

# **User conflicts and management of Urban Woodlands**

**The case of Trondheim, Norway and Arnhem, The  
Netherlands**

**Egbert Jacob Holtrop  
Master of Science in Natural Resources Management  
NTNU, Department of Geography  
Trondheim, Norway  
June 2011**



Figure 1: Key words in this thesis, size represents the number of times the word is mentioned

## ACKNOWLEDGEMENTS

This research has been carried out as part of a master thesis in Natural Resources Management. I would like to thank my supervisor Jørund Aasetre for his many hours of support and guidance; his goal for this project was ambitious and with that he has pushed me to achieve more than I had expected from myself. Secondly I would like to thank Vegard Gundersen and NINA for their support.

The subject of this research is of great personal interest to me. After eight years of academic education I have found a field of study that I think is interesting and worth my time. This is in no small part due to my grandfather who has given me an interest in forests, nature in general and in travelling. He has provided me with the necessary support to complete this Master in Norway. For that I am thankful.

Further, I would like to thank Andreas Glimstad of Trondheim kommune and Jan Floor and Bart Lichtenberg of the Gemeente Arnhem for giving me the opportunity to do a questionnaire in the municipalities; a vital part of this Thesis. I also express great thanks to those people that participated in the interviews for their time and insights.

Lastly, I would like to thank everybody who has been around and provided me with support and friendship; Eirik and Tyler for their help with the languages, Ali, Vegard, Petter and Harry for their respective help and last but not least Kristin for encouraging me.

Egbert Jacob Holtrop

June, 2011

## SUMMARY

Urban woodlands are forests in and around cities that are used intensively for recreation and as such can be sites of conflicts between various users and uses. The aim of this research is to compare the recreational situation and management context in two areas: Arnhem in The Netherlands and Trondheim in Norway. The cases represent opposite ends of the scale when it comes to population density and availability of urban woodlands

The study used different methods to describe the situation in the two case areas. Interviews were carried out to uncover management practises and challenges in the case areas. Self-registration questionnaires gathered information about the actual recreational use, preferences and conflicts and document studies were use to describe the policies and laws in the countries and municipalities.

The study shows that the freedom to roam is an important aspect in Norwegian law and policy. There is a common right to access and passage of uncultivated lands, and outdoor recreation is an integrated part of national policies, including environmental protection policies. The Netherlands do not have the right to free access of uncultivated land, property right are more dominant and recreational access is only allowed when permission is granted. This permission is common but with strict rules as to when, what and where different activities can be practised.

Interviews showed that the laws and policies are for the large part appreciated by the representatives of the interest groups that were interviewed. The Dutch interviewees accepted restrictions because they felt that it protects nature and prevents conflicts. The Norwegian interviewees mentioned that there were some conflicts but accepted them because everybody should have the freedom to go anywhere. Zoning was an option but only as an encouragement, not as a coercive force.

A questionnaire was carried out to investigate the level of conflicts among people using the area. This questionnaire was based on convenient sampling and is not representative for all visitors of urban woodlands or the case areas. The respondents did not show a difference in what they recognize as actual conflicts. It did show, however, a difference in attitude towards other users. The most striking difference was the difference in the scores of the purism scale. Dutch respondents had a much more purist attitude than Norwegian respondents, and this difference was found to be predominantly explained by nationality.



More intense use of urban woodlands and a wider variety of uses ask for a stricter management regime to protect the interests that are represented in urban woodlands. The question is if, in a context of the ‘freedom to roam’, there is an instrument that can protect those interests when there is a strong user pressure by a variety of activities.

# 1 INDEX:

<b>LIST OF FIGURES .....</b>	<b>8</b>
<b>LIST OF TABLES .....</b>	<b>8</b>
<b>DEFINITIONS: .....</b>	<b>10</b>
<b>1 INTRODUCTION .....</b>	<b>11</b>
1.1 USER CONFLICTS .....	13
1.2 MANAGEMENT OF URBAN WOODLANDS .....	15
1.3 HYPOTHESIS AND RESEARCH QUESTIONS .....	18
<b>2 METHODOLOGY .....</b>	<b>20</b>
2.1 CASE STUDY .....	20
2.2 DOCUMENT STUDY .....	21
2.3 IN-DEPTH INTERVIEWS .....	21
2.4 QUESTIONNAIRE: .....	22
2.5 INSTRUMENTS USED .....	24
2.5.1 <i>Motivation</i> .....	24
2.5.2 <i>Purism</i> .....	26
2.5.3 <i>Education</i> .....	29
<b>3 NORWAY AND THE NETHERLANDS: CASE AREAS .....</b>	<b>30</b>
3.1 NORWAY .....	35
3.1.1 <i>National laws and policies</i> .....	35
3.1.2 <i>Local level: Trondheim</i> .....	37
3.2 THE NETHERLANDS.....	40
3.2.1 <i>National law and policies</i> .....	40
3.2.2 <i>Local level: Arnhem</i> .....	42
3.3 SUMMARY.....	46
<b>4 MANAGEMENT PRACTICES: INTERVIEWS.....</b>	<b>48</b>
4.1 NORWAY .....	48
4.1.1 <i>Function</i> .....	49
4.1.2 <i>Communication</i> .....	49
4.1.3 <i>Conflicts</i> .....	51
4.1.4 <i>Future</i> .....	52
4.1.5 <i>Management</i> .....	53
4.2 THE NETHERLANDS.....	54
4.2.1 <i>Function</i> .....	55
4.2.2 <i>communication</i> .....	55
4.2.3 <i>Conflicts</i> .....	57
4.2.4 <i>Management</i> .....	58
4.3 SUMMARY .....	58
<b>5 SURVEY RESULTS .....</b>	<b>62</b>
5.1 RESPONSE.....	62
5.2 WEATHER.....	62

5.3	SEX OF RESPONDENTS .....	63
5.4	AGE .....	63
5.5	EDUCATION .....	64
5.6	FREQUENCY OF VISIT .....	64
5.7	ACTIVITIES .....	65
5.8	MOTIVATION.....	65
5.9	PURISM.....	69
5.10	GENERAL ATTITUDES .....	73
5.11	TOLERANCE.....	75
5.12	MANAGEMENT PREFERENCES.....	78
5.13	SUMMARY SURVEY RESULTS.....	80
<b>6</b>	<b>DISCUSSION .....</b>	<b>82</b>
6.1	NORWAY .....	82
6.1.1	<i>Conflict</i> .....	82
6.1.2	<i>Management</i> .....	83
6.2	THE NETHERLANDS.....	84
6.2.1	<i>Conflict</i> .....	84
6.2.2	<i>Management</i> .....	85
6.3	DIFFERENCES AND SIMILARITIES .....	86
<b>7</b>	<b>CONCLUSIONS.....</b>	<b>88</b>
<b>8</b>	<b>REFERENCES .....</b>	<b>89</b>
<b>9</b>	<b>APPENDICES.....</b>	<b>94</b>
	<i>Appendix A: Schematic models of the Dutch and Norwegian education system .....</i>	94
	<i>Appendix B: Additional analysis of the REP scale.....</i>	96
	<i>Appendix C: Answers on the Purist-scale.....</i>	97
	<i>Appendix D: Map of Bymarka with recreational infrastructure.....</i>	98
	<i>Appendix E: List of interviewees: .....</i>	99

## LIST OF FIGURES

FIGURE 1: KEY WORDS IN THIS THESIS, SIZE REPRESENTS THE NUMBER OF TIMES THE WORD IS MENTIONED .....	2
FIGURE 2: THE VALUE OF ECOSYSTEMS TO SOCIETY .....	12
FIGURE 3: HEALTH BENEFITS OF TWO TYPES OF LANDSCAPES .....	13
FIGURE 4: THE EXPECTED INTERACTIOS IN PRESSURE AND CONFLICTS .....	18
FIGURE 5: LOCATION OF SELF-REGISTRATION BOXES IN TRONDHEIM AND ARNHEM.....	23
FIGURE 6: STRUCTURE OF QUESTIONNAIRE .....	24
FIGURE 7: CRONBACH'S ALPHA OF RECREATION EXPERIENCE PREFERENCE SCALE .....	25
FIGURE 8: PURSIST SCALE WITH RELIABILITY ANALYSIS .....	27
FIGURE 9: GEOGRAPHIC LOCATION OF NORWAY AND THE NETHERLANDS IN EUROPE .....	31
FIGURE 10: URBAN WOODLANDS IN THE MUNICIPALITY OF TRONDHEIM .....	32
FIGURE 11: MAP OF ARNHEM AND SURROUNDINGS .....	33
FIGURE 12: QUALITY OF INFRASTRUCTURE FOR RECREATION AND NATURE-BASED TOURISM .....	34
FIGURE 13: INFRASTRUCTURE IN URBAN WOODLANDS OF ARNHEM AND TRONDHEIM.....	34
FIGURE 14: SIGNS FOR ACTIVITIES IN ARNHEM AND INFORMATION SIGN IN TRONDHEIM. ....	35
FIGURE 15: SIGN INDICATING PERMISSION TO ACCESS THE FOREST OF 'SCHAARSBERGEN' .....	40
FIGURE 16: WEATHER ACCORDING TO RESPONDENTS IN NORWAY AND THE NETHERLANDS .....	63
FIGURE 17: SEX OF THE RESPONDENTS IN NORWAY AND THE NETHERLANDS.....	63
FIGURE 18: HIGHEST ATTAINED EDUCATION OF RESPONDENTS.....	64
FIGURE 19: FREQUENCY OF VISITS TO THE CASE AREAS BY RESPONDENTS.....	64
FIGURE 20: RECREATIONAL ACTIVITIES UNDERTAKEN BY THE RESPONDENTS .....	65
FIGURE 21: SCORE FOR MOTIVATION PER COUNTRY.....	66
FIGURE 22: PURISM FOR RESPONDENTS IN NORWAY AND THE NETHERLANDS .....	69
FIGURE 23: PURIST ATTITUDE OF SEVERAL NATIONALITIES IN RONDANE .....	70
FIGURE 24: BARGRAPH OF THE OPION OF RESPONDENTS.....	75
FIGURE 25: PREFERENCE OF THE LEVEL AND SORT OF PARTICIPATION OF RESPONDENTS.....	78
FIGURE 26: OPINION ABOUT THE LEVEL OF PARTICIPATION IN MAINTENANCE AND MANAGEMENT .....	79
FIGURE 27: EDUCATION SYSTEM IN THE NETHERLANDS .....	94
FIGURE 28: THE NORWEGIAN EDUCATION SYSTEM .....	95
FIGURE 29: EDUCATION IN THE DUTCH QUESTIONNAIRE.....	95
FIGURE 30: ANSWERS OF A RESPONDENT TO REP SCALE .....	96
FIGURE 31: ANSWERS TO QUESTIONS ON THE PURIST SCALE .....	97
FIGURE 32 : MAP OF BYMARKA WITH PLANNED FACILITIES.....	98

