It is unpredictable what activities they participate in.

People scoring high on the *agreeableness* dimension have a high empathy for others and are nurturing people. They are cooperative, considerate, friendly, polite (Barnett, 2013; McCrae and Costa, 1987), open-minded and humble (McCrae and Costa, 1987). People on the other side of the scale are often aggressive, rude, stubborn, cynical (Barnett, 2013; McCrae and Costa, 1987), uncooperative and narrow-minded (McCrae and Costa, 1987). People scoring high on agreeableness

often care for others before they think of themselves (Howard and Howard, 1995). This may result in that when a person scores high on agreeableness, he/she may only go off the paths when their company desires that. However, as they are also open-minded people – which means that they are willing to experience new things (Barnett, 2013) – they could be interested in recreation outside the beaten path. People scoring low on agreeableness are more unpredictable as they probably will do what they want and will not be easily influenced by others. It is unpredictable with what motive people scoring high on this trait recreate, nor could anything be said about the possible activities that person will participate in.

Neuroticism could also be described as emotional instability (Musa *et al.*, 2010; Barrick and Mount, 1993). People scoring high on this dimension experience more anxiety, are self-conscious (McCrae and Costa, 1997), get upset easily and have mood swings (Laverdière *et al.*, 2013). They are also easily tempted and find it hard to control excessive drinking, drug use, gambling and overeating; they are more impulsive than people scoring low on this dimension. Furthermore, people with high scores dislike playful activities and do not completely involve themselves in social activities (Barnett, 2013). They are extremely reactive to their surroundings (Howard and Howard, 1995). People scoring high on neuroticism might not recreate with the motive amusement, but rather with the motive change/escape. On the other side of the spectrum are people that score low on neuroticism. They are more resilient towards their environment and live more rationally (Howard and Howard, 1995). They are relaxed, have stable emotions (Barnett, 2013; McCrae and John, 1992) and are comfortable with themselves (McCrae and Costa, 1987). Connecting this with recreation outside paths, neurotic people might not dare to go off the paths, as they feel very self-conscious in what they do. People scoring low might not feel it that way and feel confident in what they do. Confidence alone, however, does not influence whether people would stay on or go off the paths.

2.3.2 Demographics

Studies have found that demographic variables relate to human behaviour, although varying and sometimes contradictory (Musa *et al.*, 2010; Diamantopoulos, 2003). Demographic variables are often not seen as scientifically interesting, however they are often used for market research as they are easy to measure (Tangeland, 2013). With demographic information, one is also able to compare the composition of a sample with the whole population (Jim and Chen, 2006). Moreover, some variables have shown significant relationships with preferences and behaviour of people (Tangeland, 2013). A relationship between demographics and the five recreation motives of Goossen and de Boer (2008) has not been studied before. This relationship can therefore not be hypothesised on. This section describes all demographic characteristics and their possible relationships with the other concepts.

Age has significant influence on travel behaviour in combination with *family composition* (Collins and Tisdell, 2002a and 2002b). Age related tourism depends on the type of tourism, whether it is for education, business or holiday. When focusing on leisure travel, it can be seen that young people without children travel further than people with children. Once people do not have dependent children anymore people start to travel more and longer distances again (Collins and Tisdell, 2002a and 2002b). Research has been done on time spent in parks with different family compositions. Families with working single parents, dual-working parents and two-parent, single-worker families were compared in their leisure time spent in parks. Results showed that working single parents have less park visits than families with two parents. Dual-worker parents do not have less visits, they only spend less time in the park per visit than two-parent, single-worker families (Fan *et al.*, 2012). Such an age and/or family life cycle might also be seen in outdoor recreation, and more specifically to

recreation outside roads and paths. However, how that life cycle exactly looks, is unpredictable as no literature exists specifically on recreation outside roads and paths. However, what can be estimated, is that when people get older they generally experience less fitness and may be less able to go off the paths. Furthermore, personality traits stay relatively consistent throughout a person's life (Laverdière *et al.*, 2013; Barnett, 2013), so age should not be able to significantly predict any of the traits.

Sex also influences leisure behaviour. Men and women are likely to have very different preferences towards their leisure experience. Men like adventure, action and are not afraid of taking risks, while women search more for cultural and educational experiences and find security important (Collins and Tisdell, 2002b). This would mean that men are more likely to recreate with the motive challenge and to participate in more adventurous and demanding activities, such as mountain biking. They might also be more likely to go off the paths, as that may possibly lead to action and adventure. Women are more likely to stay on the paths, as that is safer. Furthermore, women are looking for cultural and educational experiences and might visit visitor centres or walk a marked route with an information guide. Men and women are also different regarding their personality. Women generally score higher than men on the traits conscientiousness, extraversion, agreeableness and neuroticism. Openness to experience-intellect differed; men are generally more open to ideas, whereas women are more open to feelings. The Big Five categorisation does not distinguish between these two, so it remains unclear how men and women will score on this particular trait (Schmitt *et al.*, 2008).

Education levels are also an important factor for demographics and for recreational preferences. First, the distribution of education levels of the sample can be compared to the distributions of the whole population (Jim and Chen, 2006). Second, education has a significant influence on travel preferences (Vogt and Fesenmaier, 1998) and destination choice (Zimmer *et al.*, 1995; Veer and van Middelkoop, 2002). For example, higher educated people travel further for recreation; they tend to go to nature areas, whereas lower educated people tend to stay in their neighbourhood or go to parks nearby (Veer and van Middelkoop, 2002). People with different education levels might also have different preferences for recreating outside roads and paths. It is difficult to say whether education level predicts people's personality traits. Most research in this field is about the rate of success rather than highest education degree (e.g. Judge *et al.*, 1999). Success is a rather subjective term and someone can be successful at his or her own level.

Another demographic variable is the *postal code* as it is interesting to see which areas the respondents come from and how urbanised these areas are. This might have an influence on their preference for recreating outside roads and paths. This might also have an influence on the personality traits of people; are people from urban areas different from people from non-urban areas? No literature has been found on this subject, so no predictions can be made.

The last demographic variable is whether people are *member of one or more nature conservation organisation(s)*. This variable has been shown to have a significant effect on people their recreational behaviour. Members recreate more often in nature areas than non-members and are more attached to their natural environment (Hailu *et al.*, 2005) and this might affect recreation outside roads and paths.

2.4 Conceptual framework

The concepts discussed above can be made visual in a conceptual framework. This is the model that will be used in the present study and can be seen in figure 2.1. The conceptual model consists of three elements: 'Individual characteristics', 'Outdoor nature recreation' and 'The behaviour: Recreation outside paths', each discussed in detail in this chapter. Between the three elements are arrows visible

that indicate the possible relationships between the items. The arrows are numbered and correspond with the hypotheses in the subsequent section. A simplified version of the conceptual framework can be seen in figure 2.2. Each element in this figure corresponds with the elements in figure 2.1.

Individual characteristics (1) influences outdoor nature recreation motives and activities (2) (H1a-d) and the actual behaviour of recreating outside the paths (3) (H2a-d). Outdoor nature recreation motives and activities (2) influences the actual behaviour of recreating outside the paths (3) (H3a-d).
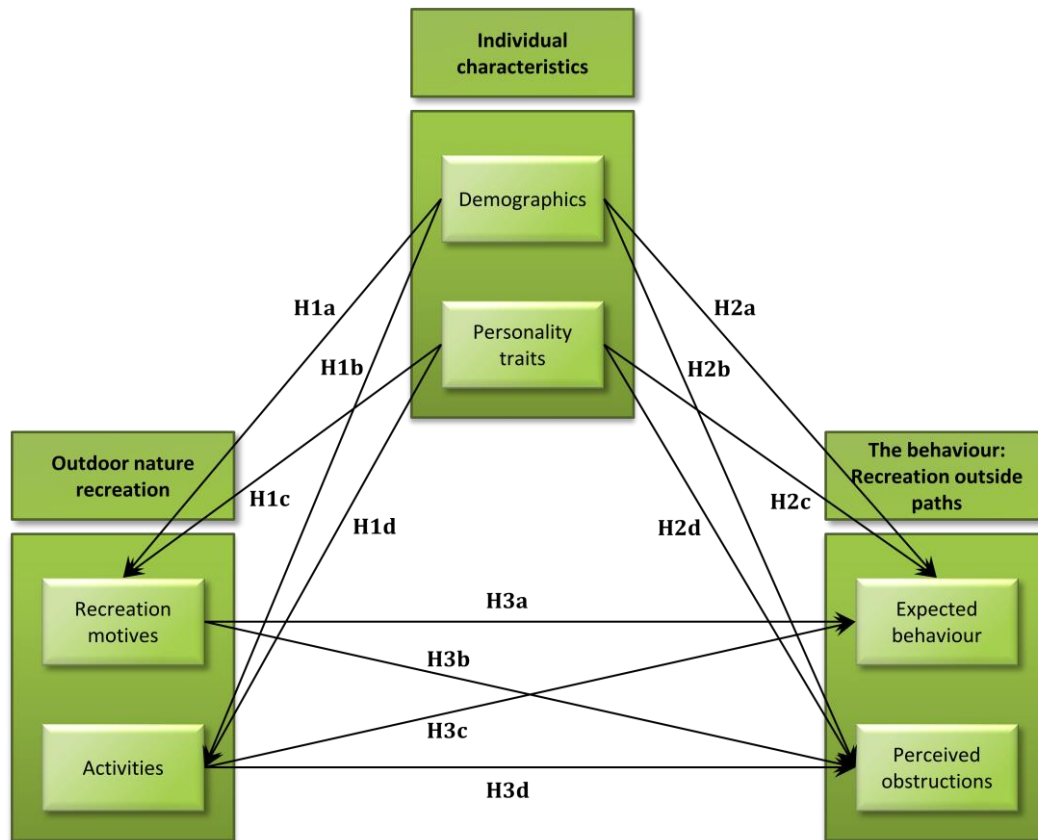
Figure 2.1 Conceptual framework
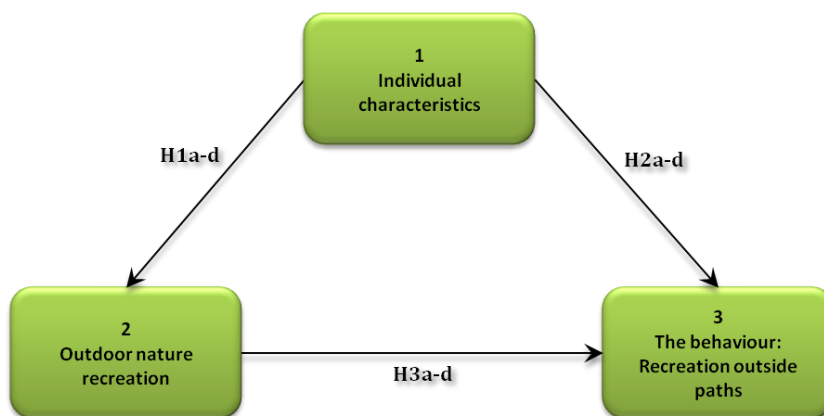
Figure 2.2 Simplified conceptual framework

2.5 Research questions and hypotheses

Following the above conceptual framework, the next research questions can be asked. The research questions are accompanied by related hypotheses.

Research question 1: Do *individual characteristics* predict *outdoor nature recreation motives and activities?*

Hypothesis 1a: Demographics predict recreation motives.
Hypothesis 1b: Demographics predict activities.
Hypothesis 1c: Personality traits predict recreation motives.
Hypothesis 1d: Personality traits predict activities.

Research question 2: Do *individual characteristics* predict *expected behaviour and perceived obstructions towards recreation outside paths*?

Hypothesis 2a: Demographics predict expected behaviour.
Hypothesis 2b: Demographics predict perceived obstructions.
Hypothesis 2c: Personality traits predict expected behaviour.
Hypothesis 2d: Personality traits predict perceived obstructions.

Research question 3: Do *outdoor nature recreation motives and activities* predict *expected behaviour and perceived obstructions towards recreation outside paths*?

Hypothesis 3a: Recreation motives predict expected behaviour.
Hypothesis 3b: Recreation motives predict perceived obstructions.
Hypothesis 3c: Activities predict expected behaviour.
Hypothesis 3d: Activities predict perceived obstructions.

Next to the above research questions, the implications for the duty of care are looked at in order to determine what consequences allowing recreation outside roads and paths has.

Research question 4: What are the implications for GLK's duty of care if they open up their nature areas?

The above hypotheses are based on the general concepts explained in this chapter. These concepts each include several variables of which it can be said what kind of influence they might have. However, there are also variables of which it is unclear what kind of influence they have. In table 2.2, the specific hypotheses are shown in an overview. The table shows the positive or negative influence of a certain variable on another variable. The table also shows the variables of which the influence is unclear, these are marked by a question mark.

Table 2.2 Hypotheses

Variables	Personality traits	Recreation motives	Activities	Likelihood of going off the paths	Amount of experienced obstructions
Demographics					
Age**	n.s.	?	?	-	+
Sex - male	+/-	?	+/-	+	-
Sex - female	+/-	?	+/-	-	+
Family composition	?	?	?	?	?
Education level	?	?	?	?	?
Postal code	?	?	?	?	?
Member of nature conservation org.	?	+/-	?	?	?
Personality traits					
Extraversion*	·	+/-	?	?	?
Agreeableness*	·	?	?	?	?
Conscientiousness*	·	?	?	-	+
Neuroticism*	·	+/-	?	?	?
Openness to experience-intellect*	·	?	?	+	-
Recreation motives					
Amusement*	·	·	+/-	-	+
Change/escape*	·	·	?	?	?
Interest*	·	·	?	?	?
Love for nature*	·	·	+/-	+	-
Challenge*	·	·	+/-	?	?
Activities					
All activities	·	·	·	?	?
			- negative relationship		
			+ positive relationship		
			n.s. no significant relationship		
			· not tested		

** Read: The older a person, the less likely someone might want to go off the paths and the more obstructions he/she will experience when wanting to go off the paths.

* Read: The higher someone scores on e.g. conscientiousness, the less likely that person might want to go off the paths and the more obstructions he/she will experience when wanting to go off the paths.

3 Methods and methodology

3.1 Sample

This research focuses on the population of the province of Gelderland in the Netherlands. This geographical area is chosen as Geldersch Landschap & Kasteelen owns nature areas in this particular province. Gelderland consists of 114 172 hectares of forest and natural areas (Provincie Gelderland, 2014), of which GLK owns approximately 12 000 hectares (10.5%) (Lammertink *et al.*, 2013). Gelderland inhabits around 2 million people (Provincie Gelderland, 2014) who may all spend (part of) their leisure time in natural areas in their own province. It is not relevant for this research whether people actually visit the nature areas of GLK, it is mainly about visiting nature areas within the province. Moreover, people might not be able to recall whether they spent time in a nature area from GLK or from another nature conservation organisation. However, it is relevant for this research to have a sample of people who recreate within the province of Gelderland, as those respondents may often spend time in the nature areas of GLK. GLK desires to know more about their visitors and studying people from Gelderland will give them an insight into their visitors.

To be able to reach the people from Gelderland an online research bureau was addressed. Such a bureau owns a database of willing respondents and are able to reach enough people from Gelderland in a short amount of time. This group of respondents, however, are subscribed to this particular bureau and like participating in research. To be able to overcome a possible bias, other people will also be addressed to participate. This was done through the website of GLK (www.glk.nl), the newsletter, at events, visitor centres and GLK's Facebook and Twitter account.

In total, 400 respondents were needed to get a representative sample of the population of Gelderland. The aim was to get 400 responses through the online research bureau and as many responses as possible through the other named efforts. The goal was reached: 393 valid respondents were collected through the online research bureau. Through GLK's own efforts, 79 surveys were filled out, resulting in 472 completed surveys. The geographical distribution of the sample is well spread across the province of Gelderland, as can be seen in figure 3.1.

3.2 Study design

To get the required information from so many respondents, questionnaires were conducted. The questionnaire contained closed-ended questions and can be found in appendix 1. Through a questionnaire, many people can be reached in a relative short amount of time. Furthermore, the research population is the entire province of Gelderland, which makes interviewing very time-consuming (Kumar, 2005). The research was conducted quantitatively, in a non-experimental manner. This means that the researcher retrospectively links causes to particular outcomes without being able to manipulate or control any of the variables (Kumar, 2005). This method is relevant for this research, as personality traits, demographics, recreation motives and activities cannot be manipulated or controlled.

Next to a questionnaire, some expert interviews were conducted to see how other nature conservation organisations deal with recreation outside paths and how that affects their duty of care. GLK should not invent the wheel by themselves, as there is a lot to be learned from others. The interview questions can be read in appendix 2.
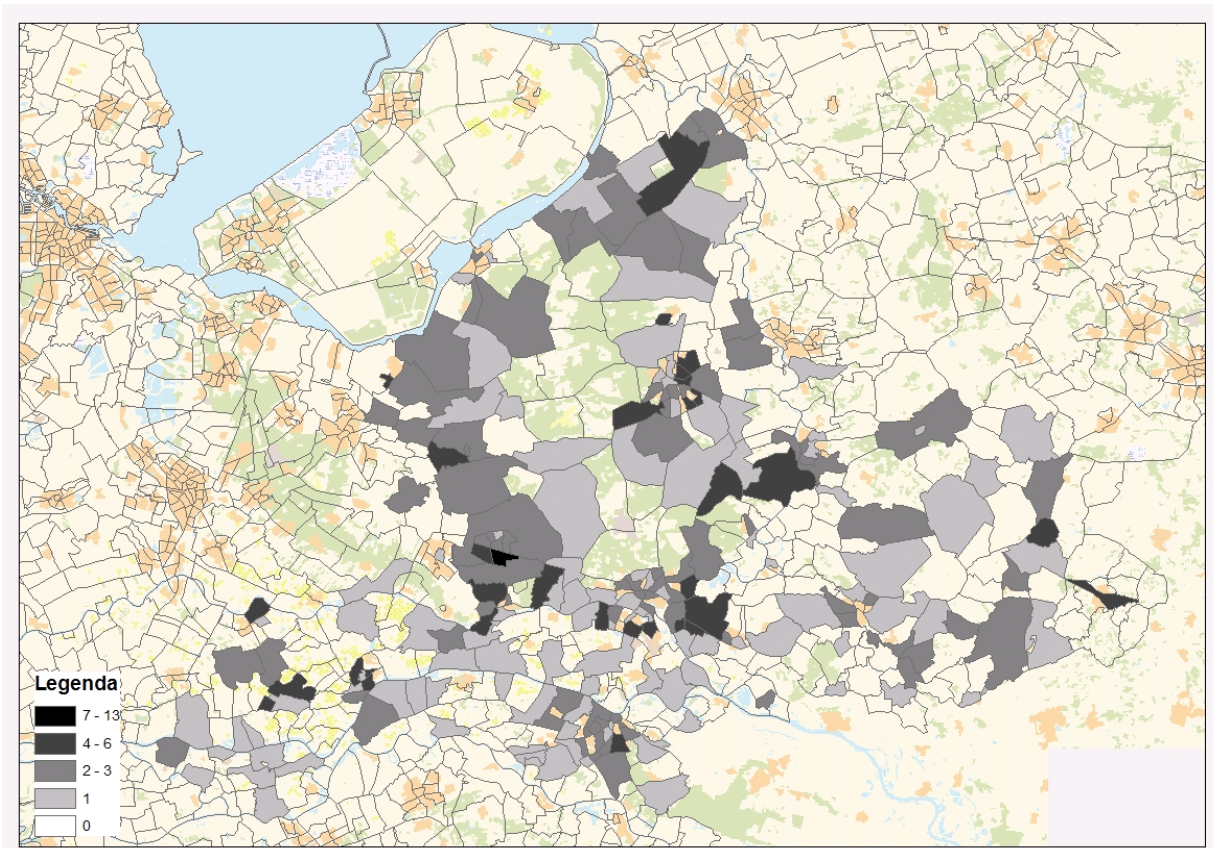
Figure 3.1 Geographical distribution of respondents in the province of Gelderland
(Made by Maurice de Graaf). The legend states the amount of respondents per postal code area.