## LIST OF TABLES

TABLE 1: FACTOR ANALYSIS ON THE PURISM SCALE.....	28
TABLE 2: POPULATION DENSITY AND LAND SURFACE OF NORWAY AND THE NETHERLANDS .....	32
TABLE 3: KEY DIFFERENCES BETWEEN POLICY AND LAWS IN NORWAY AND THE NETHERLANDS .....	47
TABLE 4: KEY DIFFERENCES BETWEEN MANAGEMENT OF, AND USER CONFLICTS IN URBAN WOODLANDS.....	61
TABLE 5: AVERAGE AGE OF THE RESPONDENTS .....	63
TABLE 6: AVERAGE SCORE OF RESPONDENTS ON THE REP SCALE .....	66
TABLE 7: DIFFERENCE FROM NEUTRAL ANSWER ON REP SCALE .....	67
TABLE 8: DIFFERENCE BETWEEN SEVERAL VARIABLES AND MOTIVATIONS.....	68
TABLE 9: GENERAL LINEAR ANALYSIS WITH EFFECT OF ACTIVITY ON MOTIVATION .....	68
TABLE 10: PEARSON CORRELATION AND SIGNIFICANCE BETWEEN PURISM SCORE AND MOTIVATIONS .....	70
TABLE 11: DIFFERENCE IN PURISM SCORE BETWEEN TWO SEXES .....	71
TABLE 12: PURISM SCORE PER SEX PER COUNTRY .....	71
TABLE 13: KRUSKALL WALLIS TEST OF DIFFERENCE IN PURISM AMONGST DIFFERENT EDUCATIONAL LEVELS ....	72
TABLE 14: PEARSON CHI-SQUARE FOR DIFFERENT ACTIVITIES.....	72

TABLE 15: COEFFICIENTS OF A LINEAR REGRESSION MODEL FOR PURISM. ....	73
TABLE 16: OPINIONS OF RESPONDENTS ABOUT CASE AREAS.....	74
TABLE 17: FACTOR ANALYSIS OF TOLERANCE SCORE.....	76
TABLE 18: TOLERANCE SCORE FOR DIFFERENT ACTIVITIES .....	77
TABLE 19: BIVARIATE CORRELATION BETWEEN PURISM SCORE AND TOLERANCE .....	78
TABLE 20: KEY DIFFERENCES BETWEEN COUNTRIES AND ACTIVITIES IN SURVEY RESULTS .....	81

## DEFINITIONS:

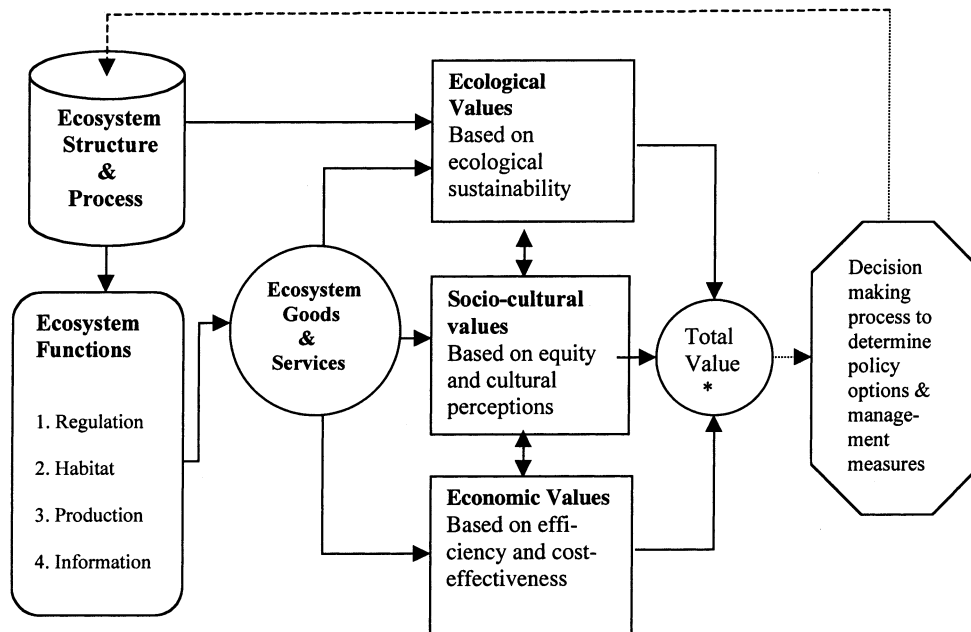
- Friluftsliv:** Friluftsliv is a Norwegian concept with strong historic ties in Norwegian culture. It is outdoor recreation, but not necessarily all outdoor recreation everywhere. Because the term has strong ties with culture, the type of activities involved in outdoor recreation and the way they are performed are also strongly embedded in Norwegian culture. The definition used here is from the policy plan for the near-city forests of Trondheim (markaplan, Trondheim Kommune, 2003, p.12): “A healthy, joyful, and environmentally friendly activity that goes on in nature”.
- Extensive outdoor recreation:** Extensive outdoor recreation is outdoor recreation that requires a minimum amount of facilities and has minimum impact on the environment. Most typically this includes walking. In this research it also includes biking in a peaceful manner.
- Intensive outdoor recreation:** Intensive outdoor recreation is, in its most extreme form, outdoor recreation that requires a high level of facilities and has a high impact on the environment. An example would be downhill biking that requires ramps. In this research it includes activities that require more facilities, have a clear impact on the environment or are aimed at exercising rather than being in a quiet environment. Examples are running, mountain biking and horseback riding and other, modern forms of outdoor recreation

## 1 INTRODUCTION

Urban woodlands are the areas within and around urban areas that consist partly of tree cover. The importance of these urban woodlands to the urban population is stressed by scientist all over Europe (Van Herzele et al., 2005). A clear definition of urban woodlands is the one given used by Gundersen et al. (2006) who state that they are “*forest patches located within, or continuous forest cover on the fringe of, urban agglomerations, intensively used for recreation*” (p. 74). Urban woodland is a part of urban forestry, which also includes other areas such as street trees, parks and other green structures

There has historically been a strong link between local communities and the surrounding forests. Due to overexploitation by expanding cities, the forest has in many cases retreated away from the city in Europe (Konijnendijk, 2008). Forests that still remained near cities, or were (re-)created, became places of outdoor recreation, and part of cultures. Konijnendijk says in this regard that “*city forests are cultural forest landscapes that are social and cultural constructs, created on the meeting point of culture and nature, of the human and non-human*” (Konijnendijk, 2008, p. 13). Urban forestry, and the management of urban woodlands, can therefore only be successful if it meets the multiple demands that are placed on it by urban society (Randrup, 2005)

The total demand on urban forests is related to the total use of forests. There are many taxonomies for classifying the functions and values of forests. De Groot et al. (2002) divide them in four parts being regulation, habitat, production and information function (Figure 2). Besides the functions to society, forests can have a certain value to society. De Groot et al. (2002) conceptualise the value of an ecosystem (a forest is an ecosystem) to society by dividing the total value in three parts, as can be seen in Figure 2.



\*) The problem of aggregation and weighing of different values in the decision making process is an important issue, but is not the subject of this paper (see other papers in this issue for further discussion)

Figure 2: The value of ecosystems to society (source: De Groot et al. 2002)

Tyrväinen et al. (2005) divide the *information function* of De Groot et al. (2002) into *social benefits* and *aesthetic and architectural benefits*. The benefits humans derive are mainly the enjoyment of nature and peace and quietness. Research has shown that the use of woodlands by humans for recreation has health benefits, such as the reduction of stress. The mechanism behind the health benefits is unclear and it is therefore difficult to assess what design and maintenance maximize human health benefits (Tyrväinen et al., 2005). A literature study by Verlarde et al. (2007) that compared several studies on the health benefits gained from the visual experience of landscapes, showed that health benefits of natural landscapes are greater than those of urban landscapes (Figure 3). It was impossible to identify which natural landscapes were more beneficial than others, and which urban landscapes were more harmful than others in the review (Verlarde et al. 2007). Both the research by Tyrväinen et al. and Verlarde et al. show that people benefit from recreating in a natural environment but which factors of a natural environment contribute the most is not clear.

The Norwegian Outdoor Recreation Act (Regjeringen, 1996) stipulates that the purpose of the act is to “safeguard the public right of access to (...) the countryside (...) so that opportunities for outdoor recreation as a leisure activity that is healthy, environmentally sound and gives a sense of well-being are maintained and promoted” (§1). This clearly indicates the understanding of outdoor recreation as being beneficial to human health.



Gundersen et al. (2006) state that approximately half of all forest visits in Norway take part in urban woodlands that cover about 2-3 % of all forested areas. That makes urban woodlands of prime importance among sites of outdoor recreation.

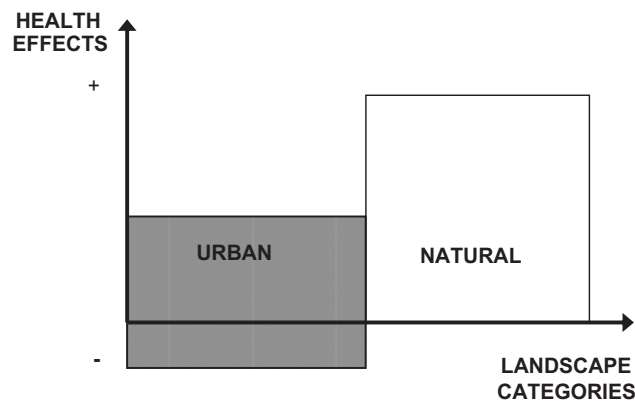


Figure 3: Health benefits of two types of landscapes (source: Verlarde et al., 2007)

This introduction has given a definition of urban woodlands and described the importance of urban woodlands. The remainder of this chapter first focuses on the description of what user conflicts are and how they can be avoided. After that it goes on about how urban woodlands as a common resource can be managed and user conflicts can be avoided.

## 1.1 USER CONFLICTS

User conflict and management have been a topic within recreational research at least since the 1960's (Shafer, 1969). Its focus has change over time, and research especially from the North America put early emphasis on people's motivation and satisfaction for using the nature. Clark and Stankey (1979) mention that "*When considering opportunities for outdoor recreation, people must make choices about activities in which to engage, settings in which to recreate, and kinds of recreation experiences to seek*" (p. 1). Dissatisfaction can arise when the experiences people seek are not met. Conflicts can arise when two recreational users of a forest seek different experiences and thus prohibit each other from experience fulfillment. The experience people seek, or motivation for recreating, is thus an important determinant for possible conflicts. Manfredo et al. (1996) state that knowing the motivation for people's recreational behaviour is important because it can help "practitioners develop programs that have the greatest likelihood of minimizing conflicts between users" (p. 189).

There has been extended research into conflicts between different user categories in nature. Watson (2001) describes how there has been research into conflicts between snowmobilers and cross country skiers, anglers, hikers and mountain bikers, cross country skiers and helicopter-skiers and between hikers and horse back riders (Watson 2001, p. 62). Vittersø et al. (2004, p. 228) mention that “Increased variety in recreational activities has brought about amplified conflicts over the use of public recreation areas.”

Conflicts between different users can be described by goal interference. Recreational users of nature generally have a goal with being outside for recreation. Hikers for example may want to be in a tranquil surrounding. The achievement of this goal can be disturbed by mountainbikers. Watson mentions that: *“the more value visitors place on finding naturalness while on a trip to wilderness, and the higher their expectations are that they will indeed find it at the chosen time and place of a trip, the more likely conflict will be felt if this goal is not realized”* (Watson 2001, p. 63).

Goal interference can be measured, for example using a Recreation Experience Preference (REP) scale. The REP scale arose out of the argument that outdoor recreation should be viewed as “a psychophysiological experience that is self-rewarding (...) and is the result of free choice” (Manfredo et al., 1996, p. 189).

Watson (2001, p. 63) mentions that common sources of conflicts are divided into four:

- activity style; conflicts due to a difference in the level and skill of pursued activity
- resource specificity; conflicts due to the necessity of particular resources for pursued activities
- mode of experience; differences in what kind of experience recreationalists are looking for. Hikers can be looking for quietness while mountain bikers are more centred on the activity itself
- tolerance of lifestyle diversity; differences in lifestyle can lead to conflicts.

If big differences exist in one or more of these factors between users, a conflict arises. Cessford (2003) gives a good example where differences in the four factors mentioned above leads to conflicts. In his research he found that the disapproval of bikers by hikers relates to the perception of three types of impacts bikers have on the environment:

- Physical impacts on the environments
- Social impact by safety hazard
- Social impact by inappropriateness of biking in a natural setting.

The perception of one or more of these impacts leads to conflicts between bikers, other track users and managers. The differences in impacts of different activities leads to skewed conflicts (Vittersø et al., 2004); Bikers have a larger impact than hikers, hikers are therefore bothered more by bikers than the other way around.

There is also a difference between attitudes and perception when it comes to user conflicts. Hikers, for example, indicate that they are disturbed by bikers more before an encounter (attitude), than they actually after an encounter (perception) (Cessford, 2003) (see also Vittersø et al., 2004)

Conflicts between users of urban woodlands are unevenly distributed. That can have consequences for the management of urban woodlands such as the need to separate activities. Cessford (2003) mentions that there is a “positive outlook for developing shared tracks” That suggests that the combination of leisure activities is to be preferred over the separation of activities. The effect of the separation of activities is part of this research.

## **1.2 MANAGEMENT OF URBAN WOODLANDS**

Forests, as said before, have multiple functions and ways to value those functions. There has been a shift in the function and value of the urban woodlands for the urban population. It has gone from being an object for subsistence and harvesting to an arena for leisure activities and recreation. The management of the urban woodlands have change dramatically, and is in many cases about the urban population’s health and well-being. Management has changed from focusing on traditional economical values, to focusing more on ecological and socio-cultural values.

Urban woodlands, with ecological and socio-cultural values, are a resource. If focus in the management of resources and the environment is put on the human interaction with the environment, natural resource management becomes the management of different interest or conflicts (Mitchell, 2002).

The value of an ecosystem to society not only depends on the functions, but also on how much value is ascribed to those functions. Ecosystems can have three kinds of value, as is seen in Figure 2. Those three values of ecosystems are economical, ecological and socio-cultural values. Value is ascribed to an ecosystem in socio-economic ways by the perception of people about the ecosystem and by social values such as equity (De Groot et al., 2002, p.

403). This is especially relevant for urban woodlands because urban woodlands are essentially public goods and as such require government intervention to ensure their equal distribution among people.

The need of the management of public goods is described by Hardin in *The tragedy of the Commons*. He states that overuse is inevitable because the benefits of use are individual while the costs are for the whole community. In order to maximize their profit, people will use the common resource beyond its carrying capacity. (Hardin, 1968) That is a problem because there is a need for a sustainable policy that ensures both intra- and inter-generational equity (UN, 1987). Policy should focus on the fair distribution of the resource among current inhabitants of the urban area related to the urban woodland, but it should also keep an eye on a fair distribution between current and future generations.

Hardin's theory has been much discussed in scientific literature, including Elinor Ostrom. In 'Governing the commons' (Ostrom, 1990), she points out that we can see in the world that "neither the state nor the market is uniformly successful in enabling individuals to sustain long-term, productive use of natural resource systems" (p. 1). One idea adding to Hardin's assumptions of a tragedy of the commons is that if individuals communicate and find the best common solution, they would follow that. According to Ostrom, Mancur Olson has criticised this opinion, arguing that "*one who cannot be excluded from obtaining the benefits of a collective good once the good has been produced, has little incentive to contribute voluntarily to the provision of that good*" (1990, p. 6). The critique of Ostrom to both Hardin and Olson however, is that they assume constraints on the hypothetical individuals that may not be present in real life situations.

A solution to a tragedy of the commons is to privatise the common lands. That way the costs of using the resource are individual, in the same way the benefits are individual. Ostrom argues however, that common resource pool (CPR) institutions are rarely completely private or public, but rather a mix of the two. Restrictions can be applied, but rather than enforcement by a government, this can be enforcement by a cooperative agreement for example. Ostrom's point of a local agreement is that it is better adapt to the situation and avoids enforcing errors (errors in enforcement of the rules that are intended to safeguard equal and sustainable use of the common resource).

A situation where the negative impact of government intervention and regulation is evident is that of forests in third-world or developing countries. Before they were nationalized they were in the care of local villages who knew how to use the forests within carrying capacity.

Nationalization has however lead to overuse due to poor level of knowledge and corruption (Ostrom, 1990). Ostrom exemplifies how, instead of nationalizing, local co-operation seems to be a solution worth considering.

Government action, in short, is not the final answer for common resources that are in danger of exploitation. Rather, a system has to be set up in which enforcement is regulated by a set of rules that are adept to the local situation.

Because urban woodlands are natural ecosystems, they provide benefits for the whole society, the production of oxygen is a poignant example. Because ecosystem goods and services are common goods, they are subject to normative and ethical concern (Wilson & Howarth, 2002). Wilson and Howarth (2002, p. 432) state that *“Because ethical concerns and issues of social equity are a matter of argument, and argumentation itself requires a public arena in which to occur, it thus seems appropriate to search for procedures that will bring ecosystem valuation into the public arena”*.

Urban woodlands are a common good that needs to be managed to ensure an equal distribution among all. Furthermore they should be managed in a public arena where decision are made openly and can be influenced by the public. Modern democracies are based on power by representation. The government officials who are chosen in a democratic process have the legitimacy to make decisions. Legitimacy can be enhanced however by involving the public in the decision making process. Arnstein’s (1969) ladder of participation mentions the gradations of participation, ranging from manipulation, through informing and partnership to citizen control (and a few steps in between). Of important note is that there is not a black and white choice between participation or no participation, but rather a spectrum of choices regarding citizen participation (Arnstein, 1969).

Involving people in the management of natural resources, facilitates defining the problem more effectively and identifying solutions that are socially acceptable (Mitchell, 2002). Tyrväinen points out that woodlands near large cities serve as sites for recreation as well as serving ecological goals. That gives urban woodlands a great responsibility in awareness of nature among citizens. There is therefore a need for public participation in the design and planning of urban green spaces so as to give more attention to *“Their own taste and recreational preferences”* (Tyrväinen, 2005, p. 109).

An important input to the management process is information about the users: how they act and what they seek in the forest. The aim in this thesis is to give scientific input to important aspects of a management process in an urban woodland.

### 1.3 HYPOTHESIS AND RESEARCH QUESTIONS

Urban woodlands are forests around cities that are intensively used for recreation. Recreation is a leisure activity that is regarded as being healthy. However, use of a forest put's strain upon it and friction can arise between the ecological, economical and social functions of it. Friction can also arise between different user groups. To give everybody an equal opportunity to enjoy the forests, now and in the future, it is important that the use of the forest stays within its carrying capacity. Population pressure is a good indication of user pressure on a regional or national scale. The hypothesis that arises is that the danger for *the commons* to be overused is greater in areas where the population pressure is higher. Such areas would subsequently need a stricter management regime to ensure the equal availability of resource (see Figure 4)

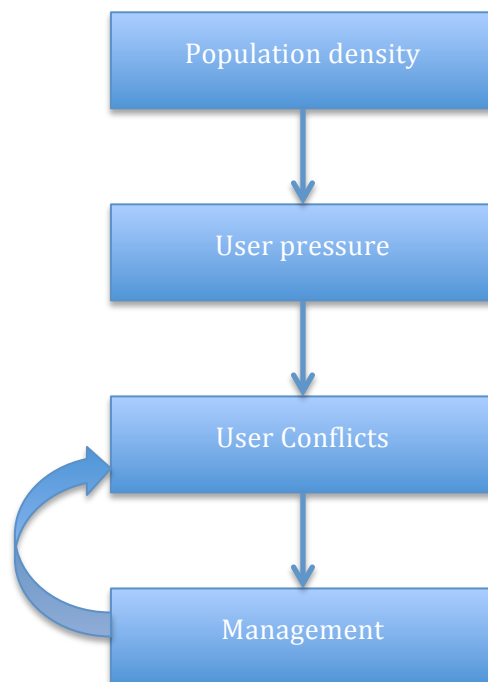


Figure 4: Diagram of the expected interaction between population density, user pressure, user conflicts an urban woodland management

This research will by using two cases study the interrelationship between user pressure, user conflicts and urban forest management. The main goal of this thesis will be to make a comparative analysis of user conflicts in two urban woodlands in The Netherlands and Norway. The main research question is therefore

*- What kind of differences can be observed between the policies, the management practices and the user conflicts in two important urban woodlands in The Netherlands and Norway?*

To make the main question operational it is divided into two underlying questions.