3.3 Variables

The variables mentioned in section 2.5 will be measured with a questionnaire. In this section, the variables, the variable items, specific questions and coding are explained. The first two questions of the questionnaire do not belong to any of the concepts, as these are questions determining whether people belong to the target group. The question wording of the first question is: In what province do you live? 12 answers can be given, each answer represents one of the twelve provinces of the Netherlands. When respondents tick 'Gelderland', they continue to the second question. When ticking each of the other answers, respondents will be sent directly to the end of the questionnaire. The question wording of the second question is: Do you recreate in nature areas nearby? Answers are coded with 'yes' and 'no'. When respondents tick 'no', they will be sent directly to the end of the questionnaire. Respondents ticking 'yes' may proceed with the questionnaire.

Expected behaviour and perceived obstructions towards recreation outside paths
Expected behaviour consists of the following items: whether people go off the paths while recreating, whether they stay close to the paths when they go off them and whether people would go off the paths more often if it would become allowed everywhere. The specific wording of the first question is: Of the times that you do a certain activity, could you give an estimation of how often you go off the paths? Answers were coded with a 5-point scale with 'never' and '(almost) always' as the extreme options. The wording of the second question is: When you go off the path, do you stay close to the path? Answers are coded with '0-5m' and 'more than 50m' as the extreme options. The wording of

the third question is: Momentarily it is not allowed to go off the paths in most nature areas. When this would be possible everywhere, would you go off the paths more often? Answers were coded with 'yes' and 'no'.

Perceived obstructions consist of several items that might prevent people from going off the paths. These are:

- Fence
- Barbed wire
- Forest with dense undergrowth of bushes, blackberries, ferns or young trees
- Forest with no undergrowth but leaves on the soil
- Grass
- Heath
- Shifting sand
- Large animals
- Possibility of disrupting nature

- Muddy soil
- Ditches
- Fitness of recreationist
- Type of shoes: fancy shoes, everyday shoes without profile or hiking boots with profile
- Sunny weather
- Rainy weather
- The possibility of getting ticks
- Presence of prohibition signs
- Fear of getting lost

The exact question wording is: When you recreate in a nature area, to what extent do you consider a certain circumstance to be an obstruction to go off the paths? Answers were coded on a 5-point scale with 'no obstruction' and 'major obstruction' as the extreme options.

Outdoor nature recreation motives and activities

Outdoor nature recreation motives consists of five different motives: amusement, change/escape, interest, love for nature and challenge. Each of these motives have several items representing them. These can be seen in table 3.1 at the end of this chapter. Each of these items will be asked to the respondents. The exact wording of the question is: How important are the following reasons for you to go to a nature area? Answers were coded on a 5-point scale with 'very important' and 'very unimportant' as the extreme options and a neutral point in the middle.

Outdoor nature recreation activities consists of several activities that can be done in nature areas both on as well as off the paths. These are:

- Walking
- Biking
- Running
- Mountain biking
- Nordic walking
- Horseback riding
- Walking the dog
- Survival

- Boot camp
- Picking forest fruits
- Playing with children
- Photographing
- Wandering
- Geo-caching or walking a gps-route
- Birding or looking for other animals and/or plants

The specific question wording is: When you recreate in nature, how often do you do the following activities? Answers were coded on a 5-point scale with 'never' and more than once a day as the extreme options.

Individual characteristics – personality traits and demographics

There are five different personality traits measured in the questionnaire. These are extraversion, agreeableness, conscientiousness, neuroticism and openness to experience-intellect. Each of these variables have four items representing them, of which two are positively worded and two negatively worded. The original variable of openness to experience–intellect consisted of one positively and three negatively worded items. One of the negatively worded items was reversed to a positively worded item, as "Am not interested in abstract ideas" seems similar to "Have difficulty understanding abstract ideas". "Am not interested in abstract ideas" became "Am interested in abstract ideas". The personality traits and items can be found in table 3.2 at the end of this chapter. The exact question wording is: To what extent do you recognise yourself in the following statements? Answers were coded on a 5-point scale with 'no recognition' and 'complete recognition' as the extreme options and a neutral point in the middle.

Demographics consists of six different variables. These are sex, age, household composition, education level, membership of a nature conservation organisation and postal code. These variables are reflected by several items and can be seen in table 3.3. The exact wording of the questions are: What is your sex?; How old are you?; What is your household composition?; What is your highest education level?; Are you a member of one or more nature conservation organisations?; and: What is your postal code? The postal code was later translated into the degree of urbanisation with data from the Central Statistics Bureau of the Netherlands (CBS, 2014).

3.4 Data analysis

Respondents' answers to the questionnaire were analysed using the statistics programme SPSS. Firstly, descriptive statistics were generated for all of the variables. After that, groups were made by using exploratory factor analysis for recreation motives, activities and obstructions. For personality traits and recreation motives, the categorisation drawn from theory was used. These categories were still checked for reliability to be able to see how well the data fit the categories. The items of the five personality traits are asked both positively and negatively (reversed). Answers to the negative questions were reversed to positive to fit the categories. The details of the exploratory factor analyses and reliability analyses are explained in the next chapter. Following these analyses, multiple linear regressions were conducted. This type of regression was conducted because there are multiple predictors explaining the same outcome variables. For example, all personality traits together predict whether someone goes off the paths.

Multiple regression requires variables that are either continuous or dichotomous. Therefore, the ordinal and nominal variables with more than two categories were converted to dichotomous variables. These variables can be seen in table 3.4. This table shows the dichotomous variables and the meaning of value 0 and 1. Multiple regression analyses were used to test the predictive relationships of:

- Demographics on personality traits, recreation motives, activities, expected behaviour and perceived obstructions;
- Personality traits on recreation motives, activities, expected behaviour and perceived obstructions
- Recreation motives on activities, expected behaviour and perceived obstructions;
- Activities on expected behaviour and perceived obstructions.

Table 3.1 Recreation motives (Goossen and de Boer, 2008)

Original U gaat naar een natuurgebied…	Translated to English You visit a nature area…
Gezelligheid	**Amusement**
…om samen te zijn met vrienden	…to be together with friends
…om deel te nemen aan georganiseerde activiteiten	…to participate in organised activities
…voor de gezelligheid	…to have fun/to be amused
…om samen te zijn met familie	…to be together with family
Er tussen uit	**Change/Escape**
…om na te denken	…to contemplate
…om weg te zijn van grote hoeveelheden mensen	…to be away from crowds of people
…om mezelf mentaal wat rust te geven	…to give myself some peace and quiet
…om afstand te nemen van de dagelijkse beslommeringen	…to get away from daily routine
…om mijn batterij weer op te laden	…to recharge my battery
Interesse voor gebieden	**Interest**
…om te leren over de natuur	…to learn about nature
…om te leren over het gebied	…to learn about the area
…om te leren over de geschiedenis van het gebied	…to learn about the history of the area
…om meer te weten te komen over kastelen/landhuizen in het gebied	…to learn something about the castles in the area
…om op een plek te zijn met interessante cultuur, geschiedenis en natuur	…to be in a place with an interesting culture, history and nature
Volledig opgaan in planten- en dierenwereld	**Love for nature**
…om de flora en fauna in het gebied te bekijken	…to search for flora and fauna in the area
…om in de natuur te zijn met mensen met dezelfde interesses	…to be in nature with people who have the same interests
…om mijn kennis over de natuur te delen met anderen	…to share my knowledge about nature with others
…omdat ik daar mijn hobby kan uitoefenen	…because I can practice my hobby in nature
Uitdaging	**Challenge**
…om beweging te krijgen	…to get exercise
…om mezelf fysiek uit te dagen	…to challenge myself physically
…om actief te zijn in de buitenlucht	…to be active outdoors

Table 3.2 Items of the Mini-IPIP, personality traits (Laverdière *et al.*, 2013; Donnellan *et al.*, 2006)

Original	Translated to Dutch
Extraversion	**Extraversie**
I am the life of the party	Ik ben een gangmaker op feestjes
Talk to a lot of different people at parties	Ik praat veel met verschillende mensen op feestjes
Don't talk a lot (R)	Ik praat niet veel
Keep in the background (R)	Ik hou me graag op de achtergrond
Agreeableness	**Inlevend**
Sympathize with others' feelings	Ik begrijp gevoelens van anderen goed
Feel others' emotions	Ik voel de emoties van andere mensen
Am not interested in other people's problems (R)	Ik ben niet geïnteresseerd in iemand anders zijn problemen
Am not really interested in others (R)	Ik ben in het algemeen niet echt geïnteresseerd in anderen
Conscientiousness	**Nauwgezetheid**
Get chores done right away	Ik doe klusjes gelijk en maak het snel af
Like order	Ik hou van structuur
Often forget to put things back in their proper place (R)	Ik vergeet vaak spullen op de juiste plek terug te leggen
Make a mess of things (R)	Ik maak vaak een zooitje van alles
Neuroticism	**Neuroticisme**
Have frequent mood swings	Mijn humeur wisselt vaak
Get upset easily	Ik raak gemakkelijk overstuur
Am relaxed most of the time (R)	Ik ben vaak rustig
Seldom feel blue (R)	Ik voel me bijna nooit terneergeslagen
Openness to experience - intellect	**Open voor ervaring - intelligentie**
Have a vivid imagination	Ik heb een levendige verbeelding
Am ~~not~~ interested in abstract ideas*	Ik ben geïnteresseerd in abstracte ideeën
Have difficulty understanding abstract ideas (R)	Ik heb moeite met het begrijpen van abstracte ideeën
Do not have a good imagination (R)	Ik heb geen goede verbeelding

* This item was reversed back as the component 'openness to experience-intellect' was the only component that had three out of four reversed items.
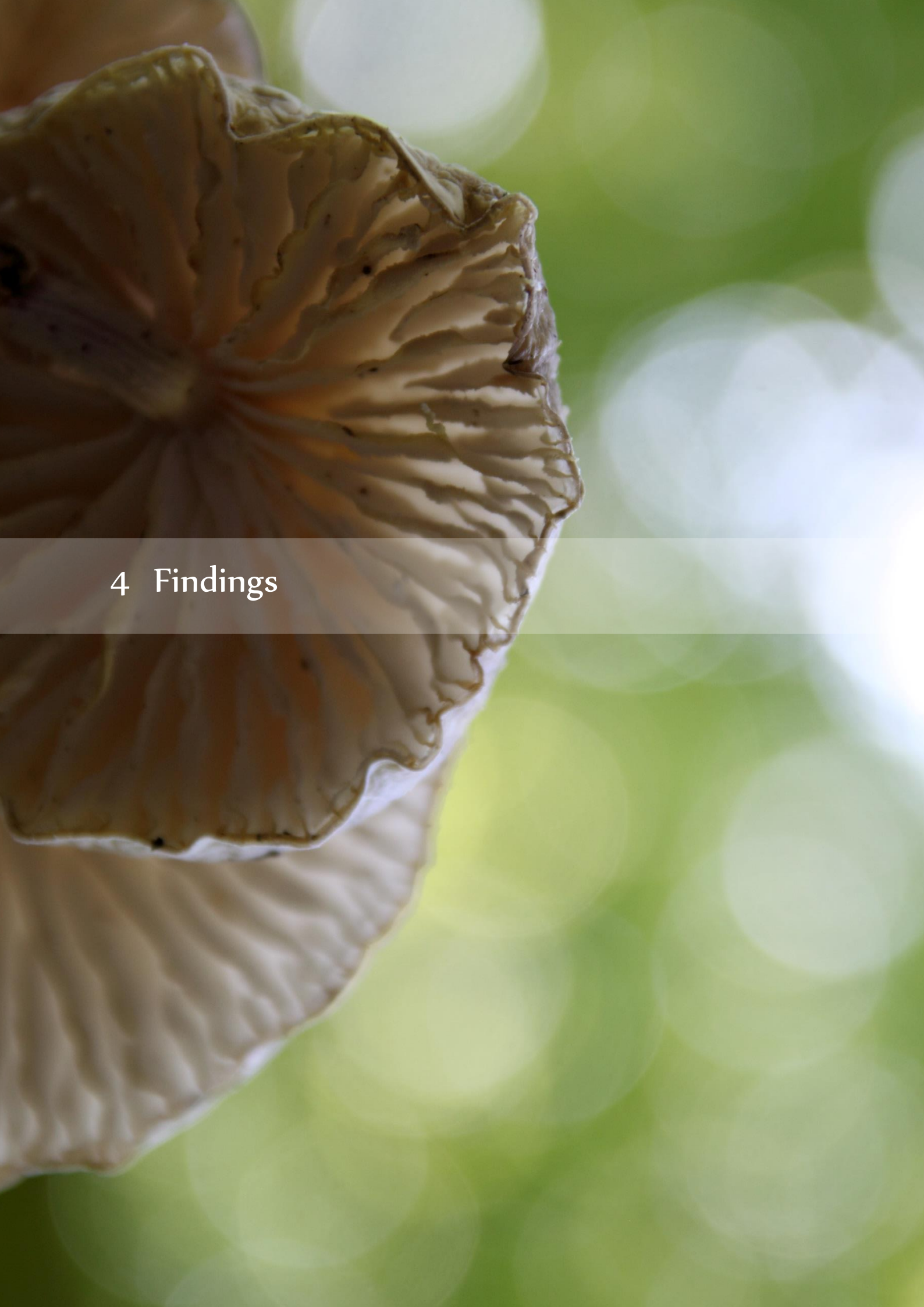
(R) = reversed items

Table 3.3 Demographics

Demographics	Items
Sex	Male
	Female
Age	In years
Household composition	Living with partner/married without children
	Living with partner/married with children at home
	Living with partner/married with children moved out of home
	Single without children
	Single with children at home
	Single with children moved out of home
	Other
Education level	Primary school
	Secondary school
	Middle degree/Middelbaar Beroepsonderwijs (MBO)
	Higher degree/Hoger Beroepsonderwijs (HBO)
	Scientific degree (University)
Member of one or more nature conservation organisations	Yes
	No
Postal code	Four numbers
&	
Degree of urbanisation	Very urban (>= 2500 addresses per km^2)
	Urban (1500 – 2500 addresses per km^2)
	Moderately urban (1000 – 1500 addresses per km^2)
	Somewhat urban (500 – 1000 addresses per km^2)
	Not urban (< 500 addresses per km^2)

Table 3.4 Dichotomous variables for multiple regression analyses

	0	1
Sex	Male	Female
Household partner	Single	Together
Household children	No children	Have children
Education	Primary school – MBO	HBO & WO
Membership	Non-member	Member
Urbanisation	Somewhat & Not urban	Moderately – Very urban
Participating in sporty activities	Almost never	At least once per 2-3 months – More than once a day
Participating in wander activities	Almost never & At least once per 2-3 months	At least once a month – More than once a day
Participating in common activities	Almost never & At least once per 2-3 months	At least once a month – More than once a day
Distance from path	0-5 metre	>5 metre
More often off paths when allowed	No	Yes

4 Findings

4.1 Introduction

In this chapter the results of the data analysis are presented. First, scale analyses are discussed, describing how the data set was reduced to a smaller and more manageable size. Second, the sample characteristics will be described: these include the frequencies of all the variables, describing how the whole sample answered the survey questions. Third, the sample demographics are compared to national and, where possible, regional characteristics. Last, the predictiveness of demographics, personality traits, recreation motives and activities are analysed, followed by concluding remarks on the data analysis.

4.2 Scale analyses

In social sciences research, sometimes variables are studied that cannot be directly measured. They are called *latent variables* (Field, 2005). In this research, this type of variables is also studied. The five personality traits and recreation motives, which were taken from existing literature, are latent variables. These variables were measured with several items representing them. To be certain the groups of items represent the construct they measure, reliability analysis is conducted (Field, 2005). The reliability analyses are explained in this section. Besides grouping these two latent variables, other variables were also grouped in this study to reduce the dataset to a more manageable size. This was done for activities, perceived obstructions and activities done off the paths. However, these variables did not have literature based groupings as personality traits and recreation motives had. The groupings for activities, perceived obstructions and activities done off the paths were made using exploratory factor analysis. SPSS combines variables into groups based on collinearity (Field, 2005). In this study the groups were created with exploratory factor analysis, using varimax rotation and values below .4 were suppressed. After the groups were formed, reliability analyses was conducted to check for internal consistency within each group. When the final groups were formed, an index for each latent variable was calculated. This is the mean of all variables within each group for each respondent. The results of the exploratory factor analysis are discussed here, followed by the results of the reliability analyses.

4.2.1 Exploratory factor analyses

Exploratory factor analysis – Activities

The recreational activities people participate in were categorised into three groups, together explaining 55.6% of the variance. The three groups were named based on the variables in each group. The first group contained **sporty activities** and explained 29.1% of the variance: *Nordic walking, mountain biking, horseback riding, survival, boot camp* and *geo-caching or gps-route*. The second group contained **wander activities** and explained 14.3% of the variance: *wandering, picking forest fruits, photographing* and *birding/looking at plants and animals*. The third group contained **common activities** that are not necessarily related to nature areas: *walking, walking the dog, running* and *biking*. This group explained 12.2% of the variance.

Exploratory factor analysis – Perceived obstructions

The perceived obstructions were categorised into three groups. At first, not all obstructions were included in one of the groups. *A rainy day* and *the possibility of getting ticks* were not included. Conceptually, these variables are important to be a part of one of the groups. After forcing the factor analysis into four groups, two other variables formed one group: *wearing fancy shoes* and *wearing*

everyday shoes without profile. These variables are conceptually less important, so these two variables were left out in the next analysis. Three groups were formed, including *a rainy day* and *the possibility of getting ticks*. The first group was named **open areas/good circumstances** and explained 20.2% of the variance. This group consists of *forest with no undergrowth, grass, heath, shifting sand, fitness of recreationist, wearing hiking boots* and *sunny weather*. The second group was named **somewhat limiting circumstances** and accounted for 17.5% of the explained variance. It consists of *large animals, muddy soil, ditches, rainy weather, the possibility of getting ticks* and *the fear of getting lost*. The last group was named **very limiting circumstances**, consisting of *fences, barbed wire, forest with dense undergrowth, presence of prohibition signs* and *the possibility of disrupting nature*. This group explained 15.1% of the variance. The total amount of variance explained was 52.8%.

Exploratory factor analysis – Time off paths during activities off the paths
Time off paths during activities off the paths was categorised into three groups, together explaining 54.3% of the variance. The first group was named **sporty activities** (explaining 25.2% of the variance), consisting of *Nordic walking, mountain biking, horseback riding, survival, boot camp* and *geo-caching or gps-route*. The second group was named **wander activities** and explained 15.6% of the variance. This group consists of *wandering, picking forest fruits, photographing* and *birding/looking at plants and animals*. The third group was named **common activities**, consisting of *walking, running, biking* and *playing with children* and accounted for 13.5% of the explained variance.