The first is to get to know the real or possible user conflicts in urban woodlands:

*- Which conflicts do users of urban woodlands experience?*

The second issue is how the urban woodlands are managed and how management tries to influence user conflicts in urban woodlands.

*- How does urban woodland management address user conflicts?*

The answers to the research questions will be brought together in the discussion to form an answer to the main research question.

This Chapter has given an introduction to urban woodlands, user conflicts that arise in urban woodlands and the need for and methods of managing user conflicts. The next chapter will focus on the methods used to gather the information needed to answer the research questions. Chapter 3 will then discuss national laws and policies and local government policy, forming the institutional context of urban woodland management in the two case areas. Chapter 4 will explore the opinion of people from interest or advocacy groups regarding the policy of the municipalities, i.e. the informal management context, and their vision on conflicts in outdoor recreation. Chapter 5 will thereafter go into the results of the questionnaire, seeking to shed light on conflicts in urban woodlands from the perspective of urban woodland users. Chapter 6 will then discuss the results of the presented data in light of the interaction of user conflicts and urban woodland management. And what they mean. Chapter 7 will conclude by giving the most important findings of this study.

## 2 METHODOLOGY

This research focuses on conflicts between users of urban woodlands and how management at the municipal level deals with those conflicts. The results of two cases will be compared to make a statement about urban woodland management under different conditions.

The topic requires a holistic methodological approach that is able to incorporate multiple sources of data. The data used are interviews with key informants and other actors, official documents (i.e. formal policy) and an inventory of the conflicts that users experience. These are qualitative methods, collected with a questionnaire with a quantitative character to provide supporting data. Silverman (2009) mentions in that regard that quantitative methods can sort ‘fact from fancy’ (p. 110).

### 2.1 CASE STUDY

This study focuses on user conflicts of urban woodlands and related management in two areas. The areas chosen for this research are Norway and The Netherlands based on the hypothesis that the difference in population density between the two countries has implications for user conflicts and management of urban woodlands. Higher population density gives rise to higher visitor pressure on nature in general and consequently differences in management. It is beyond the scope of this chapter to go into the details of the case areas, they will be further discussed in the beginning of chapter 3 and a map of both area can be seen in Figure 5

User conflicts and related management of urban woodlands take place in a complex web of interaction of policies and societal processes. They are therefore contemporary events and researching them does not need to be nor cannot be done in a controlled environment. A case study allows for study objects being studied in their context. Schramm (1971, p. 17) says in this regard that “the essence of a case study, the central tendency among all types of case study, is that it tries to illuminate a decision or set of decisions: why they were taken, how they were implemented, and with what result”.

Statistical generalisation, a generalisation of the whole population (or management of all urban woodlands), is not possible from a study involving only two sample cases (Yin, 2009). It does, however, allow for analytical generalisation. It is therefore possible to make statements about the interaction of pressure, conflicts and management in and of urban woodlands, based on the two cases that are studied.



This study is an holistic, multiple-case study. A holistic approach means that the approach takes into account the context of the phenomenon under study. The context is such an important factor because the 'local' situations are manifestations of 'global' conditions (Crang & Cook, 2007, p.16). Thus the phenomena of user conflicts on a local scale are influenced by government intervention on a higher scale. Doing a case study allows to study the government decisions and its effect on user conflicts in depth and with multiple sources of data.

## 2.2 DOCUMENT STUDY

National, regional and local laws and regulations form the institutional context for forest management practises. The formal policies will be used in this research to understand the context of urban woodland management.

National laws that affect outdoor recreation will be discussed first, followed by national policy plans that have nature as focal point. Local policy plans regarding spatial organisation and outdoor recreation will close the document study.

The goal of this part is to briefly describe the context of urban woodland management in both case areas.

## 2.3 IN-DEPTH INTERVIEWS

For the understanding of both formal laws and regulations and informal practices on the municipal level and an understanding of the complex relationships in urban woodland management between forest managers and the users, it is needed to talk to key informants. Or as Fairclough (2003, p. 15) puts it: *“to research meaning-making, one needs to look at interpretations of texts as well as texts themselves, and (...) how text practically figure in particular areas of social life”*. Key informants are government officials who are burdened with the management of the urban woodlands in the case areas. People form interest groups can offer additional information about the management of the municipalities and how they participate in it.

According to Crang and Cook (2007, p. 61), interviewing is a *“Primary means through which ethnographic researchers have attempted to get to grips with the contexts and contents of different people’s everyday social, cultural, political (...) lives”*. Yin (2009, p. 107) Meanwhile, acknowledges that in-depth interviews can play a crucial role in case studies.

In-depth interviews with key respondents allows for the opportunity of the respondent to give information to the researcher thereby giving crucial insights and information about processes. Yin (2009, p. 107)) mentions that *“Key informants are often critical to the success of a case study. Such persons provide the case study investigator with insights into a matter and also can initiate access to corroboratory or contrary sources of evidence”*.

The Key informants in this study are government officials who have insights into management of urban woodlands as well as insight into the conflicts that have occurred and finally insights into how management reacts to those conflicts.

Another group of interviewed persons are interest groups that are involved in some way in the management of the areas. The selected groups were found using generally accessible information such as government documents and internet sites. Key informants have also identified persons and groups of interest.

## 2.4 QUESTIONNAIRE:

An important part of this research is the (potential) user conflicts as experience by the users of urban woodlands themselves. This is studied by surveying users of the two case study areas. The goal for the survey is to get a description of the user activities, attitudes and preferences, as well as an insight into how the users experience possible conflicts in the urban woodlands.

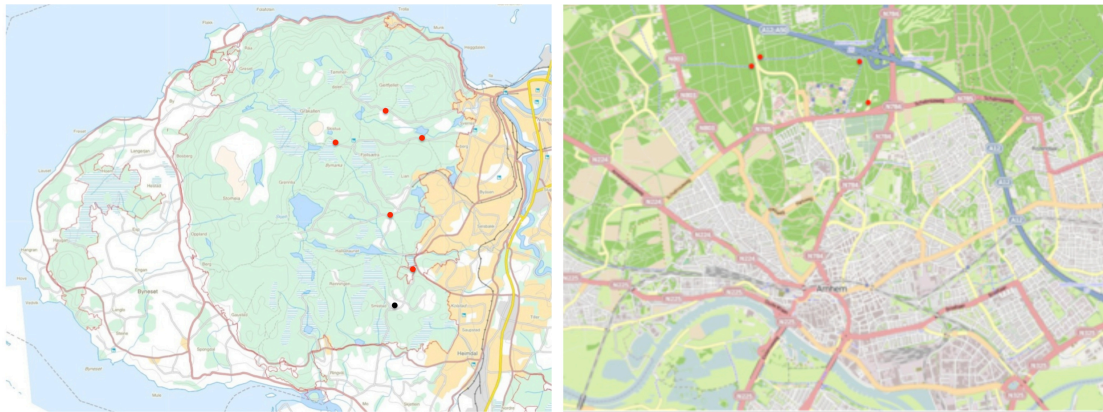
Sampling of respondents for the questionnaire is based on non-probability sampling. Non-probability sampling is a technique in which *“researchers select their sample elements not based on a predetermined probability, but based on research purpose, availability of subjects, subjective judgement, or a variety of other non-statistical criteria”* (Guo & Hussey, 2004, p. 2).

A problem with nonprobability sampling is that it is more difficult to make a statistical generalization. According to Guo & Hussey (2004) however, that is not a problem if statistical generalization is not the focus of the study. The questionnaire will be used to come to conclusions about the respondents, it should be kept in mind that the outcome only refers to the respondents and are not measures of the whole population.

The sampling procedure used can be further specified as convenience sampling. The questionnaire was done using answering boxes that were set up where users could fill in the questionnaire themselves. The advantage of this method is that the sample can be taken over a

greater stretch of time. The biggest disadvantage is that there is no control of which type of users fill in the questionnaire, or rather which users do not fill in the questionnaire. The assumption is that it is less likely for a horse-back rider to fill in a self-registration box than for a hiker. That has been minimized by placing the answering boxes at entranceways and parking places where there is the biggest chance that users have to stop.

Figure 5 shows a map of Trondheim and Arnhem respectively. The red dots indicate where self-administered questionnaire boxes were placed. A sign on the boxes noted the request for help with the research in exchange for a stake in a draw.

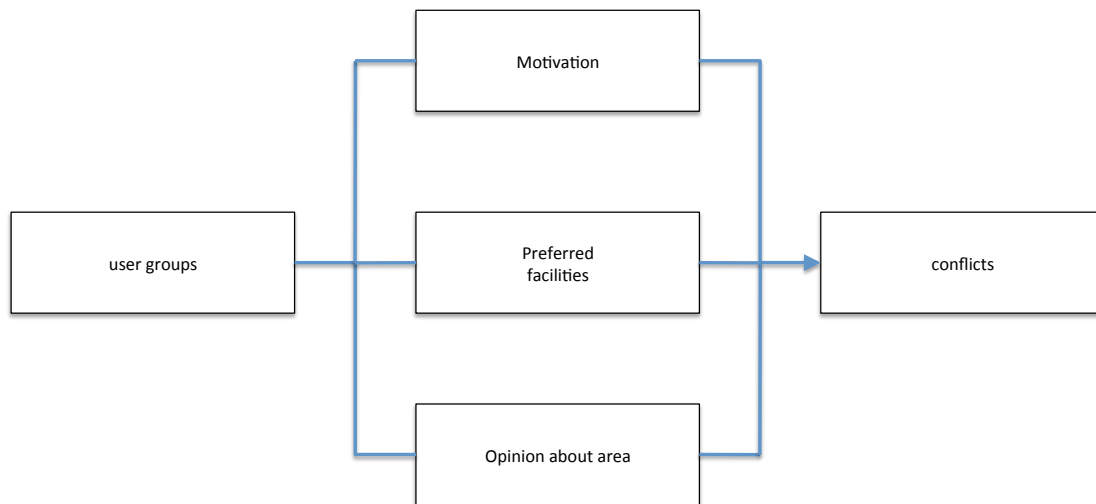


**Figure 5: Location of self-registration boxes in Trondheim and Arnhem (source: Trondheim kommune, 2002; Gemeente Arnhem, 2004)**

The questionnaire had to provide a number of answers. Such as:

- What type of activity does the respondent engage in?
- What is the motivation for recreating?
- What level of facilities does the respondent prefer?
- What is the opinion of the respondent about this area?