4.2.2 Reliability analyses
Reliability analyses – Personality traits
The measurement instrument measuring **personality traits** – the mini IPIP – was taken from literature (Laverdière *et al.*, 2013; Donnellan *et al.*, 2006) and used in this research. Laverdière *et al.* (2013) assessed the mini IPIP to be an adequate instrument. To check whether the personality traits were adequate to use in this research, an exploratory factor analysis was conducted and two groups were formed: extraversion, agreeableness and openness/intellect; and conscientiousness and neuroticism. However, reliability analysis of the first group showed a low Cronbach's Alpha ($\alpha\approx.40$) and the second group had a significant medium negative correlation (Pearson's $r\approx-.30$). These results confirm that the five personality traits measure different constructs and can therefore be used in the present form.

Following the grouping of the literature, a reliability analysis of the personality traits was conducted for each of the traits. The analysis of the personality trait of **extraversion** showed that the four items (*life of the party, talk to a lot of people, don't talk a lot (R), keep in the background (R)*) were internally consistent with a Cronbach's Alpha of .744. Also the four items of **agreeableness** (*sympathise with others' feelings, feel others' emotions, not interested in other people's problems (R), not really interested in others (R)*) were internally consistent with a Cronbach's Alpha of .676. The first round of analysis for the items of **conscientiousness** showed a Cronbach's Alpha of .524 (<.60), which is not sufficient. The results showed that the inter-item correlation of *get chores done right away* was low (<.40) and that the Cronbach's Alpha would increase to .533 when the item was to be deleted. After conducting a second round, Cronbach's Alpha could still be increased when deleting the item *like order*, as the inter-item correlation of that item was .190 and deleting this item would increase Cronbach's Alpha to .638. So the construct conscientiousness consists of two remaining items – *often forget to put thing back in their proper place (R) and make a mess of things (R).* In table 4.1 only the correlation (Pearson's r=.473) between these two items is showed, as Cronbach's Alpha

is only valid for three or more items. The reliability analysis of **neuroticism** gave a Cronbach's Alpha of .576 which is not sufficient (<.60). The inter-item correlation of the item *am relaxed most of the time (R)* was .212 and the Alpha if item was to be deleted was .606, which is sufficient. A second round of analysis was conducted with the three final items: *have frequent mood swings, get upset easily* and *seldom feel blue (R)*. The analysis on **openness to experience–intellect** showed a low Cronbach's Alpha of .456. However, this index was accepted as neither of the items could be deleted. They would all make the Alpha drop even further. As the categorisation of the personality traits was taken from the literature, it will stay as it is with four items – *have a vivid imagination, interested in abstract ideas, difficulty understanding abstract ideas (R)* and *not have a good imagination (R).* For the detailed results, see table 4.1.

Table 4.1 Reliability analysis - Personality traits

Personality traits	Reliability analysis		
	Item total correlation	Alpha if item deleted	Cronbach's Alpha
Extraversion			.744
I am the life of the party	.512	.701	
Talk to a lot of different people at parties	.560	.672	
Don't talk a lot (R)	.517	.696	
Keep in the background (R)	.565	.672	
Agreeableness			.676
Sympathise with others' feelings	.503	.582	
Feel others' emotions	.476	.598	
Am not interested in other people's problems (R)	.377	.661	
Am not really interested in others (R)	.481	.594	
Conscientiousness			-
Often forget to put things back in their proper place (R)	.473	-	
Make a mess of things (R)	.473	-	
Neuroticism			.606
Have frequent mood swings	.438	.460	
Get upset easily	.404	.511	
Seldom feel blue (R)	.389	.532	
Openness to experience – Intellect			.456
Have a vivid imagination	.268	.376	
Am interested in abstract ideas	.188	.447	
Have difficulty understanding abstract ideas (R)	.266	.378	
Do not have a good imagination (R)	.312	.327	

(R) = reversed items

Reliability analyses – Recreation motives
Before doing a reliability analysis on the recreation motives, correlation analysis was conducted to see how the constructs relate to each other. Results showed that all recreation motives have a significant positive relationship with one another, meaning that when a respondent scores high on

amusement, it will also score high on the other four recreation motives. When conducting a cluster analysis on the five motives, it shows that the respondents only differ in how motivated they are. Three groups are formed: most motivated people, least motivated people and averagely motivated people, as can be seen in table 4.2. When conducting a reliability analysis on all recreation motives, it showed a high Cronbach's Alpha (α>.75), which means that all recreation motives measure the same construct. As a consequence, the variable *motive index* was created and represents all motives (all motives were averaged per respondent). However, as Geldersch Landschap & Kasteelen uses the five recreation motives for their recreation policies, a reliability analysis for the five motives is still conducted and both – the five motives and the motive index – are included in the analysis.

Table 4.2 Cluster analysis recreation motives

	Most motivated	Averagely motivated	Least motivated
Recreation motives	Mean*	Mean*	Mean*
Amusement	3.16	2.91	1.73
Change/Escape	3.99	3.53	2.29
Interest	4.01	2.77	2.28
Love for nature	3.82	2.81	2.17
Challenge	4.12	3.57	2.77

* Scores between 1 and 5, 1 meaning not applicable, 5 meaning highly applicable.

A reliability analysis of the recreation motives was conducted for each category and can be seen in table 4.3. The analysis of the motive **amusement** showed that the item *to participate in organised activities* had an inter-item correlation of <.40, which is a suggestion to delete this item. The second round of analysis showed that all of the inter-item correlations were above .40 and the Cronbach's Alpha was sufficient: α=.687. The index was computed with the three remaining items (*to be together with friends, amusement/gezelligheid* and *to be together with family).* The analysis of the motive **change/escape** showed sufficient inter-item correlations between all four items (*to contemplate, to be away from crowds of people, to give myself some peace and quiet, to get away from daily routine* and *to recharge my battery)*. The Cronbach's Alpha of .847 was also sufficient. The analysis of the motive **interest** also showed a sufficient Cronbach's Alpha (α=.884) and sufficient inter-item correlations of >.50 between the five items (*learn about nature, learn about the area, learn about the history of the area, learn about the castles in the area* and *be in a place with an interesting culture, history and nature)*. The analysis of the motive **love for nature** showed a low inter-item correlation for the item *to search for flora and fauna in the area* (.372). Deleting this item would also increase the Cronbach's Alpha from .717 to .725. However, it was chosen to keep this item, as it would not increase the Cronbach's Alpha much and the item is important for the overall category of love for nature. The category love for nature therefore consists of all four items – item *to search for flora and fauna in the area, to be in nature with people who have the same interests, to share my knowledge about nature with others* and *because I can practice my hobby in nature*. The analysis of the motive **challenge** showed sufficient inter-item correlations (>.40) between all three items – *to get exercise, to challenge myself physically* and *to be active outdoors*. The Cronbach's Alpha of the category is .658 which is sufficient.

Table 4.3 Reliability analysis - Recreation motives

Motivations	Reliability analysis		
	Item total correlation	Alpha if item deleted	Cronbach's Alpha
Amusement			.687
To be together with friends	.437	.675	
Amusement	.505	.589	
To be together with family	.565	.508	
Change/Escape			.847
To contemplate	.558	.842	
To be away from crowds of people	.534	.850	
To give myself some peace and quiet	.761	.789	
To get away from daily routine	.778	.782	
To recharge my battery	.672	.812	
Interest			.884
To learn about nature	.664	.876	
To learn about the area	.746	.853	
To learn about the history of the area	.741	.854	
To learn something about the castles in the area	.723	.858	
To be in a place with an interesting culture, history and nature	.750	.852	
Love for nature			.717
To search for flora and fauna in the area	.372	.725	
To be in nature with people who have the same interests	.526	.642	
To share my knowledge about nature with others	.613	.587	
Because I can practice my hobby in nature	.526	.645	
Challenge			.658
To get excercise	.483	.553	
To challenge myself physically	.460	.606	
To be active outdoors	.494	.536	

Reliability analyses – Activities

Following the exploratory factor analysis, a reliability analysis was conducted for each of the groups. The analysis of **sporty activities** showed a sufficient Cronbach's Alpha (α=.864) with all six items. Deleting mountain biking would even increase the Cronbach's Alpha further to .983, however, as the current Cronbach's Alpha is already high, none of the items need to be deleted. The index sporty activities will therefore represent *Nordic walking, mountain biking, horseback riding, survival, boot camp* and *geo-caching/gps-route.* The analysis of **wander activities** also showed a sufficient Cronbach's Alpha (α=.677) with all four items (*wandering, picking forest fruits, photographing and birding*). The analysis of **common activities** does not show a sufficient Cronbach's Alpha (α<.60). Also, three of four items also do not have sufficient item total correlations (<.40). However, only deleting running would increase the Cronbach's Alpha to .539, which is still not a sufficient value. Therefore, it was decided to keep the group as the exploratory factor analysis proposed it and the

index common activities consists of *walking, walking the dog, running* and *biking*. For detailed results, see table 4.4.

Table 4.4 Reliability analysis – Activities

Activities	Reliability analysis		
	Item total correlation	Alpha if item deleted	Cronbach's Alpha
Sporty activities			.864
Nordic walking	.557	.862	
Mountain biking	.506	.893	
Horseback riding	.747	.830	
Survival	.860	.817	
Boot camp	.854	.815	
Geo-caching or gps-route	.692	.836	
Wander activities			.677
Wandering	.491	.591	
Picking forest fruits	.397	.663	
Photographing	.475	.600	
Birding	.545	.564	
Common activities			.503
Walking	.504	.253	
Walking the dog	.312	.439	
Running	.139	.539	
Biking	.277	.448	

Reliability analyses – Obstructions

Following the exploratory factor analysis, reliability analysis was conducted for the three groups of obstructions. The analysis of **open areas/good circumstances** showed a high Cronbach's Alpha (α=.845). The items also showed sufficient inter-item correlations. The items of this category are: *forest with no undergrowth, grass, heath, shifting sand, fitness of the recreationist, wearing hiking boots* and *sunny weather*. The analysis of **somewhat limiting circumstances** also showed a high Cronbach's Alpha (α=.783) and the inter-item correlations were also sufficient (>.40). The index represents the items: *presence of large animals, muddy soil, ditches, rainy weather, possibility of getting ticks* and *fear of getting lost*. The analysis of **very limiting circumstances** showed a high Cronbach's Alpha of .753 and inter-item correlations were also sufficient. This index represents the items *fence, barbed wire, forest with dense undergrowth, presence of prohibition sign* and *the possibility of disrupting nature*. Details of the results can be found in table 4.5.

Table 4.5 Reliability analysis – Obstructions

Obstructions	Reliability analysis		
	Item total correlation	Alpha if item deleted	Cronbach's Alpha
Open areas/good circumstances			.845
Forest with no undergrowth but leaves on the soil	.589	.826	
Grass	.731	.810	
Heath	.642	.818	
Shifting sand	.697	.809	
Fitness of the recreationist	.457	.855	
Hiking boots with profile	.611	.824	
Sunny weather	.594	.826	
Somewhat limiting circumstances			.783
Large animals	.535	.750	
Muddy soil	.684	.714	
Ditches	.517	.755	
Rainy weather	.504	.758	
The possibility of getting ticks	.495	.761	
Fear of getting lost	.468	.766	
Very limiting circumstances			.753
Fence	.575	.688	
Barbed wire	.663	.656	
Forest with dense undergrowth of bushes, blackberries, ferns or young trees	.464	.729	
Presence of prohibition signs	.524	.708	
Possibility of disrupting nature	.381	.756	

Reliability analyses – Time off paths during activities off the paths

Following the exploratory factor analysis, reliability analysis was conducted for the three groups. The analysis of **sporty activities** showed a high Cronbach's Alpha and sufficient inter-item correlations. The index consists of *Nordic walking, mountain biking, horseback riding, survival, boot camp* and *geo-caching/gps route*. The analysis of **wander activities** showed a sufficient Cronbach's Alpha and inter-item correlations. This index consists of *wandering, picking forest fruits, photographing* and *birding*. The analysis of **common activities** also showed a sufficient Cronbach's Alpha. Two items have a low inter-item correlation (<.40), however, deleting those items would not increase the Cronbach's Alpha. The index consists of *walking, running, biking* and *playing with children*. More details of the results of the analysis can be found in table 4.6.

Table 4.6 Reliability analysis – Time off paths during activities off the paths

Activities	Reliability analysis		
	Item total correlation	Alpha if item deleted	Cronbach's Alpha
Sporty activities			.803
Nordic walking	.609	.762	
Mountain biking	.437	.838	
Horseback riding	.706	.755	
Survival	.758	.750	
Boot camp	.754	.744	
Geo-caching or gps-route	.457	.800	
Wander activities			.724
Wandering	.525	.656	
Picking forest fruits	.439	.708	
Photographing	.487	.678	
Birding	.610	.607	
Common activities			.631
Walking	.438	.542	
Running	.371	.590	
Biking	.506	.489	
Playing with children	.341	.617	

4.3 Sample characteristics

Half of the sample is male (51.9%) and half is female (48.1%). The average age is 51 and the largest group of respondents is between 60 and 69, followed by respondents between 50 and 59 (see table 4.7). The largest group is living with a partner and still has his or her children at home, followed by the group of respondents that lives together and have adult children who live on their own (see table 4.8). The largest group of respondents has HBO or MBO as his or her highest education (see table 4.9). Most respondents are not a member of any nature conservation organisation (64.8%). 35.2% are member, most of them are a member of GLK and Natuurmonumenten (see table 4.10). Together, half of the respondents live in non-urban areas and somewhat urban areas. Only 5.4% of the respondents live in very urban areas (see table 4.11).

Table 4.7 Demographics – Age categories

Age group	Frequency	Valid Percent
0-19	6	1.3
20-29	54	11.5
30-39	51	10.8
40-49	81	17.2
50-59	92	19.5
60-69	150	31.8
70-79	33	7.0
80-89	4	0.8
Total	471	100
Missing data	1	
Total	472	

Table 4.8 Demographics – Household composition

	Frequency	Valid Percent
Living with partner/married without children	96	20.4
Living with partner/married with children at home	118	25.1
Living with partner/married with adult children	117	24.8
Single without children	81	17.2
Single with children at home	14	3.0
Single with adult children	31	6.6
Other	14	3.0
Total	471	100
Missing data	1	
Total	472	

Table 4.9 Demographics – Education level

	Frequency	Valid Percent
Primary school	6	1.3
Secondary school	88	18.7
Middle degree/Middelbaar Beroepsonderwijs (MBO)	151	32.1
Higher degree/Hoger Beroepsonderwijs (HBO)	155	33.0
Scientific degree (University)	70	14.9
Total	470	100
Missing data	2	
Total	472	

Table 4.10 Demographics – Membership nature conservation organisations

	Frequency	Valid Percent
Geldersch Landschap & Kasteelen	74	30.6
Natuurmonumenten	66	27.3
WNF	38	15.7
IVN	12	5.0
Vogel, Vlinder & Dierenbescherming	11	4.5
Greenpeace	10	4.1
Staatsbosbeheer	5	2.1
NHGL	3	1.2
Waddenvereniging	3	1.2
Ecomare	2	0.8
Hoge Veluwe	2	0.8
Other	16	6.6
Total responses	242	100
Total respondents	161	

Table 4.11 Demographics – Degree of urbanisation

	Frequency	Valid Percent
Very urban (>= 2500 addresses per km^2)	25	5.4
Urban (1500 – 2500 addresses per km^2)	102	21.9
Moderately urban (1000 – 1500 addresses per km^2)	98	21.1
Somewhat urban (500 – 1000 addresses per km^2)	117	25.2
Not urban (< 500 addresses per km^2)	123	26.5
Total	465	100
Missing data	7	
Total	472	

Personality traits and recreation motives were measured on a scale from 1 to 5, 1 meaning 'not applicable at all' and 5 meaning 'completely applicable'. In table 4.12 and 4.13, 'not applicable' are the respondents that scored between 1 and 2.5, 'neither' are the respondents that scored between 2.5 and 3.5 and 'applicable' are the respondents that scored between 3.5 and 5. In the tables, the means and standard deviations can be seen as well.

Respondents most often recognised themselves in the personality traits conscientiousness and agreeableness, followed by the traits openness to experience-intellect and extraversion. Half of the respondents did not recognise themselves in the trait neuroticism. See table 4.12 for more detailed information. Respondents most often recognised themselves in the recreation motives challenge and change/ escape, followed by the recreation motives interest, love for nature and amusement. The mean of the motive index is 3.24 and most respondents answered between neither and applicable. Detailed information can be found in table 4.13.

Table 4.12 Personality traits

Personality traits	Mean	Standard deviation	Not applicable		Neither		Applicable	
			Freq.	Valid percent	Freq.	Valid percent	Freq.	Valid percent
Extraversion	2.93	.797	127	27%	202	42.9%	142	30.1%
Agreeableness	3.72	.668	6	1.3%	144	30.6%	321	68.2%
Conscientious-ness	3.88	.908	27	5.7%	87	18.5%	357	75.6%
Neuroticism	2.53	.787	226	48%	195	41.4%	50	10.6%
Openness/ Intellect	3.42	.625	14	3%	225	47.8%	232	49.3%

Table 4.13 Recreation motives

Recreation motives	Mean	Standard deviation	Not applicable		Neither		Applicable	
			Freq.	Valid percent	Freq.	Valid percent	Freq.	Valid percent
Amusement	2.81	.920	156	33.1%	198	42%	117	24.8%
Change/Escape	3.51	.881	59	12.5%	148	31.4%	264	56.1%
Interest	3.17	.945	110	23.4%	177	37.6%	184	39.1%
Love for nature	3.09	.851	97	20.6%	192	40.8%	182	38.6%
Challenge	3.65	.770	36	7.6%	154	32.7%	281	59.7%
Motive index	3.24	.629						

Sporty activities, such as Nordic walking, mountain biking, horseback riding, survival, boot camp and geo-caching/gps-route were done by only 10% of the respondents, of which most did those at least once per 2-3 months. Wander activities – wandering, picking forest fruits, photographing and birding – are more popular, most people participate in these varying between at least once per 2-3 months and once a week. One-fifth of the respondents never participate in these activities. Common activities, such as walking, walking the dog, running and biking are done by most respondents. Only 5% of the respondents never participate in these activities. See table 4.14 for more detailed information. Most of the respondents stated that they did not go off the paths during their recreational activities. This is especially the case for sporty activities: only a few respondents go off the paths. Wander activities are most popular to do off the paths. A quarter of the respondents sometimes goes off the paths during these activities, and even a few (2%) go almost always off the paths when wandering, picking forest fruits, photographing and birding. Common activities – walking, walking the dog, running and biking – are not very popular to do off the paths. 70% never goes off the paths, and 21% only sometimes. For more information, see table 4.15. When respondents go off the path, they stay relatively close. The majority stays within 30 metres distance (67%) and 30% stays even within 5 metres from the paths (see table 4.16). The majority of the respondents (80%) also states that they would not go off the paths more often if they were allowed to do so in areas where they currently cannot go off the paths. 20% says they would go off the paths more often, mainly to do activities such as looking for plants and animals, photographing, walking, wandering/exploring and picking forest fruits, see table 4.17 for more specific details.

Table 4.14 Activities

	Sporty activities		Wander activities		Common activities	
	Frequency	Valid Percent	Frequency	Valid Percent	Frequency	Valid Percent
Almost never	418	89.7%	105	22.3%	21	4.4%
At least once per 2-3 months	40	8.6%	188	40%	155	32.8%
At least once a month	2	0.4%	108	23%	163	34.5%
Once a week	3	0.6%	50	10.6%	79	16.7%
At least twice a week	1	0.2%	15	3.2%	41	8.7%
Once a day	1	0.2%	4	0.9%	11	2.3%
More than once a day	1	0.2%	0	0%	2	0.4%
Total	466	100%	470	100%	472	100%
Missing data	6		2			
Total	472		472			

Table 4.15 Time of paths during activities

	Sporty activities		Wander activities		Common activities	
	Frequency	Valid Percent	Frequency	Valid Percent	Frequency	Valid Percent
Never/Not applicable	458	97.3%	269	57.1%	327	69.3%
Sometimes (1-25%)	4	0.9%	115	24.4%	98	20.8%
Half or less than half (26-50%)	1	0.2%	52	11%	31	6.5%
Half or more than half (51-75%)	2	0.4%	26	5.5%	12	2.5%
Almost always (76-100%)	1	0.2%	9	1.9%	4	0.8%
Total	466	100%	471	100%	472	100%
Missing data	6		1			
Total	472		472			

Table 4.16 Distance from the path when going off the path

	Frequency	Valid Percent
0 – 5 metre	140	29.7
5 – 30 metre	174	36.9
30 – 50 metre	41	8.7
More than 50 metre	65	13.8
Not applicable	52	11.0
Total	472	100

Table 4.17 Activities off the path when allowed to go off the paths

No. Respondents: 91	Frequency	Valid Percent
Looking for plants and animals	33	27
Photographing	30	25
Walking	24	20
Wandering/Exploring	16	13
Picking forest fruits	10	8
Other*	9	7
Total no. of responses	122	100

* other activities: mountain biking, running, looking for some peace and quiet, playing with children, hunting, picnicking, climbing trees, research and sunbathing.

The majority of the respondents perceive open areas/good circumstances in nature as either no obstruction at all or as a small obstruction. The open areas/good circumstances in nature are forests with no undergrowth, grass, heath, shifting sand, the personal fitness of the recreationist, wearing hiking boots and sunny weather. Somewhat limiting circumstances are perceived as small or average obstructions by the majority of the respondents. Examples of this type of obstructions are the presence of large animals, muddy soil, ditches, rainy weather, the possibility of getting ticks and the fear of getting lost. Very limiting circumstances were mostly perceived from average to a large obstruction. Examples of this type of obstructions are a fence, barbed wire, forest with a dense undergrowth, the presence of prohibition signs and the possibility of disrupting nature. Only 4% of the respondents perceived these circumstances as no obstruction at all (see table 4.18).

Table 4.18 Perceived obstructions

Perceived as...	Open areas / good circumstances		Somewhat limiting circumstances		Very limiting circumstances	
	Frequency	Valid Percent	Frequency	Valid Percent	Frequency	Valid Percent
No obstruction	263	55.7%	44	9.3%	20	4.2%
Small obstruction	162	34.3%	140	29.7%	47	10%
Average obstruction	33	7.0%	192	40.7%	142	30.1%
An obstruction	9	1.9%	79	16.7%	183	38.8%
Large obstruction	5	1.1%	17	3.6%	80	16.9%
Total	472	100%	472	100%	472	100%

4.4 Comparing the sample with the Dutch society

In this section, the sample described above is compared to the Dutch society (data from cbs.nl). Only household composition could also be compared to the society of the province of Gelderland. This is due to the unavailability of this information for the other variables. Education level could not be compared to national data due to grouping differences. As a note, these comparisons are not used to weigh data to become representative of the Dutch society or of the population of Gelderland. This sample was not meant to be representative, as only people who recreate in nearby nature areas

could fill out the survey. However, to give an idea of the sample characteristics, the Dutch society and the population of Gelderland, information on the comparisons can be read here.

The amount of men and women are statistically the same (t(942)=-.716, p>.05). Both in the Netherlands as in the sample the amount of women and men is approximately 50%. The age distribution among the sample is not the same as in the Netherlands (t(940)=7.922, p<.001). The sample has a small amount of respondents younger than 20 years and older than 80 years. This is due to the inaccessibility of these age groups. There is an overrepresentation within the age groups of 40-65 and 65-80 years in the sample. This is due to the average age of people participating in excursions of GLK. Detailed percentages can be found in table 4.19. The household composition of the sample is statistically the same when compared to the Dutch society (t(941)=.552, p>.05), but not the same as the population in Gelderland (t(941)=4.702, p<.001). This could be due to a relatively high amount of people living together with a partner without having children in the province of Gelderland. Furthermore, almost half of the respondents is living together with a partner, which is an overrepresentation compared to the population of Gelderland. More detailed information can be found in table 4.20. In December 2013, 22% of the Dutch population was a member of one or more nature conservation organisation(s) (Vroege Vogels, 2013). The group of members within the sample is significantly larger (35%) (t(942)=4.588, p<.001). This could be due to filtering people out of the survey that do not recreate in nature. There could be a relationship between recreating in nature and being a member of a nature conservation organisation, however this is not covered in this thesis. The degree of urbanisation of the sample is statistically the same as the population of Gelderland (t(935)=.504 p>.05). It differs from the population of the Netherlands (t(935)=6.364, p<.001). The largest difference is the amount of people living in very urban areas. 21% of the Dutch people live in very urban areas, whereas only 5.5% of the people in Gelderland live in those areas. More details can be found in table 4.21.

Table 4.19 Comparing sample with the Dutch society - Age

Group	Percentage >20 years	Percentage 20-40 years	Percentage 40-65 years	Percentage 65-80 years	Percentage >80 years
Sample	1.5	22.2	51.5	23.9	0.8
Dutch society	22.8	24.5	35.3	13.2	4.3

Table 4.20 Comparing sample with the Dutch society – Household composition

Group	Percentage Together without children	Percentage Together with children	Percentage Single without children	Percentage Single with children	Percentage Other
Sample	20.4	49.9	17.2	9.6	3.0
Gelderland	43.6	23.5	27.5	4.9	0.4
Dutch society	27.1	31.5	34.5	6.4	0.5

Table 4.21 Comparing sample with the Dutch society – Degree of urbanisation

Group	Percentage Very urban	Percentage Urban	Percentage Moderately urban	Percentage Somewhat urban	Percentage Not urban
Sample	5.4	21.9	21.1	25.2	26.5
Gelderland	5.5	22	22.6	25.3	24.6
Dutch society	20.8	24.1	18	18.6	18.6

4.5 Data analysis

In this section, the predictiveness of demographics, personality traits, recreation motives and activities is analysed. Conclusions are drawn after the analysis of each concept.

4.5.1 Demographics

Demographics significantly predict most personality traits. Only the overall model for conscientiousness was not significant. However, respondents with a higher education did show a higher score for conscientiousness. Most variance was explained for agreeableness (10.6%) and least variance was explained for neuroticism (6.2%). Extraversion is explained by educational level, degree of urbanisation and membership. Respondents have a higher score on extraversion when they are higher educated, live in non to somewhat urban areas and are not a member of a nature conservation organisation. Respondents score higher on agreeableness when they are female and when they are higher educated. Younger women score higher on the trait neuroticism than older men. Openness to experience-intellect is only explained by educational level; higher educated respondents tend to score higher on this personality trait. Statistical details can be found in table 4.22 and notes on how to read the tables can be read in box 4.1.

Table 4.22 Regression Demographics – Personality traits

Demographics	Extraversion β (or R^2)	Agreeableness β (or R^2)	Conscientious β (or R^2)	Neuroticism β (or R^2)	Openness/ Intellect β (or R^2)
Household – Partner	n.s.	n.s.	n.s.	n.s.	n.s.
Household – Children	n.s.	n.s.	n.s.	n.s.	n.s.
Educational level	.140**	.131**	.108*	n.s.	.219***
Urbanisation	-.112*	n.s.	n.s.	n.s.	n.s.
Sex	n.s.	.323***	n.s.	.116*	n.s.
Membership	-.202***	n.s.	n.s.	n.s.	n.s.
Age	n.s.	n.s.	n.s.	-.210***	n.s.
Adjusted R^2	.065***	.106***	n.s.	.062***	.067***

Significance: * p<.05 | ** p<.01 | *** p<.001 | n.s. = not significant

Box 4.1 Some notes on multiple regression tables

The multiple regression tables show the relationships between the independent (predictor) variables and the dependent (predicted) variables. Variables in rows are independent variables and variables in columns are dependent variables. R^2 values indicate the total amount of variance that is explained by the independent variables together. The R^2 value can vary between 0 and 1, 0 meaning no relationship at all, 1 meaning 100% relationship. β values represent the slope of the relationship of each individual variable. A positive β means the higher the independent variable Y, the higher the dependent variable X. A negative β means the higher the independent variable Y, the lower the dependent variable X. Visually that looks like this:
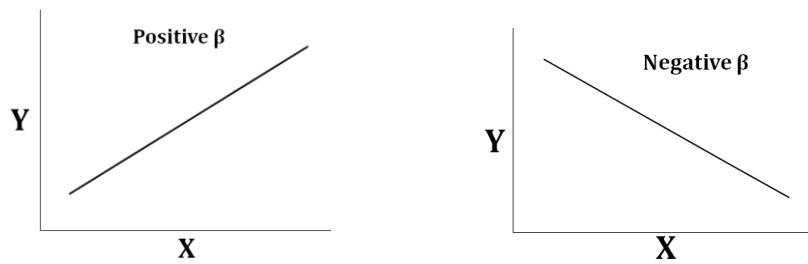
Demographics significantly predict all recreation motives. The highest amount of variance that was explained by demographics is for the motive interest (13.8%) and the motive love for nature (12.9%). Least variance was explained for the motive challenge (3.2%). Respondents that recreate with the motive amusement are generally young and live in non to somewhat urban areas. Recreation with the motive change/escape is done by female singles who are a member of a nature conservation organisation. Respondents that recreate with the motive interest are generally older and a member of a nature conservation organisation. This is also the case for respondents that recreate with the motive love for nature, but next to that, these respondents also generally have a lower educational level. Women recreate more often with the motive challenge than men. The results of the motive index show that only sex and membership predict how motivated respondents are. Generally, women and members of nature conservation organisations are more motivated than men and non-members. Detailed information can be found in table 4.23.

Table 4.23 Regression Demographics – Recreation motives

Demographics	Amusement β (or R²)	Change/ Escape β (or R²)	Interest β (or R²)	Love for nature β (or R²)	Challenge β (or R²)	Motive index β (or R²)
Household – Partner	n.s.	-.142**	n.s.	n.s.	n.s.	n.s.
Household – Children	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Educational level	n.s.	n.s.	n.s.	-.099*	n.s.	n.s.
Urbanisation	-.097*	n.s.	n.s.	n.s.	n.s.	n.s.
Sex	n.s.	.150**	n.s.	n.s.	.142**	.122**
Membership	n.s.	.129**	.314***	.336***	n.s.	.242***
Age	-.176***	n.s.	.171***	.125**	n.s.	n.s.
Adjusted R²	.045***	.055***	.138***	.129***	.032**	.065***

Significance: * p<.05 | ** p<.01 | *** p<.001 | n.s. = not significant

Demographics significantly predict participation in sporty (1.7% of variance explained) and wander activities (7.8% of variance explained). They do not predict participation in common activities such as walking, walking the dog, running and biking. Only whether respondents are single or a couple predict participation in sporty activities. Couples participate more often in these activities than singles. Being a member of a nature conservation organisation explains most of the variance for wander activities. Respondents who are a member participate more often in these activities. More information can be found in table 4.24.

Table 4.24 Regression Demographics – Activities

Demographics	Sporty activities β (or R^2)	Wander activities β (or R^2)	Common activities β (or R^2)
Household – Partner	.123*	n.s.	n.s.
Household – Children	n.s.	n.s.	n.s.
Educational level	n.s.	n.s.	n.s.
Urbanisation	n.s.	.111*	n.s.
Sex	n.s.	n.s.	n.s.
Membership	n.s.	.228***	n.s.
Age	n.s.	.119*	n.s.
Adjusted R^2	.017*	.078***	n.s.

Significance: * p<.05 | ** p<.01 | *** p<.001 | n.s. = not significant

Demographics predict respondents' behaviour of going off the paths. Most variance is explained for whether people would go more often off the paths when this would be allowed (8.4%). Members are more likely to go more often off the paths than they currently do when they would be allowed. Currently, members also go more often off the paths than non-members when participating in sporty and wander activities. Going off the paths during sporty and common activities is mostly predicted by age. When a respondent is older, it is less likely that he/she will go off the paths during those activities. Least variance is explained for how far respondents go away from the paths (2.6%). Only sex was a predictor: men go further away from the paths than women. More detailed information can be found in table 4.25.

Table 4.25 Regression Demographics – Expected behaviour

Demographics	More often off paths when allowed β (or R^2)	Distance from path β (or R^2)	Off paths: Sporty activities β (or R^2)	Off paths: Wander activities β (or R^2)	Off paths: Common activities β (or R^2)
Household – Partner	-.143**	n.s.	n.s.	n.s.	n.s.
Household – Children	n.s.	n.s.	n.s.	n.s.	.153**
Educational level	n.s.	n.s.	n.s.	n.s.	n.s.
Urbanisation	.107*	n.s.	n.s.	n.s.	n.s.
Sex	n.s.	-.175***	-.132**	n.s.	n.s.
Membership	.266***	n.s.	.158**	.215***	n.s.
Age	n.s.	n.s.	-.221***	n.s.	-.229***
Adjusted R^2	.084***	.026*	.065***	.032**	.045***

Significance: * p<.05 | ** p<.01 | *** p<.001 | n.s. = not significant

Demographics significantly predict how limiting respondents experience obstructions under the somewhat limiting circumstances (3.6% of variance explained) and very limiting circumstances (6.8% of variance explained). Only sex, membership and age were predictors of these obstructions. Women are more likely to experience somewhat limiting circumstances and very limiting circumstances as an obstruction than men. Non-members experience the somewhat limiting circumstances to be more of an obstruction than members of conservation organisations. However, members find very limiting circumstances more obstructive than non-members. Age only predicts the perceptions about the very limiting circumstances. Older respondents experience those obstructions to be more limiting. The statistical details can be found in table 4.26.

Table 4.26 Regression Demographics – Perceived obstructions

Demographics	Open areas/ Good circumstances β (or R²)	Somewhat limiting circumstances β (or R²)	Very limiting circumstances β (or R²)
Household – Partner	n.s.	n.s.	n.s.
Household – Children	n.s.	n.s.	n.s.
Educational level	n.s.	n.s.	n.s.
Urbanisation	n.s.	n.s.	n.s.
Sex	n.s.	.163***	.246***
Membership	n.s.	-.149**	.095*
Age	n.s.	n.s.	.108*
Adjusted R²	n.s.	.036**	.068***

Significance: * p<.05 | ** p<.01 | *** p<.001 | n.s. = not significant

4.5.2 Conclusion demographics

Demographic characteristics are predictive of personality traits, recreation motives, activities, expected behaviour and perceived obstructions. However, not a lot of variance is explained by demographics, the explained variance ranged from 2.6% to 13.8%. Overall, sex, membership and age are the most predictive demographic characteristics. Women score higher on agreeableness and are more neurotic than men. They recreate more often with the motives change/escape and challenge and are more motivated in general then men. When respondents go off the paths, men go further away than women and go more often off the paths during sporty activities. Women perceive obstructions under somewhat and very limiting circumstances to be higher than men when wanting to go off the paths. Members of nature conservation organisations score low on extraversion and often recreate to be away from crowds of people and recharge their batteries. They are also interested in nature and in their recreational area and are more motivated in general than non-members. They also participate more often in wander activities such as wandering, picking forest fruits, photographing and birding. Members will go off the paths more often when they are allowed to do so and they currently go more off the paths during sporty activities and wander activities than non-members. They perceive obstructions to be lower under somewhat limiting circumstances (presence of large animals, muddy soil, ditches etc.) and higher under very limiting circumstances (fence, barbed wire etc.) than non-members. Younger respondents are more neurotic than older respondents and like to have fun while recreating. Older respondents recreate more often with

interest for their environment and participate more in wander activities. They go less often off the paths than young respondents and experience obstructions such as a fence, dense forest and prohibition signs to be more limiting than young respondents do.

4.5.3 Personality traits

Personality traits significantly predict recreation with the motives amusement, change/escape and challenge. Most variance is explained for the motive change/escape (9.5%), the least variance for the motive challenge (3%). The trait conscientiousness has the largest influence on recreation with the motive amusement. Respondents with a high score for conscientiousness are less likely to recreate with the motive amusement. Neuroticism mostly predicts recreation with the motive change/escape. People scoring high on this personality trait are more likely to recreate with this motive. Agreeableness explains most of recreating with the motive challenge. Scoring high on agreeableness means scoring high on recreating with the motive challenge. The motive index shows that respondents scoring high on agreeableness and neuroticism are generally more motivated than respondents scoring low on those traits. More details can be found in table 4.27. Personality traits do not predict the type of activities respondents participate in. The overall models are not significant as can be seen in table 4.28. However, the personality trait neuroticism does show a relationship with wander activities. People scoring high on neuroticism are less likely to participate in wander activities.

Table 4.27 Regression Personality traits – Recreation motives

Personality traits	Amusement β (or R^2)	Change/ Escape β (or R^2)	Interest β (or R^2)	Love for nature β (or R^2)	Challenge β (or R^2)	Motive index β (or R^2)
Extraversion	n.s.	-.098*	n.s.	n.s.	-.102*	n.s.
Agreeableness	.151**	.200***	n.s.	.153**	.128*	.187***
Conscientiousness	-.183***	n.s.	n.s.	n.s.	n.s.	n.s.
Neuroticism	n.s.	.234***	n.s.	n.s.	n.s.	.113*
Openness-Intellect	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Adjusted R^2	.062***	.095***	n.s.	n.s.	.030**	.041***

Significance: * p<.05 | ** p<.01 | *** p<.001 | n.s. = not significant

Table 4.28 Regression Personality traits – Activities

Personality traits	Sporty activities β (or R^2)	Wander activities β (or R^2)	Common activities β (or R^2)
Extraversion	n.s.	n.s.	n.s.
Agreeableness	n.s.	n.s.	n.s.
Conscientiousness	n.s.	n.s.	n.s.
Neuroticism	n.s.	-.123*	n.s.
Openness-Intellect	n.s.	n.s.	n.s.
Adjusted R^2	n.s.	n.s.	n.s.

Significance: * p<.05 | ** p<.01 | *** p<.001 | n.s. = not significant

Personality traits statistically predict the distance respondents go from the paths (2.7% of variance explained), and whether they go off the paths when participating in sporty (3.3% of variance explained) and common activities (4.2% of variance explained). The overall model of whether respondents go more often off the paths when they are allowed was not significant, however, the personality trait openness to experience-intellect shows a significant relationship. Respondents with high scores on openness to experience-intellect will go off the paths more often than they currently do when they would be allowed to do so. Only extraversion explains the distance respondents go from the paths. The higher someone scores on extraversion, the further away someone goes from the path when going off the path. Going off the paths when participating in sporty activities is only explained by the trait conscientiousness. Respondents scoring high on conscientiousness are less likely to go off the paths when doing sporty activities. This is the same for participation in the common activities. Respondents scoring high on openness to experience-intellect are less likely to go off the paths during common activities, whereas respondents scoring high on extraversion are more likely to go off the paths during those activities. The statistical information can be found in table 4.29.