The activity and related general questions is a way of grouping the respondent. The motivation, preferred facilities and opinion can then be compared based on different kind of groups to see what affects either of the groups the most. Figure 6 gives a schematic overview of the questionnaire



**Figure 6: Structure of questionnaire**

In order to measure motivation and preferred level of facilities, two instruments were used that have been used before in comparable research.

## **2.5 INSTRUMENTS USED**

### **2.5.1 MOTIVATION**

The recreational experience preference scale (hereafter: REP-scale) was used for measuring motivation of the respondent. This scale was developed by Driver in 1983 (Manfredo et al., 1996) and it measures the “desired goal states that are attained through participation in leisure” (Manfredo et al., 1996, p.188). The original scale has been transformed into a scale with five classes with four questions each. The selection of items and questions was inspired by the original questions of Manfredo et al. (1996) and Kleiven (2009). Each question could be answered on a five-point likert scale, with 1 representing ‘Strongly Disagree’, 3 representing ‘Neutral’ and 5 representing ‘Strongly agree’. To determine if the questions accurately metered five, distinctly different, underlying factors, the Cronbach’s Alpha of each class was calculated using PASW Statistics 18.0 (formerly: SPSS)

The questions as they were used in the questionnaire, as well as the underlying motivation measured and the Cronbach’s Alpha, are shown in Figure 7. Note that since there were two translations of the questionnaire, the Cronbach’s Alpha is calculated separately for each area. Note also that for clarity the questions are grouped together according to the motivation they are measuring, they were however mixed through each other in the actual questionnaires.

The instrument is considered to be valid if the Cronbach's Alpha is 0,7 or larger. That is to say that with a score of 0,7 the four questions can be considered to be measuring one underlying variable (Gliem & Gliem, 2003).

Figure 7 shows that the Cronbach's Alpha of the scale of the motivation 'Achievement' for The Netherlands is 0,644, but that if the item 'To develop skills/practise a hobby' would be deleted, the score would be 0,716. This shows that with removing that question from the list the instrument would be more valid in measuring an underlying motivation. There is also a good theoretical reason to remove that question as an indicator for motivation. The Dutch translation of 'To develop skills/practise a hobby' had accidentally been 'Om een hobby te beoefenen', meaning 'To practise a hobby'. This question might have been interpreted differently, and the statistics seem to support this. The question was removed from the list before further analysis was done.

After the Cronbach's Alpha had been calculated, the scores were averaged so that each motivation was represented by 1 score for each respondent. An example of this is given in Appendix B where the scores of respondent #160 are used.

Motivation		1. Please answer how much of a motivation the stated reason is for your visit. The purpose of my visit is to:			Cronbach's Alpha				
					Norway	Netherlands			
Achievement	Gain self-confidence	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0,813	0,644	total
	To be recognized for doing it	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0,769	0,513	Cronbach's Alpha if item deleted
	To develop skills/practise a hobby	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0,740	0,574	
	To be challenged	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0,813	0,716	
							0,732	0,435	
Social	To do something with the family	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0,737	0,683	total
	To be with friends	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0,741	0,649	Cronbach's Alpha if item deleted
	To be around people with the same interests	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0,671	0,550	
	To meet new people	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0,669	0,548	
							0,677	0,699	
Nature	To Experience landscape and nature	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0,773	0,818	total
	To get a feeling of belonging in nature	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0,650	0,742	Cronbach's Alpha if item deleted
	To be in a natural setting	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0,771	0,796	
	To experience Norwegian/Dutch landscape	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0,707	0,774	
							0,755	0,776	
Relaxation	To relax mentally	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0,756	0,720	total
	To gain perspective on life	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0,666	0,644	Cronbach's Alpha if item deleted
	To get away from noise and pollution	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0,739	0,745	
	To get away stress	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0,725	0,645	
							0,671	0,595	
Exercise	To get a workout / exercise	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0,819	0,780	total
	To improve my health	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0,771	0,791	Cronbach's Alpha if item deleted
	To be physically active	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0,800	0,690	
	To get in shape	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0,792	0,756	
							0,719	0,659	

Figure 7: Cronbach's Alpha of different motivations and the Cronbach's Alpha of the scale if a particular item was deleted

### 2.5.2 PURISM

The preferred level of facilities was measured by purism. The idea for a purist-scale was developed in the US wilderness act in 1960 ( Vistad & Vorkinn, in press) and in its current form measures the degree of purism in respondents. The idea behind the Purist scale is that if people are more purist, they want fewer facilities and fewer other people in their recreational environment. One of the potential consequences is that a more purist respondent is less tolerant to other users and is less inclined to want to have signs and designated paths.

The Purist scale used here is copied from the one used by the Norwegian institute for nature research (NINA). NINA has used this scale in several other studies, using a standardized scale gives a good possibility to compare research done in different locations (Vistad & Vorkinn, in press). Regarding the question of two different locations and countries with perhaps a different overall context, it is worth mentioning that to measure purism with a scale is to assume that the scale is independent of setting in which the question is asked. The questions of the purism scale measure purism by asking how different factors (social and physical) would influence a trip in the 'ideal environment'. By asking for the 'ideal environment' it is intended to measure the respondents purism, separate from the area they are in.

The Purist scale consists of eight questions, each measured on a seven-point likert scale, ranging from 1, strongly detract, to 7, strongly add. The questions can be seen in Figure 8.

The Cronbach's Alpha was calculated for these eight questions to see if these questions together reliably measure one underlying variable, which is purism. The results show that with a Cronbach's Alpha of 0,841, the instrument is reliable measuring purism.

11. Imagine that you are going on a trip for several hours in forests or mountain areas in the summer. Imagine that the area is just the way you prefer it to be - the "ideal area" for a trip into nature									Cronbach's Alpha if item deleted		
Would the following items detract or add to your experience of the "ideal" trip?	Strongly Detract		Neutral		Strongly Add		Norway	Netherlands	All		
... there are plain campsites with toilets, firewood, fire rings and bins	1	2	3	4	5	6	7	0,744	0,773	0,827	
... you can dispose litter in bins along the way	1	2	3	4	5	6	7	0,740	0,761	0,829	
... there are marked trails in the area	1	2	3	4	5	6	7	0,755	0,737	0,810	
...trailheads and crossroads are well signposted	1	2	3	4	5	6	7	0,764	0,755	0,819	
... boardwalks are provided in wet marshes	1	2	3	4	5	6	7	0,755	0,771	0,818	
... there are huts/ lodges where food are served and where you can stay overnight in made beds	1	2	3	4	5	6	7	0,751	0,748	0,805	
... you meet a lot of other outdoor recreationists during the trip	1	2	3	4	5	6	7	0,764	0,765	0,816	
... you can hike for hours without meeting anyone else	1	2	3	4	5	6	7	0,831	0,782	0,847	
<b>Cronbach's Alpha for the total purist-scale</b>									0,788	0,785	0,841

**Figure 8: The Purist-scale with analysis of reliability by Cronbach's Alpha scores**

Because the Purist-scale is reliable in measuring an underlying variable, one score can be calculated that represents the score of a respondent on the purist-scale. The questions one to seven are rather measuring non-purism than purism, the higher a respondent scores the less purist he is. In order to transfer the scale into one where a higher score means a more purist attitude, the scores of the first seven questions have to inverted before calculating the average. Appendix C shows the answers of respondent #160 and the purist score of that respondent.

One additional way to test the validity of the purist scale is to do a factor analysis of the 8 questions. Kinnear & Gray (2010) say that a "factor analysis is a set of techniques designed to enable the researcher to classify data on several variables with reference to a smaller number of supposed underlying dimensions or factors" (P. 881). A factor analysis essentially measures how well the questions measure one underlying variable, namely purism. The results are shown in Table 1. The analysis (PCA, direct Oblimin rotation, Eigen value > 1) shows that there are two components identified, one very convincingly with an eigenvalue of 3,9 (the original eigen value of a question is 1) and one with an eigenvalue of 1,0. A direct Oblimin rotation was used because the factors are correlated. The analysis showed that the correlation is ,376.

**Table 1: Total variance explained and pattern matrix of factor analysis on the purism scale**

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	3,876	48,452	48,452	3,876	48,452	48,452	3,522
2	1,031	12,882	61,334	1,031	12,882	61,334	2,341

	Component	
	1	2
... there are plain campsites with toilets, firewood, fire rings and bins	,692	-,020
... you can dispose litter in bins along the way	,835	-,219
... there are marked trails in the area	,756	,138
...trailheads and crossroads are well signposted	,730	,084
... boardwalks are provided in wet marshes	,644	,185
... there are huts/lodges where food are served and where you can stay overnight in made beds	,434	,567
... you meet a lot of other outdoor recreationists during the trip	,293	,657
... that you can go miles without meeting anybody	-,137	,866

Upon closer study the type of questions can explain the identification of two factors. The first five questions are more related to facilities, while the last three questions are more about the social factor of ‘the ideal area’. Clark & Stankey describe how recreational opportunity factors consisted of: (Clark & Stankey, 1979, p. 12)

- access
- other non-recreational resource uses
- onsite management
- social interaction
- acceptability of visitor impacts
- acceptable level of regimentation

These factors can be further divided into physical properties, management and social environment. The Purism scale used here measures “physical facilities and social conditions” (Vistad & Vorkinn, in press, p. 1) and was found to be “relevant, valid and reliable” (p. 1).

Looking at the factor analysis on the one side and the Reliability analysis with Cronbach’s Alpha on the other, it is safe to assume that the eight questions together are reliably measuring the degree of purism of the respondents.



### 2.5.3 EDUCATION

Education level was measured by asking for the respondent's highest obtained education. Due to culture-specific circumstance this scale was different for the two countries and needed to be normalized. Consequently the scale for The Netherlands needs to be converted from seven classes to five classes. Appendix A gives a schematic overview of the respective education systems in Norway and The Netherlands and a figure showing the normalization of the education levels of The Netherlands to match those in Norway

Another issue with this question was that young respondents still were attending elementary or lower secondary school and reported so. These respondents are given the score based on the school they attend since a very high percentage of the population of both countries finishes at least lower secondary school (and are obligated to attend school until the age of 16, normally the age at which they complete lower secondary school).

### 3 NORWAY AND THE NETHERLANDS: CASE AREAS

Conflicts can arise due to goal-interference, as explained in the introductory chapter. Potential goal interference between two users is higher if user pressure is higher. The aim of this study is to investigate how user pressure, urban forest management and user conflicts are interrelated. The hypothesis is that higher population density leads to higher user pressure, which in turn leads to a higher level of conflict, leading to stricter management regime and thereby reducing conflict levels (see also Figure 4 in the introduction). Two countries were chosen for this case study that are on opposite ends of the scale when it comes to population density. These countries are Norway and The Netherlands. An area was selected in each country to be the subject of the case study, Bymarka in the municipality of Trondheim in Norway and the forests north of the city of Arnhem, in the municipality of Arnhem in The Netherlands.

Norway and The Netherlands have a different cultural background when it comes to land use and population pressure. The population pressure and the geographical build-up of the countries have created a difference when it comes to *common lands*.

Hoppenbrouwers (2002) discusses the tradition of commons in The Netherlands. In dutch, he mentions, the '*commons*' never refer to common pastures on open fields but rather to common waste land (p. 87). These were needed for grazing and the supply of heath sods that functioned as a fertilizer (p. 90). The name for the organisation that held the title to the land as well as the lands itself is '*Marken*', very similar to the Norwegian word '*Marka*'. To say that the lands were common does not mean owned by the public, rather the lands were owned by a lord or the state (p. 94). The lords, however, lost interest over time and the managements of the lands became virtually autonomous. After the 1800's the partitioning of common wastelands started. Hoppenbrouwers (2002) mentions that the grounds for this are not completely clear, for example "*the liberal ideology of the non-peasant*" (p. 106) might invoke the idea of splitting up land to the peasants, early socialist ideas about a "*spokesman for the mass of small peasants*" (p. 106) could have counteract such trends. Most important in the end, according to Hoppenbrouwer, were agronomic and economic motives.

Nordic Common lands, in contrast to the Dutch interpretation, refers to "*vast areas of wilderness and forests*" (Sundberg 2002, p. 173), and common used meadows besides

that. According to Sundberg, referring to the Swedish case, open access nowadays is usually for recreational purposes and *“these activities are in accordance with old traditions and rights (...) which are not regulated in any formal law”* (p. 173). Although Sundberg mainly refers to the Swedish system as valid for the Nordic system, she has a very valid and interesting point when she points out that *“The most obvious differences between the Nordic countries and the North-western European continent are those of ecology and demography. Simply stated, the Nordic countries have been sparsely populated and the resources of forests and wilderness areas have been large and rich. (...) consequently conflicts (...) seldom occurred.* (Sundberg, 2002, p. 173). That, according to Sundberg, can explain why the idea of common rights in the sense of freedom to roam, still exists in the Nordic countries.

Figure 9 shows the relative location of Norway and The Netherlands on the European continent (countries shown in colour).



**Figure 9: Geographic location of Norway and The Netherlands in Europe (source: CIA, 2011, modified by author)**

The population density of the two countries differs greatly; Table 2 shows the area, inhabitants and population density of the two countries.

Table 2: Population density and land surface of Norway and The Netherlands (sources: SSB, 2011; CBS, 2011)

	Norway	The Netherlands
population	4 937 000 (april 2011)	16 672 238 (march 2011)
Land area	305 476 (2010)	33 729 (2007)
population density (p/km <sup>2</sup> )	16	494

There is an obvious difference in population size and land area, and therefore in population density.

The area used in Norway is Bymarka in Trondheim. Trondheim is a city in middle Norway, located next to the Trondheim fjord. The city has more than 170000 inhabitants (Trondheim Kommune, 2011). Trondheim is a rather isolated city with other similar big cities in Norway being several hundreds of kilometres away. Figure 10 shows a map of Trondheim and its surrounding forests. Trondheim has several urban woodlands, of which Bymarka is most prominent. Bymarka is enclosed by the city on one side and the fjord and rural areas on the other.

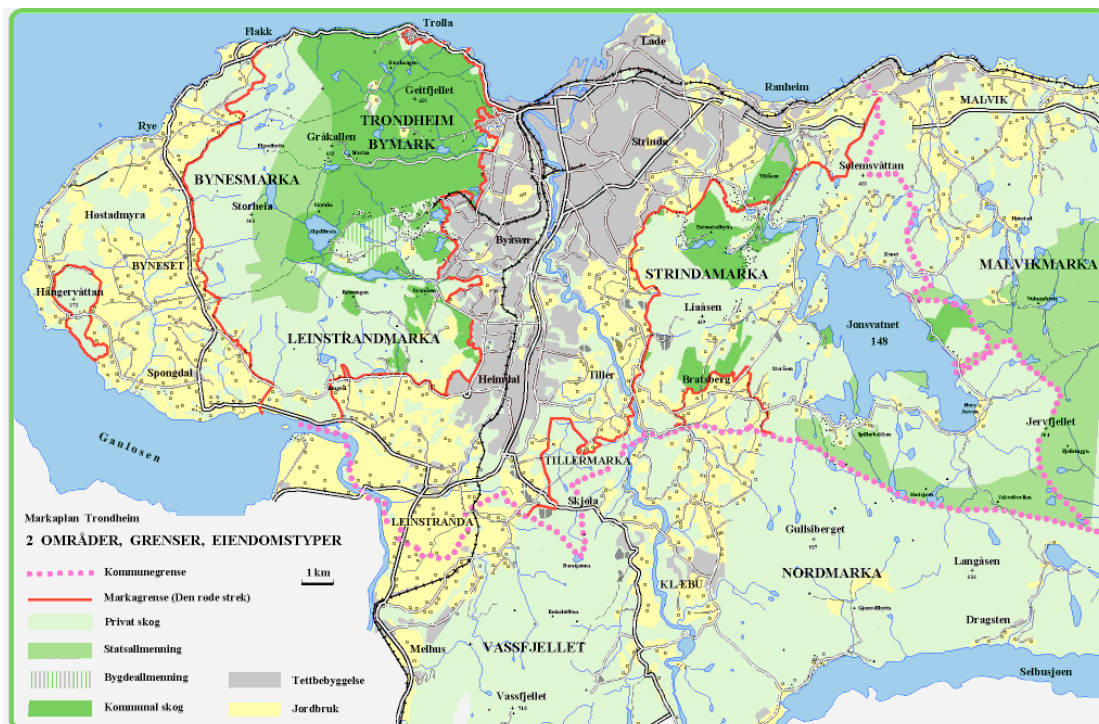


Figure 10: Urban woodlands in the municipality of Trondheim (Trondheim Kommune, 2002)

In Trondheim, people have parks in the city and larger nature areas on a short distance from the city. The forests chosen assumingly attract people who want to go on a short trip into a natural area (more natural than a city park)

Part of Bymarka is owned by the municipality, the rest is owned by private landowners, predominantly local farmers, and the state.

The case area in The Netherlands is the city of Arnhem. Arnhem is a city in The middle of the Netherlands. It is located close to the biggest forested area which is also the largest land-based nature area in The Netherlands, called 'De Veluwe'. The city knows a wide variety of parks and forests and was chosen in 2009 as the greenest city of Europe (Entente Florale Europe, 2009). Because this research focuses on urban woodlands it was important to choose a forest near the city as a case area. The forest area chosen is Schaarsbergen forest and Waterberg. These lie north of the city. The city itself has scenic parks and a large nature reserve can be found close by, similar to Trondheim. Figure 11 shows a map of Arnhem.

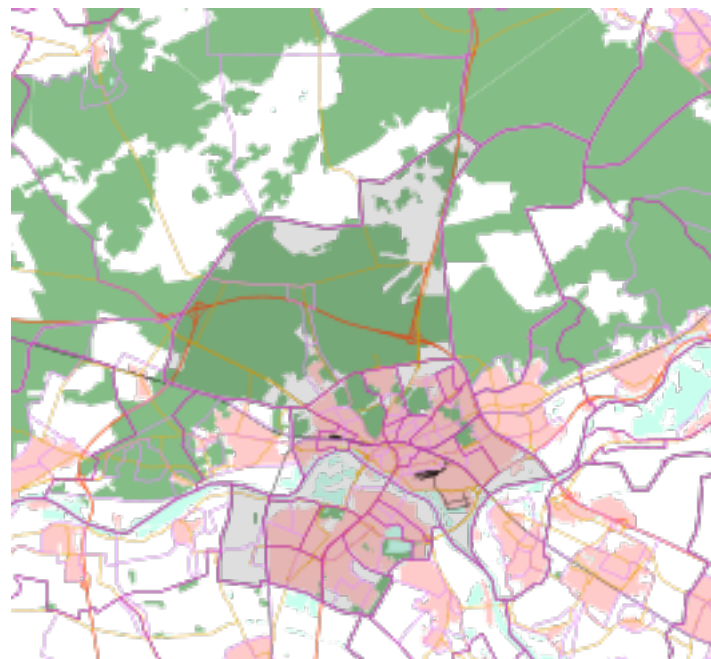


Figure 11: Map of Arnhem and Surroundings (source: Gemeente Arnhem, 2004)

Land around Arnhem is predominantly owned by the municipality, and by large nature protection NGO's Only a small part is privately owned.

Elands et al. (2010) and Vistad et al. (2010) show that there are big differences in the quality of the infrastructure for recreation between Norway and The Netherlands (Figure 12).