Table 4.29 Regression Personality traits – Expected behaviour

Personality traits	More often off paths when allowed β (or R^2)	Distance from path β (or R^2)	Off paths: Sporty activities β (or R^2)	Off paths: Wander activities β (or R^2)	Off paths: Common activities β (or R^2)
Extraversion	n.s.	.168***	n.s.	n.s.	.134**
Agreeableness	n.s.	n.s.	n.s.	n.s.	n.s.
Conscientiousness	n.s.	n.s.	-.147**	n.s.	-.113*
Neuroticism	n.s.	n.s.	n.s.	n.s.	n.s.
Openness-Intellect	.131**	n.s.	n.s.	n.s.	-.096*
Adjusted R^2	n.s.	.027**	.033**	n.s.	.042***

Significance: * p<.05 | ** p<.01 | *** p<.001 | n.s. = not significant

Personality traits statistically predict respondents' perceptions on obstructions in nature when wanting to go off the paths. Most variance is explained for very limiting circumstances (5.2%) and least variance is explained for somewhat limiting circumstances (3.5%). Respondents scoring high on openness to experience-intellect perceive obstructions to be less limiting in open areas and under somewhat limiting circumstances. Respondents scoring high on neuroticism perceive obstructions to be more limiting under all conditions (open, somewhat limiting and very limiting circumstances) than people scoring low on this trait. The traits extraversion and agreeableness are only predictive of very limiting circumstances. Introverts and respondents scoring high on agreeableness are more likely to perceive the very limiting circumstances as very limiting obstructions.

Table 4.30 Regression Personality traits – Perceived obstructions

Personality traits	Open areas/Good circumstances β (or R^2)	Somewhat limiting circumstances β (or R^2)	Very limiting circumstances β (or R^2)
Extraversion	n.s.	n.s.	-.150**
Agreeableness	n.s.	n.s.	.188***
Conscientiousness	n.s.	n.s.	n.s.
Neuroticism	.123*	.144**	.131**
Openness-Intellect	-.126**	-.137**	n.s.
Adjusted R^2	.042***	.035***	.052***

Significance: * p<.05 | ** p<.01 | *** p<.001 | n.s. = not significant

4.5.4 Conclusion personality traits

Personality traits were partly predictive of recreation motives, did not predict activities respondents participate in, partly predicted the expected behaviour outside paths and did predict the degree of perceived obstructions. The explained variance ranged between 2.7% and 9.5%. The recreation motives were mostly predicted by the personality trait agreeableness. Also the general motive index was predicted by this trait. Extraverts recreate further away from the paths than introvert when going off the paths and respondents scoring low on conscientiousness go more off the paths during sporty activities. Respondents scoring high on extraversion and low on conscientiousness and openness/intellect go more often off the paths during the common activities, such as walking, running and biking. Remarkable is that neurotic respondents generally experience all obstructions to be higher than non-neurotic respondents and that extraverts regard obstructions such as a fence, barbed wire and prohibition signs to be less limiting than introverts.

4.5.5 Combining demographics and personality traits: individual characteristics

When combining demographics and personality traits in the analysis, they are predictive of all recreation motives. Most variance is explained for the motives love for nature and interest. Least variance is explained for the motive challenge. Respondents that score high on amusement are young, have a high score for agreeableness and a low score for conscientiousness. Respondents that recreate with the motive change/escape are more often single, member of a nature conservation organisation and score high on agreeableness and neuroticism. Respondents that recreate with the motive interest are a member of a nature conservation organisation and are usually older. Respondents that recreate with the motive love for nature are also older and member of a nature conservation organisation. They are also lower educated and score high on agreeableness. The overall model of the motive challenge is significant, however, none of the individual variables are significant. The variables urbanisation, sex, agreeableness and openness to experience-intellect were close to significant (.05<p<.10) and this resulted in a significant overall model. The result of the motive index shows that respondents who are a member of a nature conservation organisation, score high on agreeableness and high on neuroticism are more motivated than respondents who are not a member and score low on those traits. 9.4% of the variance is explained by these variables. The statistical details can be seen in table 4.31.

Table 4.31 Regression Individual characteristics – Recreation motives

Individual characteristics	Amusement β (or R²)	Change/ Escape β (or R²)	Interest β (or R²)	Love for nature β (or R²)	Challenge β (or R²)	Motive index β (or R²)
Household – Partner	n.s.	-.136**	n.s.	n.s.	n.s.	n.s.
Household – Children	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Educational level	n.s.	n.s.	n.s.	-.103*	n.s.	n.s.
Urbanisation	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Sex	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Membership	n.s.	.120*	.302***	.334***	n.s.	.231***
Age	-.149**	n.s.	.181***	.139**	n.s.	n.s.
Extraversion	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Agreeableness	.143**	.180***	n.s.	.136**	n.s.	.161**
Conscientiousness	-.193***	n.s.	n.s.	n.s.	n.s.	n.s.
Neuroticism	n.s.	.216***	n.s.	n.s.	n.s.	.119*
Openness-Intellect	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Adjusted R²	.091***	.122***	.131***	.138***	.045**	.094***

Significance: * p<.05 | ** p<.01 | *** p<.001 | n.s. = not significant

Demographics and personality traits together only predict whether people participate in wander activities. Respondents living in moderately to very urban areas, who are member of a nature conservation organisation and are older tend to do these activities more often. The overall model for sporty activities is not significant, however couples and respondents with higher education do these activities more often. The statistical details can be seen in table 4.32.

Table 4.32 Regression Individual characteristics – Activities

Individual characteristics	Sporty activities β (or R²)	Wander activities β (or R²)	Common activities β (or R²)
Household – Partner	.120*	n.s.	n.s.
Household – Children	n.s.	n.s.	n.s.
Educational level	.101*	n.s.	n.s.
Urbanisation	n.s.	.122*	n.s.
Sex	n.s.	n.s.	n.s.
Membership	n.s.	.237***	n.s.
Age	n.s.	.110*	n.s.
Extraversion	n.s.	n.s.	n.s.
Agreeableness	n.s.	n.s.	n.s.
Conscientiousness	n.s.	n.s.	n.s.
Neuroticism	n.s.	n.s.	n.s.
Openness-Intellect	n.s.	n.s.	n.s.
Adjusted R²	n.s.	.070***	n.s.

Significance: * p<.05 | ** p<.01 | *** p<.001 | n.s. = not significant

Jointly, demographics and personality traits predict the expected behaviour of the recreationist. Most variance is explained for the time people spend off the paths during sporty activities (9.1%). Least variance is explained for the time people spend off the paths during wander activities (3%). Respondents that will go more often off the paths when they are allowed to do so are single, live in moderately to very urban areas and are a member of a nature conservation organisation. Respondents that go further from the paths are young men with a high score on extraversion. Young men who are a member of a nature conservation organisation and that score low on the personality trait conscientiousness go more often off the paths when doing sporty activities. Whether respondents go off the paths during wander activities is only predicted by being a member of a nature conservation organisation. Respondents who are a member go more often off the paths during this type of activity. Young respondents with children that score high on extraversion and low on openness to experience-intellect will go more often off the paths during common activities such as walking, walking the dog, running and biking. Statistical details can be found in table 4.33.

Demographics and personality traits predict how limiting respondents perceive obstructions to be in open areas/good circumstances, somewhat limiting circumstances and very limiting circumstances. Only respondents that score high on neuroticism perceive obstructions in open areas to be limiting. Older women who are not a member of a nature conservation organisation and score high on neuroticism experience the obstructions in the somewhat limiting circumstances to be limiting. Older women also perceive obstructions in the very limiting circumstances to be limiting. They also score low on extraversion and high on agreeableness and neuroticism. The statistical details can be found in table 4.34.

Table 4.33 Regression Individual characteristics – Expected behaviour

Individual characteristics	More often off paths when allowed β (or R^2)	Distance from path β (or R^2)	Off paths: Sporty activities β (or R^2)	Off paths: Wander activities β (or R^2)	Off paths: Common activities β (or R^2)
Household – Partner	-.135**	n.s.	n.s.	n.s.	n.s.
Household – Children	n.s.	n.s.	n.s.	n.s.	.143**
Educational level	n.s.	n.s.	n.s.	n.s.	n.s.
Urbanisation	.103*	n.s.	n.s.	n.s.	n.s.
Sex	n.s.	-.141**	-.105*	n.s.	n.s.
Membership	.261***	n.s.	.159**	.228***	n.s.
Age	n.s.	-.115*	-.211***	n.s.	-.216***
Extraversion	n.s.	.141**	n.s.	n.s.	.120*
Agreeableness	n.s.	n.s.	n.s.	n.s.	n.s.
Conscientiousness	n.s.	n.s.	-.165**	n.s.	n.s.
Neuroticism	n.s.	n.s.	n.s.	n.s.	n.s.
Openness-Intellect	n.s.	n.s.	n.s.	n.s.	-.105*
Adjusted R^2	.081***	.047**	.091***	.030*	.070***

Significance: * p<.05 | ** p<.01 | *** p<.001 | n.s. = not significant

Table 4.34 Regression Individual characteristics – Perceived obstructions

Individual characteristics	Open areas/ Good circumstances β (or R²)	Somewhat limiting circumstances β (or R²)	Very limiting circumstances β (or R²)
Household – Partner	n.s.	n.s.	n.s.
Household – Children	n.s.	n.s.	n.s.
Educational level	n.s.	n.s.	n.s.
Urbanisation	n.s.	n.s.	n.s.
Sex	n.s.	.132**	.185***
Membership	n.s.	-.145**	n.s.
Age	n.s.	.124*	.124*
Extraversion	n.s.	n.s.	-.104*
Agreeableness	n.s.	n.s.	.122*
Conscientiousness	n.s.	n.s.	n.s.
Neuroticism	.149**	.153**	.136**
Openness-Intellect	n.s.	n.s.	n.s.
Adjusted R²	.049***	.058***	.093***

Significance: * p<.05 | ** p<.01 | *** p<.001 | n.s. = not significant

4.5.6 Conclusion individual characteristics

Individual characteristics (demographics and personality traits together) significantly predict with what recreation motives respondents recreate, they predict expected behaviour and the limiting degree of obstructions. Individual characteristics do not predict all types of activities respondents participate in, only participation in wander activities can be predicted. The explained variance ranged between 3% and 13.8%. Age, membership, agreeableness and neuroticism are the most predictive variables. Young respondents recreate more with the motive amusement and older respondents recreate more with the motives interest and love for nature and participate more often in wander activities, such as wandering, photographing, birding and picking forest fruits. Younger respondents go more often off the paths during sporty and common activities and go further away from the paths when going off them. They perceive obstructions of somewhat and very limiting circumstances to be less limiting than older respondents. Members of nature conservation organisations recreate more with the motives change/escape, interest and love for nature and are generally more motivated than non-members. They participate more often in wander activities and go more often off the paths during sporty and wander activities. Members will also go off the paths more often when they are allowed to do so and experience obstructions under somewhat limiting circumstances to be less limiting than non-members. Respondents that scored high on agreeableness mainly predicted the motives people recreate with. They recreated more often with the motives amusement, change/escape and love for nature and were also generally more motivated than respondents scoring low on this trait. Respondents who also scored high on this trait perceived the very limiting circumstances to be more limiting than people scoring low on agreeableness. Neurotic respondents are generally more motivated than non-neurotic respondents and experience all obstructions to be more limiting.

4.5.7 Recreation motives

Recreation motives predict the type of activities respondents participate in. Most variance is explained for participation in wander activities (20.6%). Least variance is explained for participation in sporty activities (1.6%). Respondents scoring high on the motive challenge participate more often in sporty activities. Respondents participating more often in common activities score higher on the motives love for nature and challenge. Respondents scoring low on amusement and challenge and high on change/escape, interest and love for nature participate more often in wander activities. Respondents that are generally more motivated participate more in wander and common activities. Statistical information can be found in table 4.35.

Table 4.35 Regression Recreation motives – Activities

	Sporty activities	Wander activities	Common activities
Recreation motives	β (or R^2)	β (or R^2)	β (or R^2)
Amusement	n.s.	-.172***	n.s.
Change/Escape	n.s.	.131*	n.s.
Interest	n.s.	.215**	n.s.
Love for nature	n.s.	.310***	.167*
Challenge	.122*	-.182**	.176*
Adjusted R^2	.016*	.206***	.044**
Motive index	n.s.	.276***	.192***
Adjusted R^2	n.s.	.069***	.034***

Significance: * p<.05 | ** p<.01 | *** p<.001 | n.s. = not significant

Recreation motives statistically predict whether respondents will go off the paths more often when they are allowed to do so and whether they would go off the paths during wander activities and common activities. Most variance is explained for wander activities (19.2%) and least variance is explained for participation in common activities (4.8%). Whether people go off the paths when it would be allowed is explained by the motives amusement and love for nature. Respondents scoring low on amusement and high on love for nature will go off the paths more often when they would be allowed to do so. The overall model for how far people go off the paths was not significant, however, the motive interest did show a significant relationship: respondents recreating with the motive interest go further away from the paths than respondents scoring low on this motive. Remarkable is that all motives predict whether respondents go off the paths when participating in wander activities. Respondents scoring high on amusement and challenge go less often off the paths during those activities, whereas respondents scoring high on change/escape, interest and love for nature go more often off the paths during those activities. Going off the paths while participating in common activities is done more often by respondents scoring high on the motives amusement and interest. The results of the motive index show that respondents who are highly motivated also will go more often off the paths when they would be allowed to do so. They also go more often off the paths during wander and common activities. The statistical information can be found in table 4.36.

Table 4.36 Regression Recreation motives – Expected behaviour

Recreation motives	More often off paths when allowed β (or R²)	Distance from path β (or R²)	Off paths: Sporty activities β (or R²)	Off paths: Wander activities β (or R²)	Off paths: Common activities β (or R²)
Amusement	-.221***	n.s.	n.s.	-.108*	.118*
Change/Escape	n.s.	n.s.	n.s.	.159**	n.s.
Interest	n.s.	.213**	n.s.	.235***	.206**
Love for nature	.204**	n.s.	n.s.	.261***	n.s.
Challenge	n.s.	n.s.	n.s.	-.238***	n.s.
Adjusted R²	.095***	n.s.	n.s.	.192***	.048***
Motive index	.188***	n.s.	n.s.	.268***	.212***
Adjusted R²	.033***	n.s.	n.s.	.070***	.043***

Significance: * $p<.05$ | ** $p<.01$ | *** $p<.001$ | n.s. = not significant

Recreation motives statistically predict how limiting respondents perceive obstructions to be for the somewhat limiting circumstances (2.4% of variance explained) and very limiting circumstances (1.8% of variance explained). The overall model for open areas/good circumstances was not significant. However, the motives amusement and challenge do show a relationship. Respondents scoring high on amusement and low on challenge perceive the open areas/good circumstances to be more obstructive than people scoring low on this motive. How limiting respondents perceive obstructions under somewhat limiting circumstances is explained by the motive love for nature. Respondents scoring high on this motive perceive the obstructions to be less limiting. The overall model for very limiting circumstances is significant, however, none of the individual motives are significant. This could be explained by the fact that some of the motives show almost significant relationships. Both the motives change/escape and challenge showed this ($p<.1$), resulting in an overall significant model. The results of the motive index shows that the perception of respondents about the limitation of obstructions can only be predicted for very limiting circumstances. When respondents are more motivated, they will experience those obstructions to be more limiting than the respondents who are not as motivated. More statistical details can be found in table 4.37.

4.5.8 Conclusion recreation motives

Recreation motives partly predict the activities respondents participate in, the expected behaviour and how limiting respondents experience obstructions to be. Remarkable is that all motives predict whether respondents participate in wander activities and how often they go off the paths during those activities. Respondents scoring low on amusement and challenge and high on change/escape, interest and love for nature more often participate in wander activities and also go more off the paths during those activities. Respondents who are generally more motivated participate more in wander and common activities and also go more off the paths during those activities. They will also go more often off the paths when they would be allowed to do so. Highly motivated respondents perceive obstructions such as fences, barbed wire and prohibition signs to be more limiting than respondents who are not as motivated. The variance explained by the motive index ranges from 1% to 7%.

Table 4.37 Regression Recreation motives – Perceived obstructions

Recreation motives	Open areas/ Good circumstances β (or R^2)	Somewhat limiting circumstances β (or R^2)	Very limiting circumstances β (or R^2)
Amusement	.100*	n.s.	n.s.
Change/Escape	n.s.	n.s.	n.s. p=.082
Interest	n.s.	n.s.	n.s.
Love for nature	n.s.	-.212**	n.s.
Challenge	-.138*	n.s.	n.s. p=.086
Adjusted R^2	n.s.	.024**	.018*
Motive index	n.s.	n.s.	.109*
Adjusted R^2	n.s.	n.s.	.010*

Significance: * p<.05 | ** p<.01 | *** p<.001 | n.s. = not significant

4.5.9 Activities

What type of activities respondents participate in predict the distance they go from the paths, and whether they go off the paths during sporty, wander and common activities. Most variance is explained for going off the paths during wander activities (46.3%) and sporty activities (34.4%). The least variance is explained for the distance people go from the paths (2.2%). The overall model for distance from the path in significant, however, none of the individual variables show a significant relationship. This could be due to the relatively low p-values of some of the variables (.05<p<.20). The high variances explained for sporty and wander activities could be explained as people participating in sporty activities also go more often off the paths during those activities, likewise for wander activities. Going off the paths for common activities is explained by all activities. Respondents participating in sporty, wander and common activities all go more often off the paths during common activities than people who are participating less in these activities. More statistical information can be found in table 4.38.

Table 4.38 Regression Activities – Expected behaviour

Activities	More often off paths when allowed β (or R^2)	Distance from path β (or R^2)	Off paths: Sporty activities β (or R^2)	Off paths: Wander activities β (or R^2)	Off paths: Common activities β (or R^2)
Sporty activities	n.s.	n.s.	.551***	n.s.	.170**
Wander activities	.170*	n.s.	.117*	.671***	.212***
Common activities	n.s.	n.s.	n.s.	n.s.	.167**
Adjusted R^2	n.s.	.022*	.344***	.463***	.144***

Significance: * p<.05 | ** p<.01 | *** p<.001 | n.s. = not significant

Participating in activities only predicts how limiting respondents experience obstructions to be for somewhat limiting circumstances. 5.4% of the variance is explained by the activities. Only wander activities are a predictor for how limiting respondents experience obstructions to be. Respondents participating more in wander activities perceive obstructions less limiting under somewhat limiting circumstances. The statistical details can be found in table 4.39.

Table 4.39 Regression Activities – Perceived obstructions

Activities	Open areas/ Good circumstances β (or R^2)	Somewhat limiting circumstances β (or R^2)	Very limiting circumstances β (or R^2)
Sporty activities	n.s.	n.s.	n.s.
Wander activities	n.s.	-.231***	n.s.
Common activities	n.s.	n.s.	n.s.
Adjusted R^2	n.s.	.054***	n.s.