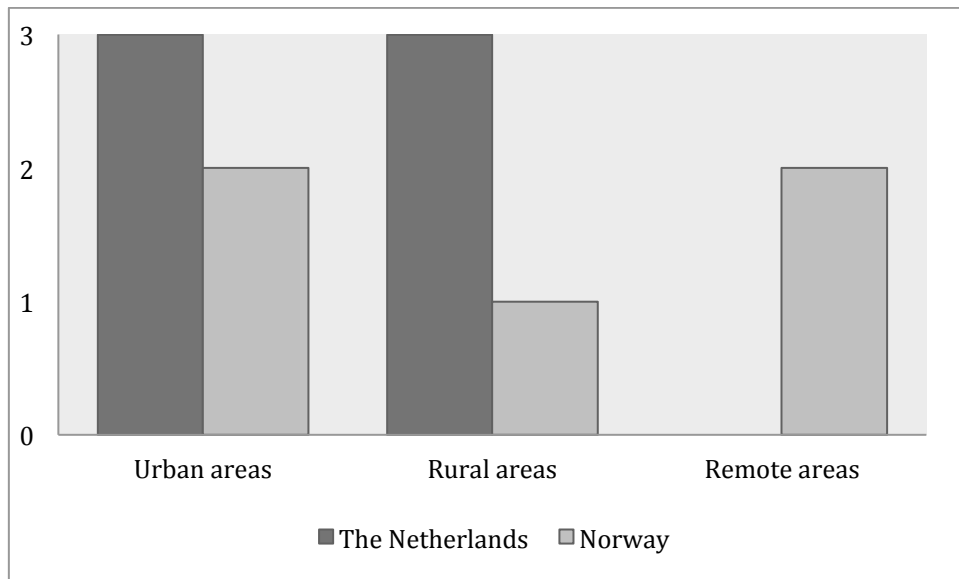


Figure 12: Quality of infrastructure for recreation and nature-based tourism (no bar = non-existent, 1=unsatisfactory, 3=excellent) (source: Elands et al., 2010; Vistad et al., 2011, edited)

This difference in infrastructure outlined above are arguably also visible in the case areas. Figure 13 shows pictures of the recreational infrastructure in Arnhem and Trondheim, respectively. In the picture from Arnhem it shows that there are three paths, one for horseback riders, one for forestry machines and walking and one for people biking. In addition Figure 14 shows the signs that are present in the areas. In Arnhem, there are signs for walking, Nordic walking, horseback riding, mountain biking and normal biking visible within this one picture. Trondheim, on the other hand, has much fewer signs, mainly information boards at the trailheads.



Figure 13: Infrastructure in urban woodlands of Arnhem (left) and Trondheim (right).





Figure 14: Signs for activities in Arnhem (left) and information sign in Trondheim (right).

The difference in quality of infrastructure for outdoor recreation can be a reaction to the level of user conflicts that arise in the densely populated country. This chapter will now go into the legal and planning context of the case areas.

### 3.1 NORWAY

#### 3.1.1 NATIONAL LAWS AND POLICIES

- Outdoor Recreation Act 1957

Norway has had a long tradition of freedom to roam that has been laid down in law in the Outdoor Recreation Act of 1957 (Regjeringen, 1996). The purpose of the act is to “*protect the natural basis for outdoor recreation and to safeguard the public right of access to and passage through the countryside and the right to spend time there (...)*”.

The Outdoor Recreation Act stipulates the almost unrestricted access to uncultivated lands and under some conditions to cultivated lands as long as consideration is taken to the environment. A number of passages that show this emphasis are (Regjeringen, 1996, emphasis added):

- “*Any person is entitled to access to and passage through uncultivated land at all times of year, provided **that consideration and due care is shown.***” (§2)
- “*the following are considered to be cultivated land (...), areas where public access would **unduly hinder the owner or user***” (§1a)
- “*It is permitted to park on uncultivated land (...), provided that this **does not cause any significant damage or inconvenience***” (§4)

- *Any person has the right to bathe in the sea (...) provided that this takes place at a reasonable distance from an inhabited house (cabin) and **without unduly hindering or inconveniencing others.*** (§8)
- *In uncultivated areas, it is not permitted to use sites for purposes such as mentioned in the preceding paragraph [picnicking, sunbathing, staying overnight etc.] if this **unduly hinders or inconveniences others*** (§9)

This national law provides judicial security for people to enjoy outdoor recreation, as long as activities are carried out within carrying capacity of the environment.

- Nature Diversity Act 2009

Besides the Outdoor Recreation Act there is an act to protect nature diversity (Regjeringen, 2009), the purpose of the Nature Diversity Act is to “*protect biological (...) and ecological processes through conservation and sustainable use, and in such a way that the environment provides a basis for human activity, culture, health and well-being (...)*” (§1). The act is concerned with the protection of nature and biodiversity and in such mentions the possibility of total restriction of access or passage for nature reserves for example. In the case of national parks it is mentioned that regulation shall “*protect the landscape (...) from development (...) and other activity that may defeat the purpose of protection, and ensure that people can enjoy an undisturbed natural environment*” (§35). Access and passage in accordance with the outdoor recreation act (Regjeringen, 1996) should be allowed and can only be restricted in delimited areas.

The nature diversity act is aimed at nature protection but also takes into account the purpose of natural areas for outdoor recreation and general enjoyment by people.

- Planning and Building Act 1985

Planning on the local level is regulated through the spatial zoning plans. The zoning plans are legally binding for citizens and government. The legal basis for zoning plans is ‘the planning and building act’ (Regjeringen, 2005). This act stipulates that the Municipal master plan (Kommuneplan) should “*as far as is necessary (...) referring to land use (...) designate: (...) Agricultural areas, nature areas and areas for open-air recreation*” (p. 16). In the same way it is stipulated that a zoning plan “*shall designate (...) Public outdoor recreation areas: Parks, hiking trails, camping sites, areas used for play and sport (...)*” (p. 19). It is furthermore noted that it is not allowed to combine the categories ‘open air recreation’ and ‘nature conservation’ with ‘agricultural areas’.



The planning and building act considers outdoor recreation as an important part of land use. The designation of it as a separate category can have an effect for zoning plans on the municipal level.

### 3.1.2 LOCAL LEVEL: TRONDHEIM

The municipality of Trondheim has a zoning plan called 'Kommuneplan 2007-2018, arealdel 2007-2018' (hereafter: Arealplan) and a designated plan for the outdoor recreation areas around the city called 'markaplannen' (hereafter: markaplan).

- Arealplan

The Arealplan of Trondheim contains decisions taken by the municipality, as well as maps visualizing those decisions. These are legally binding to the municipality and its citizens. The Arealplan is a zoning plan that describes the destination for all the land within the borders of the municipality. The Arealplan does so by providing a map of Trondheim showing what designation the land has, and by giving rules for types of land as well as procedures that must be followed. Finally the Arealplan makes clear what the intention of the Municipality is for different areas.

In the Arealplan, it is mentioned that present green-structures are areas that are regulated as free recreation zones or as special zones for outdoor recreation and climate protection (Trondheim kommune, 2007, p. 5). Besides that, future greenstructures include areas that are important for landscape, biodiversity and recreation (p. 5).

The Arealplan also includes so-called 'LNF-areas'. LNF stands for 'Landbruk, Natur og Friluftsområder' or 'Forest and Agricultural land, Nature and outdoor recreation areas'. Within LNF areas, construction and other activities are allowed as long as they are related to the local land use (Trondheim kommune, 2007, p. 5). The name of this type of area indicates that outdoor recreation and nature are closely linked in these areas. The Markaplan of the municipality of Trondheim (Trondheim Kommune, 2003) says that most of the marka-areas around Trondheim are designated as LNF-areas (p. 11).

Construction of buildings or infrastructure needs to be done in accordance to surrounding environment. There are certain areas in the municipal natural and green structures that are of big importance and construction is not allowed in those areas

(Trondheim kommune, 2007, p. 11). It is, however, not clear how these rules affect recreational facilities.

- Markaplannen.

The Municipality is obligated by law to establish a kommuneplan with an Arealplan. Trondheim has nature areas within the borders of the municipality; these areas are called 'Marka'. The Marka's are large natural areas, mostly consisting of tree-cover, with recreational facilities including some, often old, buildings.

The policy for the marka is written out in the plan for the marka, called 'Markaplan'. The subtitle for this plan is zoning plan for the marka-areas (Kommunedelplan for markaområdene) (Trondheim kommune, 2002). The Marka is a Norwegian concept for city forests that are intensively used for recreation. The Markaplan is clear in this when it sums up the vision of the municipality and the markaplan as being 'Outdoor recreation for joy and lust for life' with (Trondheim kommune, 2002, p. 6):

- environmental friendly activities in the marka
- facilities that maximize outdoor experience and protect biodiversity
- actions in the marka that support outdoor recreation and environmental values

Outdoor recreation is an important part of the marka and for the municipality; the plan states that outdoor recreation is the central theme in the markaplan (Trondheim kommune, 2002, p. 7). The plan should be a guideline for management of outdoor recreation in the 20 years after 2003 (p. 9).

The basis for making outdoor recreation an important topic, and the obligation to do so, is the Outdoor Recreation Act (see Regjeringen 1957) of the central Norwegian government, and the purpose of the act to ensure that everybody can enjoy nature and outdoor recreation as a healthy and environmentally friendly activity is ensured and developed (Trondheim kommune, 2002, p.10, p. 50).

The Markaplan acknowledges the existence of conflicts between different user groups. It does so firstly in relation to an evaluation of the previous markaplan (Trondheim Kommune, 2002, p. 13) and secondly in the ten points of attention for management in the future (p. 47). The most important use for marka is for use as an area for outdoor recreation. This is however not the only interest in the marka, other important interests are amongst others protection of biodiversity, cultural values, sports and other physical activities such as horseback riding and mountainbiking (p. 14). The municipality tries to

combine these different interests by holding on to a sustainable level of activities on the one hand (p. 48, p. 54), and by regulation through different paths and signs on the other (p. 36). The Markaplan mentions that it is important that all users and activities are considered, but that not all paths or trails are fit for all activities and that therefore 'horsebackriding and biking should be limited on those trails' (p. 36). The separation of activities or regulation of activities to certain trails is ideally done by positive stimulation rather than regulation by law (p. 45). This is a distinction between the two studied countries, as later will be underlined by the description of local policy in The Netherlands. The point of regulation is that the whole area can be enjoyed by people with different interests and activities, so that "*friluftsliv and sports go hand in hand*" (p. 51, p. 59)

For management of the marka the municipality is planning to set up a council for the marka.<sup>1</sup> This council is made up of representatives of interest groups. By this the municipality hopes to initiate dialog with important parties, and to be able to make use of their local knowledge, resources and social engagement (p. 63). Participation can help decision-making (and implementation) regarding the marka because interest groups can be advocates for the wishes of their constituency or for the interests they represent. The municipality's intention is to bridge the gap with citizens so opinions and information can be shared between municipality and civilians. The municipality will adjust the management of the marka to the wishes of the people that use it, making it important for the citizens to express their desires (p. 66).

The municipality intends to distinguish between trails for different interests, the map from the Markaplan however shows little separation of paths or the designation of trails for distinct uses such as biking, horseback riding and walking for example. The map is included in appendix D.