Significance: * p<.05 | ** p<.01 | *** p<.001 | n.s. = not significant

4.5.10 Conclusion activities

The type of activities respondents participate in partly predicts whether respondents go off the paths and the experienced limitations of obstructions. Activities showed remarkably high relationships with the time respondents spend off the paths when doing sporty and wander activities. This makes sense, as people participating more in sporty activities, will also go off the paths more often than people who do not participate in these activities, same for respondents participating in wander activities.

5 Duty of care and recreation outside roads and paths

5.1 Duty of care: the law

The law that describes duty of care does not literally describe it. The law is directed to all Dutch citizens and describes in general what a tortious or unlawful act is. This can be read in box 5.1 in both English and Dutch. Interpreting this article in light of nature conservation, Dutch nature conservation organisations are obliged to take care of their properties in a reasonable manner. This means that forest and nature management should be based on a balance between benefit and risk of the implemented conservation practices (Brunel Legal, 2010). Management should be done properly, however, how to do this practically is not stated. The law does not say anything about taking care of trees in particular, only when someone gets hurt the owner will be considered responsible if he/she has not implemented proper management. What 'proper tree management' exactly is, is decided by jurisprudence: previous court cases resulted in a set of guidelines for the implementation of the duty of care.

Box 5.1 Article 6:162 Civilian Code

Article 6:162 Definition of a 'tortious act'	*Artikel 6:162 Onrechtmatige daad*
1. A person who commits a tortious act (unlawful act) against another person that can be attributed to him, must repair the damage that this other person has suffered as a result thereof.	1. Hij die jegens een ander een onrechtmatige daad pleegt, welke hem kan worden toegerekend, is verplicht de schade die de ander dientengevolge lijdt, te vergoeden.
2. As a tortious act is regarded a violation of someone else's right (entitlement) and an act or omission in violation of a duty imposed by law or of what according to unwritten law has to be regarded as proper social conduct, always as far as there was no justification for this behaviour.	2. Als onrechtmatige daad worden aangemerkt een inbreuk op een recht en een doen of nalaten in strijd met een wettelijke plicht of met hetgeen volgens ongeschreven recht in het maatschappelijk verkeer betaamt, een en ander behoudens de aanwezigheid van een rechtvaardigingsgrond.
3. A tortious act can be attributed to the tortfeasor [the person committing the tortious act] if it results from his fault or from a cause for which he is accountable by virtue of law or generally accepted principles (common opinion).	3. Een onrechtmatige daad kan aan de dader worden toegerekend, indien zij te wijten is aan zijn schuld of aan een oorzaak welke krachtens de wet of de in het verkeer geldende opvattingen voor zijn rekening komt.

Sources: Dutch Civil Law (2014); Brunel Legal (2010:6)

5.2 Duty of care: jurisprudence

In short, article 6:162 says that an owner/organisation must repair damage he/she inflicted on somebody else. Court cases determined guidelines about what owners and organisations should do to conform to proper management practices. These guidelines are (Natuurmonumenten, 2009:5):

1. Create a clear management and maintenance plan.
2. Have regular and systematic tree assessments.
3. Conduct extra research when trees appear to contain safety risks.
4. Implement measures following from the assessments and research.

To be able to show that the guidelines are followed, everything should be documented in a structured way, so if an owner has to go to court after an accident, he/she can show the management plans, maintenance plans and activities. When documents are not in order, the owner might be found liable for the accident (Brunel Legal, 2010).

The tree assessment itself contains a few requirements as well. A very fast inspection, for example by bike or a slow driving car, is not adequate. The assessor needs to walk around the tree to inspect it from all sides. Trees along busy roads, bike lanes, car parks and camping grounds need to be inspected more thoroughly than trees along walking paths that are not used very often. Furthermore, certain types of vegetation contain a higher risk than other types. For example, an old lane requires more attention than a young stand of trees. Inspections need to be systematic, done on a regular basis and documented accurately. However, the amount of effort should be in balance with the perceived risk. Duty of care is place and vegetation specific and the type and amount of assessments should be determined for each specific location (Brunel Legal, 2010).

Putting up a sign at the entrance of the property saying 'enter at your own risk' is not enough if an owner does not want to be liable for any accidents happening in his terrain. Moreover, such a sign does not relieve the owner of having to implement duty of care. Just stating there is a risk is also not adequate, it needs to be clear to visitors what kind of risk is involved when entering the terrain. When it is truly dangerous to enter an area, the owner should make it physically impossible for visitors to enter, otherwise the owner might still be found liable if someone does get hurt (Brunel Legal, 2010).

Storm is a much debated event regarding the responsibilities of an owner and duty of care. Some people say storm is a force majeure, others say you have to expect such weather. Due to climate change, more extreme weather is predicted and nature management should be adjusted to those circumstances (Seneviratne, 2012). Based on previous court cases, it is defined that storm is something that owners can expect. Owners should adjust inspection and maintenance practices to the likelihood and resilience to such an event. Vegetation on high risk locations should be checked more carefully for resilience to storm (Brunel Legal, 2010).

5.3 Recreation outside paths: wandering in nature and *struinnatuur*

Wandering in nature is not per definition *struinnatuur*. Wandering in nature is choosing your own route and possibly going off the paths while doing that, regardless of the type of nature someone is recreating in. *Struinnatuur* is nature that is considered to be robust and resilient (De Vries and Beentjes, 2000). It is an accessible wilderness that invites people to engage in various activities. There is no particular plan for the area, there are no rules, no fences, no recreational target groups or nature targets; there is enough room for chance regarding what vegetation develops and how it develops (Slabbers, 2000; Veenstra *et al*, 2000). Nature management in those areas is minimal and an 'illusion' of naturalness exists (De Vries and Beentjes, 2000; Van Zoest, 2000). People are free to

roam the area and discover it by themselves without knowing what to expect (Coeterier and Schöne, 2000). The few paths that are present are made by visitors and wildlife (so-called desire paths). People tend to walk the easiest route and these paths are maintained solely by treading (Siebel, 2000). 'Real' wilderness is not attractive to most people, suitable nature areas for *struinnatuur* need to be physically accessible with enough (half) open landscapes with dry soil where people can walk without difficulty (De Vries and Beentjes, 2000). People like to recreate in wilderness, but want to have it safe and easy at the same time (Siebel, 2000; Coeterier and Schöne, 2000). Hoogendam (2000) summarised the *struinnatuur*-experience in five words: freedom, challenge, risk, special flora and fauna, and tranquillity. Van Zoest (2000) also states three characteristics that make nature areas suitable as *struinnatuur*: vastness, naturalness and tranquillity. The feeling of really being somewhere else, having an experience in an area completely different from everyday city landscape is important. "A bit of adventure adds to that experience" (Van Zoest, 2000: 31). *Struinnatuur* encourages people to be a part of nature, instead of being seen as an enemy or nuisance. Human presence should be accounted for when thinking about nature management. When doing so, extensive recreation could be possible in many more places (De Vries and Beentjes, 2000).

5.4 Experiences other nature conservation organisations

5.4.1 National Park de Hoge Veluwe

National Park de Hoge Veluwe is located in the province of Gelderland within the Veluwe area. The park is 5000 hectares and contains a large variety of vegetation. They have forests, heath lands, drifting sands, fens and grasslands. People can see a lot when they drive, cycle or walk in the park. Furthermore, the park contains a museum and a visitor centre. People that visit the park often like the combined experience of nature, art and culture. Since the establishment of the park, visitors are allowed to go off the paths anywhere, except in very fragile areas. Signs indicate that people are not allowed to go off the paths in those areas. However, the park does not actively advertise that people are allowed to go off the paths. *"We just don't forbid it"*, says the deputy head of management of de Hoge Veluwe. The park does not want too many people off the paths as there are many wild animals in the area. De Hoge Veluwe is surrounded by a fence, so the animals cannot escape when they perceive it to be too crowded or are frightened (which sometimes happens due to photographers). Allowing people to go off the paths brings them closer to nature. This idea attracts people, they like the idea of being able to go wherever they want. Usually people walk where it is the easiest: they either walk on paths with marked routes or paths made by animals or other visitors, so-called desire paths. The paths with marked routes are most popular among visitors. Those routes contain the highlights of the park and this way a lot of visitors stay concentrated in particular areas and a large part of the park remains tranquil with only few visitors. Visitors are only allowed to walk outside the paths, cyclers and motorised vehicles have to stay on the designated roads (Interview Hoge Veluwe, 2014).

When people walk off the paths, they usually stay within 50 metres from the path. *"When people go off the path, they see that it is all kind of the same, and that they can see it just as well from the path as when they are in de middle of the field"*. This is the main reason why de Hoge Veluwe only implements duty of care within 30 to 50 metres from paths and roads. They mainly look at whether a tree has the risk of falling on the path. The trees in the park are assessed once a year and it is documented whether they need maintenance or need to be felled. Not only trees along paths are checked, also trees near the outer fences, trees close to buildings and close to electrical fences are assessed (Interview Hoge Veluwe, 2014).

5.4.2 Staatsbosbeheer – Horsterwold

Horsterwold is a forest located in the south-east of the Dutch province of Flevoland. The area of 4200 hectares contains both dense forests as open areas where large animals graze (Staatsbosbeheer, 2014). There is a limited amount of paths present and the area is solely maintained by grazing. It can be defined as wilderness-nature. Staatsbosbeheer chose to manage this area in this manner because wilderness and *struinen* bring people closer to nature. It is the *"ultimate experience"* says the recreation specialist of Staatsbosbeheer. People seek excitement and can find that in wilderness-nature where they can wander. This type of management results in that duty of care is not implemented in this nature area. However, the risk of something happening should still be low. This type of nature area should not be planned close to busy areas such as parking spaces or camping sites. *Struinnatuur* should be planned further away, with low amounts of visitors. Not only the location is important; also the type vegetation should be taken into account. Beech, for example, is a known species to suddenly drop branches without any warning. Other situations are not taken into account; Staatsbosbeheer assumes that people are smart enough to assess dangers for themselves and watch where they are going. It is therefore a choice of Staatsbosbeheer not to implement duty of care there. It is impossible to check every tree and as there are only very few people actually wandering through this bit of forest it would be out of balance to check everything (Interview Horsterwold, 2014).

5.4.3 Staatsbosbeheer – Gelderse Poort

The Gelderse Poort is an area north-east of the city of Nijmegen and consists of several different areas. During the interview with the forest manager of the area, the Ooijpolder and the Millingerwaard were discussed. These two areas are floodplains with grazing cattle and wild horses. During high water in the Waal river these areas flood; this makes the areas very robust and therefore suitable as *struinnatuur*. Almost no management is done in the floodplains and both areas contain only a few paths. Most paths are desire paths, made by visitors and/or wild animals. The forest manager says: *"a path is a path because people use it, not because a sign says it is a path"*. This is also what wandering is: *"creating your own unique route"*. It is also what attracts people to this area. They can go wherever they want, it gives them a feeling of freedom. People find this interesting, regardless of whether they actually go off the paths (Interview Gelderse Poort, 2014).

People are actively encouraged to visit the flood plains. *"We can say it is beautiful, but people have to see it for themselves"*. This message works, people enjoy the floodplains and the local economy is boosted by it. Staatsbosbeheer commissioned a research to study the impact of *struinnatuur* on the local community in the Gelderse Poort. Results were that there is less unemployment in the area compared to the nature average, a good property market and it is beneficial for the hospitality industry. Having this type of management is therefore not only beneficial for the vegetation, but also for recreation and the local economy (Interview Gelderse Poort, 2014).

A teagarden is located in the Millingerwaard floodplain. This is economically beneficial for the area, so Staatsbosbeheer made a wander-route to the teagarden by mowing high vegetation to steer people in the right direction. This 'path' is looked after by Staatsbosbeheer. Also paved paths and roads are looked after, making sure that the surrounding vegetation is safe for people using these paths and roads. Staatsbosbeheer does not do any duty of care measurements in the rest of the area. *"People encounter what they encounter and we don't do much about it. We only facilitate that people can go in the area"*. Chances of something happening is very small, besides, when something does happen, that person also needs to deem Staatsbosbeheer to be responsible. *"1 plus 1 is not always 2"*.

Most people stay on the (desire) paths, only a very small amount of people go off the paths into the bush (Interview Gelderse Poort, 2014).

5.5 Conclusion

Practically it is not doable to safeguard wandering in nature or *struinnatuur* with duty of care measures. Implementing duty of care in such areas means checking every tree as visitors can go anywhere. This is out of balance with the amount of people that actually go off the paths in those areas. Both Staatsbosbeheer and de Hoge Veluwe see that most of their visitors stay on or close to the paths when recreating. This has an influence on the required measures for duty of care as the required amount of measures is determined by both the type of vegetation and the location. Crowded locations need more attention than uncrowded places. As not many visitors go off the paths and usually stay close to the paths, it remains uncrowded outside the paths. Extra duty of care measures are therefore not needed, as trees along paths are already being checked. A management activity that could take place is thinning once every five years. Then potential dangerous trees can be felled and either taken out or left in the forest.

De Hoge Veluwe and Staatsbosbeheer have two different ways of advertising the possibilities of wandering in their nature areas. De Hoge Veluwe does not promote it as they do not want too many people going off the paths. This is because a lot of animals live in the area and de Hoge Veluwe wants to minimise disrupting the animals. They are mostly afraid of photographers trying to make action photos of the animals. Staatsbosbeheer advertised *struinnatuur* in de Gelderse Poort very actively. They want people to visit the area and enjoy exploring nature. They do not experience any trouble with photographers. Advertising with wandering in nature does not necessarily mean that it will be more crowded outside roads and paths. Usually people stick to areas where it is easiest to walk. *Struinnatuur* should also remain wilderness, as people seek naturalness when going into a *struinnatuur*-area. *Struinnatuur* and wandering in nature therefore do not need any extra attention regarding the duty of care.

6 Discussion and conclusion

6.1 Introduction

This research gives insight in recreation outside paths and in types of visitors that go off the paths or stays on them. Furthermore, it provides Geldersch Landschap & Kasteelen with practical knowledge on possible consequences for their duty of care practices. An overview of the findings can be found in table 6.1, figure 6.1 and 6.2. Table 6.1 shows the relationships between the independent and dependent variables. Figure 6.1 shows the mean variance explained by each of the studied variables. Figure 6.2 shows the same as figure 6.1, the only difference is that motive index substitutes recreation motives, as recreation motives proved not to be statistically valid. This was discussed in section 4.2.2 and will be discussed later in this chapter. Generally, it can be seen that there are significant relationships between variables, however, the variances explained are relatively low. In this final chapter, the findings of this research are discussed, compared to existing literature and related to duty of care practices. Methods are reflected upon and lastly, a final conclusion is drawn.

6.2 Influence of individual characteristics on recreation motives, activities and recreational behaviour – comparing literature with findings

In this section, the influence of demographics and personality traits is discussed and compared to existing literature. Of the demographic characteristics, *membership*, *sex* and *age* were most influential. Hailu *et al.* (2005) suggested that *members* of nature conservation organisations recreate more often in nature areas and are more attached to areas they visit. This is in line with the finding that members recreate more often with the motives change/escape, interest and love for nature. They also participate more in wander activities such as birding, photographing, wandering and picking forest fruits and go more often off the paths while doing those activities.

Schmitt *et al.* (2008) studied personality traits among several countries to see how *sex* influences personality traits. They found that women generally scored higher on the traits conscientiousness, extraversion, agreeableness and neuroticism. Men were generally more open to ideas, whereas women were more open to feelings, which are combined in the Big Five in the trait openness to experience-intellect. The findings of this thesis are partly in line with this research. Female respondents scored high on the traits agreeableness and neuroticism, but did not score differently from male respondents on extraversion and conscientiousness. Both groups scored the same for openness to experience-intellect and this could be explained by the combined open to ideas and feelings as suggested by Schmitt *et al.* Collin and Tisdell (2002b) discovered that men generally seek adventure and risks, whereas women tend to seek secure environments while they are recreating. In chapter 2 it was hypothesised that male respondents would therefore go more often off the paths and experience obstructions to be less limiting than female respondents when wanting to go off the paths. The findings of this research are partly in line with this hypothesis: male respondents went more often off the paths, yet only during sporty activities. For wander and common activities, no difference was seen between males and females. Though males generally went away further from the paths when going off them and experience obstructions to be less limiting than women from the sample.

It was hypothesised that personality traits did not differ among *age*, as they stay relatively consistent throughout a person's life (Laverdière *et al.*, 2013; Barnett, 2013). Results showed that this hypothesis was correct for most personality traits. Only younger respondents scored higher on neuroticism than older respondents. As was hypothesised, older respondents are less likely to go off the paths and experience obstructions such as fences, barbed wire, dense forest and prohibition signs to be more limiting when wanting to go off the paths than younger respondents.

Of the personality traits, *neuroticism* and *openness to experience-intellect* were the most influential traits. *Neuroticism* mostly affected how limiting respondents experienced obstructions. Neurotic respondents experienced all obstructions to be more limiting when wanting to go off the paths than respondents scoring low on this trait. Yet neuroticism was found not to be predictive of whether respondents go off the paths at all, while it would be expected that they would go less often off the paths as they experience all types of obstructions to be more limiting.

Based on the study of Barnett (2013), it was hypothesised that people scoring high on the personality trait *openness to experience-intellect* would go more often off the paths and perceive obstructions to be less limiting than people scoring low on this trait. Respondents scoring high on this trait indeed experienced obstructions to be less limiting for open areas and somewhat limiting circumstances. They would also go more often off the paths than they currently do if it would be allowed in the future. In contrast with literature, they go less often off the paths during common activities such as walking, biking, running and playing with children than respondents scoring low on this trait. For the other activities, there were no significant differences between respondents scoring high or low on this trait.

6.3 Influence of recreation motives and activities on recreational behaviour – comparing literature with findings

In this section the literature of recreation motives is compared to the findings of this research and the recreation activities are discussed. The main point for discussion is that the categorisation of the *recreation motives* used by GLK could not be statistically supported by the findings. The categorisation implies that people recreate with different motives, for example, some people recreate more with the motive amusement and others recreate more with the motive love for nature (Goossen and de Boer, 2008). Though after conducting a correlation analysis, a cluster analysis and reliability analysis, it was discovered that respondents did not recreate with different recreation motives but that they were only motivated to a certain degree. For example, when a respondent scored high on one motive, that person would also score high on the other motives. The full explanation of the tests can be read in section 4.2.2. Due to wishes from GLK the five recreation motives from Goossen and de Boer (2008) were still used and analysed in chapter 4, next to the overall degree of motivation (named motive index). Practically, the five recreation motives give insight in how to accommodate the needs of the recreationist. GLK uses the categorisation to see whether their properties offer enough diversity for their visitors. However, scientifically, this finding invites further research on a different categorisation for recreation motives.

There was not any literature present on the influence of *activities* on recreational behaviour outside roads and paths. Respondents that participate more often in sporty activities also go more often off the paths during those activities. This is also the case for respondents participating in wander activities, they also go more often off the paths during those activities. This makes sense as, especially for sporty activities, the majority does not participate in these activities and therefore cannot go off the paths during activities they do not do. Respondents that participate more often in wander activities experience somewhat limiting circumstances to be less limiting obstructions than respondents that participate less in these activities. For the rest it does not matter what type of activity someone does or what kind of circumstances a respondent faces, the whole group of respondents perceive those obstructions to be equally limiting.

Table 6.1 Overview findings

Variables	Personality traits	Recreation motives	Activities	Likelihood of going off the paths	Amount of experienced obstructions when going off the paths
Demographics					
Age**	-/n.s.	+/-	+/n.s.	-/n.s.	+/n.s.
Sex - male	-/n.s.	-	n.s.	+/n.s.	-
Sex - female	+/n.s.	+	n.s.	-/n.s.	+
Family composition	n.s.	-/n.s.	+/n.s.	-/n.s.	n.s.
Education level	+	-/n.s.	n.s.	n.s.	n.s.
Postal code	-/n.s.	-/n.s.	+/n.s.	+/n.s.	n.s.
Member of nature conservation org.	-/n.s.	+	+/n.s.	+	+/-
Personality traits					
Extraversion*	·	-/n.s.	n.s.	+/n.s.	-/n.s.
Agreeableness*	·	+	n.s.	n.s.	+/n.s.
Conscientiousness*	·	-/n.s.	n.s.	-/n.s.	n.s.
Neuroticism*	·	+/n.s.	-/n.s.	n.s.	+
Openness to experience-intellect*	·	n.s.	n.s.	+/-/n.s.	-
Recreation motives					
Amusement*	·	·	-/n.s.	+/-/n.s.	+/n.s.
Change/escape*	·	·	+/n.s.	+/n.s.	n.s.
Interest*	·	·	+/n.s.	+/n.s.	n.s.
Love for nature*	·	·	+	+/n.s.	-/n.s.
Challenge*	·	·	+/-	-/n.s.	-/n.s.
Motive index	·	·	+/n.s.	+/n.s.	+/n.s.
Activities					
All activities	·	·	·	+	-/n.s.

- negative relationship
+ positive relationship
n.s. not significant
· not tested

** Read: The older a person, the less likely someone might want to go off the paths and the more obstructions he/she will experience when wanting to go off the paths.

* Read: The higher someone scores on e.g. extraversion, the more likely that person might want to go off the paths and the less obstructions he/she will experience when wanting to go off the paths.
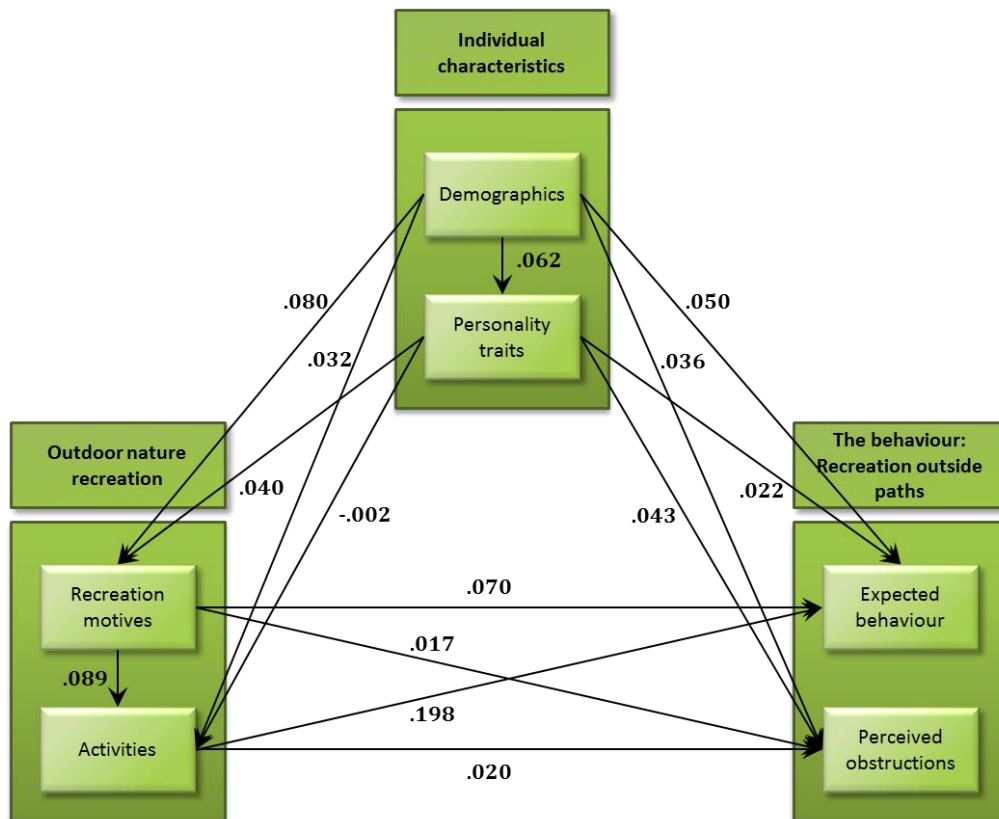
*Figure 6.1 Predictive value of each of the constructs (mean of variance explained (R^2))*
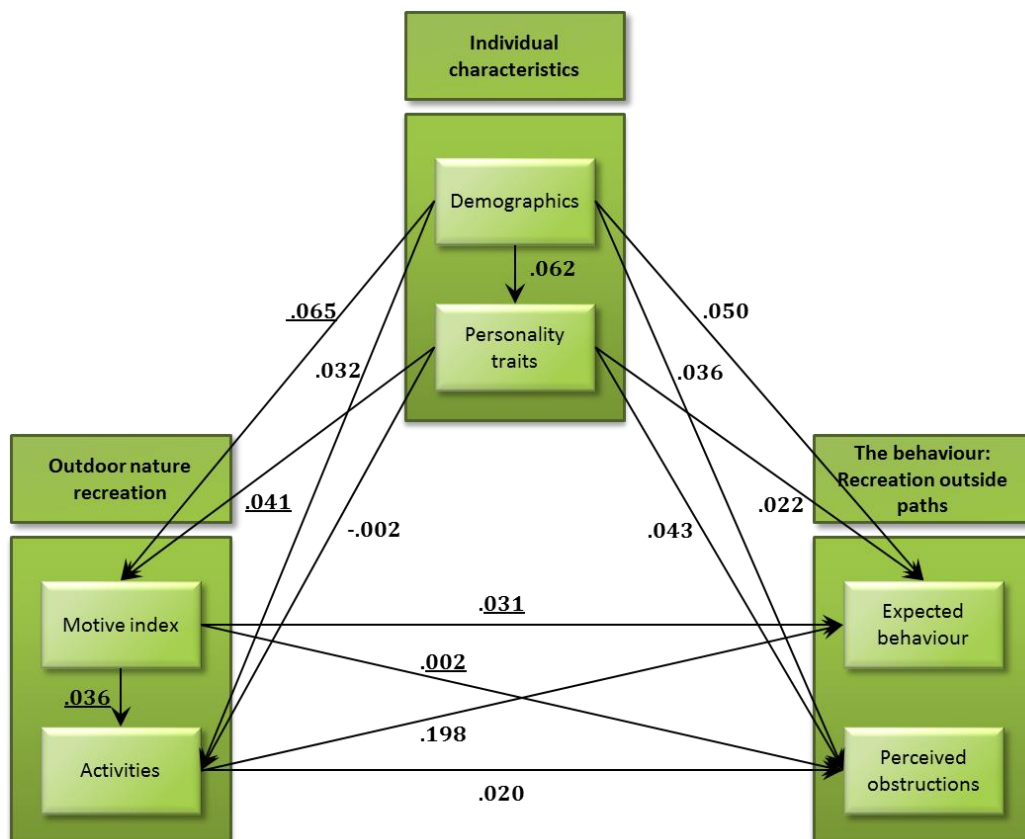
Figure 6.2 The predictive value of each of the constructs, including motive index (underlined R^2) (mean of variance explained (R^2))

6.4 Recreation off the paths and consequences for duty of care

Based on expert interviews and findings of this research, it can be said that respondents generally do not go off the paths very often. When they do go off the paths, most of them stay within 30 metres from the path and one third of the respondents even stays within 5 metres from the path. This corresponds with what de Hoge Veluwe and Staatsbosbeheer said during the interviews. De Hoge Veluwe said that visitors usually walk where it is the easiest; they usually walk on paths, marked routes and desire paths made by other visitors or by animals. If people go off the paths, they usually stay within 50 metres from them. Visitors usually notice that the area looks the same from the path as it does in the field and it is much more comfortable to walk on the path. Staatsbosbeheer agreed that most of their visitors use easy accessible routes and hardly go into the bush, only a few are very dedicated. The results from this research are in line with these experiences. It means that when visitors are allowed to roam everywhere, they probably will not go very far into the area and mostly stick to the paths. Currently, duty of care – for nature conservation organisations – consists of taking care of trees on locations where most people recreate. As visitors are currently only allowed to recreate on the paths, trees along the paths are checked for safety. When they are allowed to go off the paths, duty of care practices will probably not be much affected. Recreationists most likely stay close to the paths and these are the areas where the trees are already being assessed and maintained.

6.5 Reflecting on the methods

This thesis adds to existing literature about leisure behaviour. First, and foremost, no research was previously conducted on predicting recreation outside paths and people's perceptions on possible obstructions when wanting to go off the paths. Secondly, this thesis adds to practical knowledge of nature conservation organisations about their visitors and if and how they should adapt their duty of care management practices to the recreational behaviour of their visitors. This section reflects on the methods that were used in this research and limitations are discussed.

The concepts *expected behaviour*, *perceived obstructions* and *activities* regarding recreation outside paths were not theorised before and required some common sense and debate. Especially the choice of activities turned out not to be optimal. Almost no one (only 10%) of the respondents participated in sporty activities, which makes the analysis with this variable less valid. A pilot study or an inventory of practiced activities among recreationists could have resulted in the choice to leave these activities out. A pilot study or inventory could also have been beneficial for the experienced limitations of obstructions. Respondents could possibly experience other circumstances to be limiting as well in addition to the ones that were displayed in the survey. These remarks invite future research to go deeper into what recreationists experience when wanting to go off the paths during their visits to nature areas.

The *demographics* used in this thesis are basic demographical characteristics generally used in research, except for being a member of a nature conservation organisation. This characteristic was added as recreational behaviour could be different when people are member. When GLK surveys their visitors, they use the demographic characteristics as asked in the survey of this thesis (see appendix 1). Instead of asking whether people are member of any nature conservation organisation, they ask whether the visitor donates to GLK specifically. In this research, being a member does not mean being a member of GLK, but of any nature conservation organisation as it is about the notion of caring about nature in such a way that people would like to contribute to the conservation.

Due to lack of time, the survey could not be conducted with recreationists in the field. Fortunately, the survey could be distributed among many people due to contracting an online research bureau.

The sample characteristics were generally not representative for the population of the Netherlands or Gelderland. Even though this was not the aim of this research, future research may want to take that in mind to get a more general and representative idea of recreation outside paths and what people find limiting when wanting to go off the paths.

Lastly, when constructing groups of obstructions with exploratory factor analysis (see section 4.2.2), it was remarkable that prohibition signs appeared in the same group as fences, barbed wire and dense forest. Respondents state that they experience these obstructions to be equally limiting. However, unsure is whether respondents filled out an answer they feel they are expected to give – as it would be an offence to ignore prohibition signs – or they really experience prohibition signs as much as an obstruction as a fence, barbed wire or a dense forest. This issue could also be interesting to study in the future.

6.6 Conclusion

The first aim of this thesis was to find out whether visitors of nature areas in Gelderland recreate outside roads and paths and what they find limiting when wanting to go off the paths. Overall, the majority of respondents stays on the paths while recreating in nature and when they deviate from the path, they will probably stay relatively close by. The typical respondent that most likely goes off the paths while recreating is a young man that scores high on the personality trait openness to experience-intellect, who is a member of a nature conservation organisation and likes to participate in wandering, photographing, birding and picking forest fruits. This group of respondents is relatively small though, only one respondent has all of these characteristics.

The second aim and main practical implication of this study was finding out what the consequences are for GLK's duty of care if they would decide to open up their nature areas for wandering possibilities. Currently, safety assessments of trees are done along roads and paths. This would not have to change much in the future, might GLK decide to open up nature areas. Results show that the majority of the respondents stays within 30 metres from the path and other nature conservation organisations also note that most of their visitors stay on or close to the paths. People usually walk where it is the easiest to walk and only a very few exceptionally dedicated people go into the bush to explore.

Literature

Arnberger, A. (2006) Recreation use of urban forests: An inter-area comparison, *Urban Forestry & Urban Greening* 4(3-4):135-144

Barnett, L.A. (2013) What People Want From Their Leisure, The Contributions of Personality Facets in Differentially Predicting Leisure Outcomes, *Journal of Leisure Research* 45(2):150-191

Barrick, M.R. and Mount, M.K. (1993) Autonomy as a Moderator of the Relationships Between the Big Five Personality Dimensions and Job Performance, *Journal of Applied Psychology* 78(1):111-118

Brunel Legal (2010) *De aansprakelijkheid van eigenaren van bos en natuur*, in opdracht van het Bosschap in Driebergen

CBS (2014) *Kerncijfers wijken en buurten 2004-2013*, http://www.cbs.nl/nl-NL/menu/themas/dossiers/nederland-regionaal/cijfers/incidenteel/maatwerk/wijk-buurtstatistieken/kwb-recent/default.htm (04-08-2014)

Coeterier, F. and Schöne, L. (2000) Struinen: Hoort daar een bepaald soort natuur bij? *Groen* 56(3): 19-24

Cohen, E. (1979) Rethinking the Sociology of Tourism. *Annals of Tourism Research,* 18-35

Collins, D. and Tisdell, C. (2002a) Age-related lifecycles purpose variations, *Annals of Tourism Research* 29(3): 801–818

Collins, D. and Tisdell, C. (2002b) Gender and differences in travel life cycles, *Journal of Travel Research* 41(2): 133–153

Diamantopoulos, A., Schlegelmilch, B.B., Sinkovics, R.R. and Bohlen, G.M. (2003) Can socio-demographics still play a role in profiling green consumers? A review of the evidence and an empirical investigation, *Journal of Business Research* 56:465-480

Donnellan, M.B., Oswald, F.L., Baird, B.M. and Lucas, R.E. (2006) The Mini-IPIP Scales: Tiny-Yet-Effective Measures of the Big Five Factors of Personality, *Psychological Assessment* 18(2):192-203

Dutch Civil Law (2014) *Book 6 The law of obligations,*
http://www.dutchcivillaw.com/legislation/dcctitle6633.htm (18-06-2014)

Driver, B.L. and Knopf, R.C. (1977) Personality, Outdoor Recreation, and Expected Consequences, *Environment and Behavior* 9(2):169-193

Elands, B.H.M. and Lengkeek, J. (2000) Typical Tourists, Research into the theoretical and methodological foundations of a typology of tourism and recreation experiences, Mansholt Graduate School, Wageningen, The Netherlands

Elands, B.H.M. and Lengkeek, J. (2012) The tourist experience of out-there-ness: theory and empirical research, *Forest Policy and Economics* 19: 31-38

Fan, Y., French, S.A. and Das, K.V. (2012) Family Structure and Park Use Among Parents, *American Journal of Preventive Medicine* 43(5):520-526

Field, A. (2005) *Discovering Statistics using SPSS (and sex, drugs and rock 'n' roll),* 2nd edition, London: SAGE Publications Ltd.

Goossen, C.M. and de Boer, T.A. (2008) Recreatiemotieven en belevingssferen in een recreatief landschap; Literatuuronderzoek. Wageningen, Alterra, Alterra-rapport 1692.

Goossen, C.M. and de Boer, T.A. (2011) Notitie Recreatiemotieven en Nationaal Landschap Arkenheem-Eemland.

Hailu, G., Boxall, P.C. and McFarlane, B.L. (2005) The influence of place attachment on recreation demand, *Journal of Economic Psychology* 26(4):581-598

Hall, M. and Page, S.J. (2002) The Geography of Tourism and Recreation: Environment Place and Space, Routledge, London, 2nd ed.

Hoogendam, E. (2000) Struinnatuur: Wildernis beleven in robuuste natuur, *Groen* 56(3): 13-18

Howard, P.J. and Howard, J.M. (1995) *The Big Five Quickstart: An Introduction to the Five-Factor Model of Personality for Human Resource Professionals*, Center for Applied Cognitive Studies (CentACS), Chatlotte, North Carolina, USA

Jim, C.Y. and Chen, W.Y. (2006) Recreation-amenity use and contingent valuation of urban greenspaces in Guangzhou, China, *Landscape and Urban Planning* 75(1-2):81-96

John, O.P. and Srivastava, S. (1999) The Big Five Trait Taxonomy: History, Measurement, and Theoretical Perspectives: 102-138. In L. A. Pervin & O. P. John (Eds.), *Handbook of personality: Theory and research* (2nd ed.). New York: Guilford.

Judge, T.A., Higgins, C.A., Thoresen, C.J. and Barrick, M.R. (1999) The Big Five Personality Traits, General Mental Ability, and Career Success Across the Life Span, *Personnel Psychology* 52(3):621-652

Kumar, R. (2005) *Research Methodology, A Step-By-Step Guide for Beginners*, Second edition, SAGE Publications Ltd

Lammertink, M., Perryck, J., Roozen, T., Sanders, I. and Visscher, M. (2013) *Blijvend in beweging, Jaarverslag 2012*, Geldersch Landschap & Kasteelen

Laverdière, O., Morin, A.J.S. and St-Hilaire, F. (2013) Factor structure and measurement invariance of a short measure of the Big Five personality traits, *Personality and Individual Differences* 55:739-743

Leiper, N. (1979) The framework of tourism: Towards a definition of tourism, tourist and the tourist industry, *Annals of Tourism Research* 6(4): 390-407

Lengkeek, J. (2001) Leisure Experience and Imagination, Rethinking Cohen's Modes of Tourist Experience, *International Sociology* 16(2): 173-184

Livengood, J.S. and Stodolska, M. (2004) The Effects of Discrimination and Constraints Negotiation on Leisure Behavior of American Muslims in the Post-September 11 America, *Journal of Leisure Research* 36(2):183-208

Luttik, J., de Boer, T., Goossen, M. and Groot Bruinderink, G. (2006) *Natuurontwikkeling en de regionale economie in de Gelderse Poort; wat voegt het edelhert nog toe?* Wageningen, Alterra, Alterra-rapport 1399

Manfredo, M.J. (1992) *Influencing human behaviour: theory and applications in recreation, tourism, and natural resources management*, Champaign, Illinois, USA: Sagamore Publishing

McCrae, R.R. and Costa, P.T. (1987) Validation of the Five-Factor Model of Personality Across Instruments and Observers, *Journal of Personality and Social Psychology* 52(1):81-90

McCrae, R. R., and John, O. P. (1992) An introduction to the five-factor model and its applications. *Journal of personality*, *60*(2):175-215

Mehmetoglu, M. and Normann, Ø. (2013) The link between travel motives and activities in nature-based tourism, *Tourism Review* 68(2): 3-13

Musa, G., Seng, W.T., Thirumoorthi, T. and Abessi, M. (2010) The influence of scuba divers' personality, experience and demographic profile on their underwater behaviour, *Tourism in Marine Environments* 7(1):1-14

Natuurmonumenten Beheereenheid Veluwezoom (2009) *Evaluatie zorgplicht houtige beplantingen, Beheereenheid Veluwezoom*

Nyaupane, G.P., White, D.D. and Budruk, M. (2006) Motive-Based Tourist Market Segmentation: An Application to Native American Cultural Heritage Sites in Arizona, USA, *Journal of Heritage Tourism* 1(2):81-99

Provincie Gelderland (2014) Feiten en cijfers over Gelderland, http://www.gelderland.nl/4/Home/Over-de-provincie/Gelderland/Feiten-en-cijfers-over-Gelderland.html (01-05-2014)

Schmitt, D.P., Realo, A., Voracek, M. and Allik, J. (2008) Why Can't a Man Be More Like a Woman? Sex Differences in Big Five Personality Traits Across 55 Cultures, *Journal of Personality and Social Psychology* 94(1):168-182

Seneviratne, S.I., Nicholls, N., Easterling, D., Goodess, C.M., Kanae, S., Kossin, J., Luo, Y., Marengo, J., McInnes, K., Rahimi, M., Reichstein, M., Sorteberg, A., Vera, C. and Zhang, X. (2012) Changes in climate extremes and their impacts on the natural physical environment. In: *Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation* [Field, C.B., Barros, V., Stocker, T.F., Qin, D., Dokken, D.J., Ebi, K.L., Mastrandrea, M.D., Mach, K.J., Plattner, G.-K., Allen, S.K., Tignor, M. and Midgley, P.M. (eds.)]. A Special Report of Working Groups I and II of the Intergovernmental Panel on Climate Change (IPCC). Cambridge University Press, Cambridge, UK, and New York, NY, USA, pp. 109-230

Siebel, H. (2000) De wens tot een andere recreatieve inrichting van onze natuurgebieden: Mogelijkheden voor struinnatuur in het natuurbeheer, *Groen* 56(3): 53-57

Slabbers, S. (2000) Struinnatuur: Torteltuin voor 'grote' mensen, *Groen* 56(3): 36-40

Staatsbosbeheer (2014) *Randmeerbossen*, http://www.staatsbosbeheer.nl/Natuurgebieden/Randmeerbossen/Horsterwold.aspx (19-08-2014)

Tangeland, T., Aas, Ø. and Odden, A. (2013) The Socio-Demographic Influence on Participation in Outdoor Recreation Activities – Implications for the Norwegian Domestic Market for Nature-Based Tourism, *Scandinavian Journal of Hospitality and Tourism* 13(3):190-207

Thapa, B. (2010) The Mediation Effect of Outdoor Recreation Participation on Environmental Attitude-Behavior Correspondece, *The Journal of Environmental Education* 41(3):133-150

Van den Tweel, P. (2014) Nog steeds actueel, *Mooi Gelderland* 11(1):3

Westerink, J. (2005) Als een boom valt in het bos, *Vakblad Natuur Bos Landschap*, 2(5): 14-15

Veenstra, A., Maren, E.N. van, Coeterier, F. and Bosch Slabbers landschapsarchitecten (2000) *Struinnatuur: ideeën voor een natuurlijker recreatieomgeving,* LNV, Directie Noordwest

Veer, M. and van Middelkoop, M. (2002) *Mensen en de natuur, Recreatief gebruik van natuur en landschap*, Den Haag: Stichting Recreatie, Kennis- en Innovatiecentrum

Visscher, M.E.G. and Roozen, A.J.M. (2011) *Nota Recreatiebeleid*, Geldersch Landschap en Geldersche Kasteelen

Vogt, C.A. and Fesenmaier, D.R. (1998) Expanding the functional information search model, *Annals of Tourism Research* 25(3):551-578

Vroege Vogels (2013) *Natuurorganisaties verliezen aanhang*, http://vroegevogels.vara.nl/Nieuws-detail.1006.0.html?tx_ttnews%5Btt_news%5D=367058&cHash=605c896afcbd31ef80f8aa994dead8aa (20-08-2014)

De Vries, E. and Beentjes, C. (2000) Struinnatuur: Het 'zoek-je-eigen-weg' principe, *Groen* 56(3): 6-12

Zimmer, Z., Brayley, R., and Searle, M. (1995) Whether to Go and Where to Go: Identification of Important Influences on Seniors' Decisions to Travel, *Journal of Travel Research* 33(2): 3-10.

Van Zoest, J. (2000) Struinen in de stadsrand: Je kunt niet struinen op een postzegeltje, *Groen* 56(3): 31-35

Expert interviews

Het Nationale Park de Hoge Veluwe (in person)	22 April 2014
Staatsbosbeheer Horsterwold (phone interview)	23 June 2014
Staatsbosbeheer Gelderse Poort (in person)	8 July 2014

Appendix 1 Questionnaire

Geldersch Landschap & Kasteelen

Recreatie in de natuur

Met het invullen van deze enquête draagt u bij aan een onderzoek naar gedrag van recreanten in natuurterreinen. Dit onderzoek vindt plaats in opdracht van het Geldersch Landschap & Kasteelen. Het wordt uitgevoerd door een masterstudente van de Wageningen Universiteit. Uw bijdrage is zeer belangrijk voor dit onderzoek, bovendien maakt u kans op twee gratis kaartjes voor een hertenbronstexcursie bij Geldersch Landschap & Kasteelen als u de vragenlijst helemaal heeft ingevuld!

De meeste vragen in deze vragenlijst zijn meerkeuzevragen. Bij elke vraag staan instructies: lees deze goed door voordat u een antwoord invult. Antwoorden op vragen zijn niet goed of fout, het gaat om uw mening en beleving.

Uw antwoorden zullen strikt anoniem en vertrouwelijk behandeld worden.
De vragenlijst bestaat uit 15 vragen en zal ongeveer 10 minuten in beslag nemen.

Alvast bedankt!

1. In welke provincie woont u? (Kies het antwoord dat op u van toepassing is; er is slechts één antwoord mogelijk)

- O Drenthe
- O Flevoland
- O Friesland
- O Gelderland
- O Groningen
- O Limburg
- O Noord-Brabant
- O Noord-Holland
- O Overijssel
- O Utrecht
- O Zeeland
- O Zuid-Holland

2. Recreëert u wel eens in een natuurgebied bij u in de buurt? (Kies het antwoord dat op u van toepassing is; er is slechts één antwoord mogelijk)

- O Ja
- O Nee

Alvast bedankt voor het invullen van deze vragenlijst!
De komende 5 vragen gaan over de activiteiten die u onderneemt in de natuur.

3. Hoe vaak doet u gemiddeld de volgende recreatieve activiteiten in de natuur bij u in de omgeving?
(Maak een inschatting voor elke activiteit)

	(Bijna) nooit	Minstens 1 keer per 2-3 maanden	Minstens 1 keer per maand	1 keer per week	Minstens 2 keer per week	1 keer per dag	Meer dan 1 keer per dag
Wandelen	O	O	O	O	O	O	O
Hond uitlaten	O	O	O	O	O	O	O
Hardlopen	O	O	O	O	O	O	O
Nordic walking	O	O	O	O	O	O	O
Struinen (zonder doel dwalen)	O	O	O	O	O	O	O
Fietsen	O	O	O	O	O	O	O
Mountainbiken	O	O	O	O	O	O	O
Paardrijden	O	O	O	O	O	O	O
Survivallen	O	O	O	O	O	O	O
Boot camp	O	O	O	O	O	O	O
Bessen/paddenstoelen/kastanjes plukken en/of rapen	O	O	O	O	O	O	O
Met de kinderen spelen	O	O	O	O	O	O	O
Fotograferen	O	O	O	O	O	O	O
Geo-caches zoeken of een gps wandeling doen	O	O	O	O	O	O	O
Vogels of andere dieren en/of planten bekijken	O	O	O	O	O	O	O

www.glk.nl

CBF KEUR VOOR GOEDE DOELEN

4. Kunt u bij iedere activiteit die u wel eens onderneemt een inschatting maken over hoe vaak u van de paden gaat? (Maak een inschatting voor elke activiteit)

	Nooit	Soms (1-25%)	De helft of minder dan de helft van de keren (26-50%)	De helft of meer dan de helft van de keren (51-75%)	(Bijna) altijd (76-100%)	N.v.t.
Wandelen	O	O	O	O	O	O
Hond uitlaten	O	O	O	O	O	O
Hardlopen	O	O	O	O	O	O
Nordic walking	O	O	O	O	O	O
Struinen (zonder doel dwalen)	O	O	O	O	O	O
Fietsen	O	O	O	O	O	O
Mountainbiken	O	O	O	O	O	O
Paardrijden	O	O	O	O	O	O
Survivallen	O	O	O	O	O	O
Boot camp	O	O	O	O	O	O
Bessen/paddenstoelen/kastanjes plukken en/of rapen	O	O	O	O	O	O
Met de kinderen spelen	O	O	O	O	O	O
Fotograferen	O	O	O	O	O	O
Geo-caches zoeken of een gps wandeling doen	O	O	O	O	O	O
Vogels of andere dieren en/of planten bekijken	O	O	O	O	O	O

5. Als u van de paden gaat, hoe ver gaat u dan ongeveer van het pad af? (Kies het antwoord dat op u van toepassing is; er is slechts één antwoord mogelijk)

O   0 – 5 meter   O   30 - 50 meter   O   Niet van toepassing
O   5 – 30 meter   O   Meer dan 50 meter

6. Stel, u wilt van de paden af, in hoeverre zijn de volgende dingen een belemmering voor u? (Kies voor elke omstandigheid het antwoord dat op u van toepassing is)

	Geen belemmering		Middelgrote belemmering		Grote belemmering
Hek	O	O	O	O	O
Prikkeldraad	O	O	O	O	O
Bos met dichte ondergroei van struiken, bramen, varens of jonge bomen	O	O	O	O	O
Bos met bladeren die de grond bedekken	O	O	O	O	O
Gras	O	O	O	O	O
Heide	O	O	O	O	O
Zandverstuiving	O	O	O	O	O
Loslopende grote grazers	O	O	O	O	O
Modderige bodem	O	O	O	O	O
Sloot of greppel langs het pad	O	O	O	O	O
Uw persoonlijke conditie	O	O	O	O	O
Het dragen van nette schoenen	O	O	O	O	O
Het dragen van alledaagse schoenen (zonder goed schoenzoolprofiel)	O	O	O	O	O
Het dragen van wandel- of bergschoenen (met goed schoenzoolprofiel)	O	O	O	O	O
Een zonnige dag	O	O	O	O	O
Een regenachtige dag	O	O	O	O	O
Kans op teken	O	O	O	O	O
Aanwezigheid van verbodsborden	O	O	O	O	O
Angst om te verdwalen	O	O	O	O	O
Mogelijkheid tot verstoring van de natuur	O	O	O	O	O

7. Momenteel is het in de meeste natuurgebieden verboden om van de paden te gaan. Als het wel toegestaan zou worden, zou u dan <u>vaker</u> van de paden gaan? (Kies het antwoord dat op u van toepassing is; er is slechts één antwoord mogelijk)

- O   Ja, namelijk voor deze activiteiten: _____

      _____

- O   Nee, ik zou <u>niet vaker</u> van de paden gaan dan dat ik nu doe.

Bedankt voor het invullen van de bovenstaande vragen!
Nu volgt er een vraag over waarom u de natuur in gaat.

8. In hoeverre zijn de volgende redenen op u van toepassing om een natuurgebied te bezoeken? (Kies voor elke stelling het antwoord dat op u van toepassing is)

U gaat naar een natuurgebied ...	Helemaal niet van toepassing		Noch van toepassing / noch niet van toepassing		Helemaal van toepassing
...om samen te zijn met vrienden	O	O	O	O	O
...om na te denken	O	O	O	O	O
...om de flora en fauna in het gebied te bekijken	O	O	O	O	O
...om te leren over de natuur	O	O	O	O	O
...om deel te nemen aan georganiseerde activiteiten	O	O	O	O	O
...om beweging te krijgen	O	O	O	O	O
...om te leren over het gebied	O	O	O	O	O
...om meer te weten te komen over kastelen/ landhuizen in het gebied	O	O	O	O	O
...omdat ik daar mijn hobby kan uitoefenen	O	O	O	O	O
...om afstand te nemen van de dagelijkse beslommeringen	O	O	O	O	O
...om in de natuur te zijn met mensen met dezelfde interesses	O	O	O	O	O
...om mezelf mentaal wat rust te geven	O	O	O	O	O
...om mezelf fysiek uit te dagen	O	O	O	O	O
...om te leren over de geschiedenis van het gebied	O	O	O	O	O
...om mijn batterij weer op te laden	O	O	O	O	O
...om mijn kennis over de natuur te delen met anderen	O	O	O	O	O
...om weg te zijn van grote hoeveelheden mensen	O	O	O	O	O
...voor de gezelligheid	O	O	O	O	O
...om actief te zijn in de buitenlucht	O	O	O	O	O
...om op een plek te zijn met interessante cultuur, geschiedenis en natuur	O	O	O	O	O
...om samen te zijn met familie	O	O	O	O	O

Bedankt voor uw medewerking aan dit onderzoek!
Het laatste onderdeel gaat over u als persoon, deze informatie is nodig om doelgroepen te kunnen maken.
Uw gegevens worden, net als de rest van deze enquête, anoniem verwerkt.

9. In hoeverre herkent u zich in de volgende uitspraken? (Kies voor elke uitspraak het antwoord dat op u van toepassing is)

	Hier herken ik mij helemaal niet in		Hier herken ik mij noch in, noch niet in		Hier herken ik mij helemaal in
Ik ben een gangmaker op feestjes	O	O	O	O	O
Ik hou van structuur	O	O	O	O	O
Mijn humeur wisselt vaak	O	O	O	O	O
Ik heb moeite met het begrijpen van abstracte ideeën	O	O	O	O	O
Ik voel de emoties van andere mensen	O	O	O	O	O
Ik heb geen goede verbeelding	O	O	O	O	O
Ik praat veel met verschillende mensen op feestjes	O	O	O	O	O
Ik voel met bijna nooit teneergeslagen	O	O	O	O	O

Vervolg vraag 9.

	Hier herken ik mij helemaal niet in		Hier herken ik mij noch in, noch niet in		Hier herken ik mij helemaal in
Ik praat niet veel	O	O	O	O	O
Ik ben niet geïnteresseerd in iemand anders zijn problemen	O	O	O	O	O
Ik hou me graag op de achtergrond	O	O	O	O	O
Ik maak vaak een zooitje van alles	O	O	O	O	O
Ik ben vaak rustig	O	O	O	O	O
Ik ben in het algemeen niet echt geïnteresseerd in anderen	O	O	O	O	O
Ik ben geïnteresseerd in abstracte ideeën	O	O	O	O	O
Ik vergeet vaak spullen op de juiste plek terug te leggen	O	O	O	O	O
Ik heb een levendige verbeelding	O	O	O	O	O
Ik raak gemakkelijk overstuur	O	O	O	O	O
Ik doe klusjes gelijk en maak het snel af	O	O	O	O	O
Ik begrijp de gevoelens van anderen goed	O	O	O	O	O

10. Wat is uw geslacht? (Kies het antwoord dat op u van toepassing is; er is slechts één antwoord mogelijk)
    O Man   O Vrouw

11. Wat is uw leeftijd? (Schrijf uw leeftijd in jaren op) _____ jaar

12. Wat is de samenstelling van uw huishouden? (Kies het antwoord dat op u van toepassing is; er is slechts één antwoord mogelijk)
    O Samenwonend/getrouwd zonder kinderen   O Alleenstaand zonder kinderen
    O Samenwonend/getrouwd met thuiswonende kinderen   O Alleenstaand met thuiswonende kinderen
    O Samenwonend/getrouwd met uitwonende kinderen   O Alleenstaand met uitwonende kinderen
    O Anders, namelijk _____

13. Wat is uw hoogst afgeronde opleiding? (Kies het antwoord dat op u van toepassing is; er is slechts één antwoord mogelijk)
    O Basisonderwijs   O Middelbaar onderwijs   O Middelbaar beroepsonderwijs (MBO)
    O Hoger beroepsonderwijs (HBO)   O Wetenschappelijk onderwijs (Universiteit)

14. Bent u lid/donateur van een (of meerdere) natuur beherende organisatie(s)? (Kies het antwoord dat op u van toepassing is; er is slechts één antwoord mogelijk)
    O Nee
    O Ja, namelijk (meerdere mogelijk): _____
    _____

15. Wat is uw postcode? (Schrijf de vier cijfers van uw postcode op) _____

Heel erg bedankt voor het invullen van deze vragenlijst!
Mocht u nog opmerkingen hebben, dan kunt u ze hieronder kwijt:

_____
_____
_____
_____

Onder de respondenten van deze enquête zal een **gratis deelname voor twee personen aan een hertenbronstexcursie** bij Geldersch Landschap & Kasteelen verloot worden! Om kans te maken op deze prijs kunt u hier uw email adres invullen zodat wij contact kunnen opnemen met de winnaar. Deze gegevens zullen niet aan derden worden verstrekt en alleen voor deze loting gebruikt worden.
Email adres: _____

Hartelijk dank voor het invullen van deze enquête. U kunt deze t/m 17 juli inleveren bij een van onze medewerkers of opsturen naar:
Geldersch Landschap & Kasteelen t.a.v. M. Visscher, Antwoordnummer 57, 6800 WC Arnhem (postzegel niet nodig).

Appendix 2 Expert interview guide

Dutch – original (Interview conducted in Dutch)
1. Wat zijn de redenen dat jullie mensen toelaten buiten de paden te gaan?

2. Gaan er veel mensen buiten de paden? Willen ze het wel?

3. Meer vernielingen/zeldzame plantjes meenemen door buiten de paden lopen?

4. Komen er mensen speciaal naar [betreffende organisatie] om te struinen?

5. Hoe beleven mensen recreatie buiten de paden?

6. Wat voor activiteiten doet men buiten de paden? (lopen, fietsen, joggen, picknicken, spelen met kinderen, etc?)

7. Op wat voor stukken gaat men vaak van de paden af? (bos/hei/stuifzand)/Op wat voor stukken laten jullie toe dat mensen van de paden mogen?

8. Hoe zorgen jullie dat mensen niet buiten de paden gaan op plekken waar je dat niet wilt? (zoals bordjes, of bepaalde struiken?) Wat voor plekken zijn dit? (Fauna/flora)
    a. Zijn er plekken waar het wel mag, maar waar jullie ze liever niet teveel hebben? Hoe lossen jullie dat op?

9. Wat voor invloed heeft het op de zorgplicht? Checken jullie de bomen overal? Of vooral op de plekken waar veel mensen buiten de paden gaan?

English translation
1. What are the main reasons that the organisation allows people to recreate outside paths?
2. Are many people going off the paths? Do people want to do that?
3. Does nature get significantly damaged when people walk outside the paths? Do they take (rare) plants with them?
4. Do people come to your area especially to walk outside the paths?
5. How do people experience recreation outside paths?
6. What kinds of activities do people do outside paths?
7. Do people go off the paths in particular places? (forest/heath/drifting sand)/What type of places do you allow people to go off the paths?
8. How do you make sure people don't go off the paths in places where you don't want them to? What kind of places are not allowed for people to enter?
    a. Are there places where people can go off the paths, but you don't want too much of them? How do you solve that?
9. How does this influence your duty of care? Do you check the trees everywhere, or mainly where most people go off the paths?