The Markaplan is part of multiple policy plans of Trondheim that together constitute the policy of the municipality of Trondheim regarding public space and municipal green areas. The aim of this research is to look into the legal and political context of the management of Bymarka. It is clear from the sources that have been used here that outdoor recreation has a strong position within the policy of the municipality of Trondheim.

---

<sup>1</sup> In the Markaplan from 2002 the municipality is planning to set up a council for the marka. This council has been put into place at the moment of writing (2011) and representatives of this council have been interviewed to get insight into management practices, discussed in Chapter 4.

## 3.2 THE NETHERLANDS

### 3.2.1 NATIONAL LAW AND POLICIES

The Netherlands had a law on outdoor recreation until 2008 (Wet Openlucht Recreatie). This law pertained only to overnight stays (LNV, 2002). The law has been abolished in 2008 (Eerste kamer der Staten Generaal, 2005) upon which the regulation of the subjects regulated under the law have been transferred to the local level.

Other access to lands is not regulated by law but rather prohibited. The applicable laws protect flora and fauna rather than giving rights to citizens. Underlying this is the fundamental right of property. There is no right of access or passage to uncultivated lands, but they are only accessible with permission. This permission is indicated in most natural areas and forests by a sign, shown in Figure 15. These signs most commonly stipulate that it is allowed to walk on paths between sunrise and sunset, with dogs on a leash. All else is not allowed based on the law, referenced to in the left-corner of the sign, that states that

*He who, without legal right to do so, is present at another person's land of which the access has been forbidden in a clear way, will be punished with a fine (Justitie, 2009, article 461, translation by author).*



Figure 15: sign indicating permission to access the forest of 'Schaarsbergen'

Other laws that pertain to areas for outdoor recreation are the following:

- Boswet (Forest law: LNV, 1998): does not specify any role of outdoor recreation in forests but is concerned with the legal rights of landowners (pertaining to forests).
- Natuurschoonwet 1928 (Estate law 1928, Financiën, 1928): law providing tax exemptions for owners of estates who open up their land for public recreational use through a minimum amount of pathways per hectare, with rules for the minimum size of an area.
- Natuurbeschermingswet 1998 (Nature Conservation Act 1998; LNV, 1998): The Nature conservation act is primarily intended to protect nature against harmful influences. It is stated in the introduction that the law is intended to give a legal basis to protection of nature and landscape (LNV, 1998). It regulates the appointment of designated areas, procedures to follow in order to protect them and who are responsible. (LNV et al., 2010).
- Wet Ruimtelijke Ordening (Planning law, VROM, 2006): This law regulates planning procedures and gives a legal basis to zoning plans and ascribes responsibilities concerning planning and spatial organisation.

The description of the most common laws related to nature, forests and the environment shows that they are little concerned with establishing a right for citizens to be able to recreate outdoors.

- People for nature, nature for people

The national government also uses policy plans and visions to govern. One such a document is the document *Mensen voor natuur, natuur voor mensen* (LNV, 2000) or 'People for nature, nature for people'. In this policy plan it is stated that the government chooses for a more inclusive nature policy for the future in which the significance of nature for society is represented more (LNV, 1990, p. 17). The nature does not only have an intrinsic value but also value as a resource and as a place for experience (p. 17), this is comparable to the three values De Groot et al (Figure 2) mentioned; Ecological values, economic values, and socio-cultural values.

- Nature policy plan

An important policy plan for nature policy in The Netherlands is the nature policy plan of 1990 (Natuurbeleidsplan; LNV 1990). This plan is the basis for the formation of an ecological infrastructure. The aim is to expand and connect existing 'islands' of natural areas, thus creating a system of habitats and corridors. This is in line with the European

Natura2000 system and includes the habitat directive and the birds directive of the EU. This policy plan acknowledges the importance of nature for society by stating that the four aspects that need to be taken into account when establishing priorities in the protection of nature are (LNV, 1990, p. 7):

- ecological values
- geo-physical values
- culture-historical values
- experience values

Outdoor recreation does not have a strong legal basis on the national level in The Netherlands, although policy plans clearly indicate the ambition of the government to make the experience of nature an integral part of the execution of nature protection and development.

The only legally binding plans on a local level are however not national policy plans but local zoning plans. Dutch spatial and planning laws stipulate the rules for how and when these need to be established, and the legal basis they have. Outdoor recreation and citizens rights are established in the local zoning plans that always have to comply with national laws.

### **3.2.2 LOCAL LEVEL: ARNHEM**

Contrary to the Norwegian situation, there is no national law that provides the freedom to roam in The Netherlands. The one law that in name was concerned with outdoor recreation had as its primary focus the rules for overnight staying and was abolished in 2008 upon which the responsibilities were transferred to the municipalities. The municipalities have a legally binding zoning plan that dictates what activities are allowed in which places, comparable to the legal status of Norwegian zoning plans.

- Bestemmingsplan

The zoning plan of the municipality of Arnhem is divided into several areas. The zoning plan for the area in which the case area is located is called 'Bestemmingsplan Buitengebied Arnhem Noord 2007' (Gemeente Arnhem, 2007) (hereafter: Bestemmingsplan). This plan is very encompassing and detailed, this exploration is limited to the relevant chapter of forests, nature and recreation.

Outdoor recreation has low priority in this zoning plan. Part of the zoning plan, and most of the land covered by it, is a part of the biggest national park in The Netherlands; De Veluwe. Policy for this area is regional rather than local even if the only legally binding zoning plan is the local zoning plan. The zoning plan mentions that in previous or present policy plans from the national government, development was allowed but with special care to the environment. The environmental factors are the limiting factors for recreational facilities (gemeente Arnhem 2007, p. 5, p. 8). Local plans however also stress the need for improvement of the recreational facilities (p.15). Recreational facilities give a good possibility for the practise of a sport. Forests or other natural areas are however not mentioned when it comes to the municipal sport-policy (p. 31). Neither is outdoor recreation.

The Bestemmingplan mentions the importance of recreation when it mentions that tourism and recreation have shaped the area to what it is now. It continues however to say that there is a tension between protection and development of the landscape, and the recreation that is so heavily dependent upon it (Gemeente Arnhem, 2007, p. 58). This is partly due to that large areas that fall under this plan are part of nature protection areas and therefore have a strong conservative policy. On the other hand, the plan does not always distinguish between different areas; it states for example that there should be room for extensive recreation (and sustainable agriculture) but that 'natural, landscape and culture-historical values' are the determining factors (p. 103). Moreover, plans for improvement or development for recreation and tourism will be judged on the effects they have on nature, landscape and cultural history (p. 111). That statement can be out of context since there are several big attractions that qualify as recreational destinations such as a zoo and a big open-air museum which it can relate to. The plan mentions with regard to 'shared use' (recreational use of nature) that there is an acceptable level of zoning now that is in balance with natural values. Future developments or changes will however be judged on the impact they have on the environment.

The present recreation facilities are of excellent quality, which, as mentioned before, is the case for facilities for outdoor recreation in The Netherlands in general. The Bestemmingsplan mentions the importance of the area as a place to get away from the stress of the city. People are free to walk in these areas on the trails. A conflict for walkers is the roads they have to cross to get from one area to the other (Gemeente

Arnhem, 2007, p. 72). Biking routes have been established in a regional setting to establish a regional bicycle-network. According to the plan conflicts occur between peaceful users on the one hand and the more intense users on the other, this can be either fast racing bikes or mountain bikers. Routes are being developed for mountain biking to avoid conflicts with that group (p. 72).

The Bestemmingsplan puts a lot of emphasis on the consideration of environmental factors. This is in essence not necessarily fundamentally different from zoning or policy plans in Norway. But there is a noticeable difference in tone; a clear indication that environmental protection weighs heavier than recreation in the Dutch Bestemmingsplan.

- Groenplan

The green plan of the municipality of Arnhem (Groenplan Arnhem 2004-2007/2015; Gemeente Arnhem, 2004) (hereafter: Groenplan) is a plan that gives the vision of the municipality for the medium and long term. It is meant as an operationalization of more strategic plans and is meant as a guide for management of the green structure in and around the city (p.5).

The Groenplan, like the zoning plan, puts more emphasis on environmental and nature protection than it does on outdoor recreation. The summary states that the goal of the municipality of Arnhem is to maximize the landscape values, culture-historical values and ecological values of the environment by strengthening (of natural factors) and zoning, within which there should be enough space for use-values (Gemeente Arnhem, 2004, p. 5). These words clearly indicate that the recreational use of natural areas is taken into consideration, but it is subservient to environmental considerations, and moreover that environmental considerations are of prime importance.

In a description of the use values (for recreation, for harvesting, for nature protection, etc.) of the green structures the plan indicates that there is a difference between intensively used and extensively used areas and the possibility for nature protection between the two. The municipality foresees a zoning in areas according to their carrying capacity. The case-area is designated as 'walking-nature', there is no specific mention of limitations or possibilities, but it is mentioned at the more free class of 'nature to roam around in' that existing natural values may not be compromised by the roaming (Gemeente Arnhem, 2004, p. 28).



The plan does not go into conflicts between different users and activities. Activities should mainly stick to the designated paths while the infrastructure itself has points of improvement (Gemeente Arnhem, 2004, p. 44, p. 48, p. 51). Walking is however sometimes allowed everywhere (not restricted to the paths). As mentioned before it is noted that this is limited to the carrying capacity of the environment.

Like the Bestemmingplan, the Groenplan puts emphasis on protection of natural values in which recreation is allowed if it does not threaten natural (ecological) values.

- bosbeheerplan

The last plan that is relevant for the forests around Arnhem that will be discussed here is the forest plan Arnhem (Bosbeheerplan Arnhem 2002-2012; Gemeente Arnhem, 2002) (hereafter: Bosbeheerplan). The Groenplan Arnhem (gemeente Arnhem, 2004) says that the main goal according to this plan is the conservation en development of the forest. The forest meanwhile fulfils different functions i.e. nature, landscape, recreation and wood production (p. 163).

The Bosbeheerplan is the most specific plan of the ones here discussed as it only pertains to the forests north of Arnhem. The goal of this plan is to ensure conservation and development of the forest (Gemeente Arnhem, 2002, p. 3). Development means that actions are being taken to speed up the formation of a natural forest. All forests in this region are man-made, planted as a raw material, but now subject of multiple interests. Harvesting of trees still exists but is now of similar importance as other values such as nature, landscape and recreation (p. 5).

The management method that the municipality foresees for these forests is 'integrated forest management' (Gemeente Arnhem, 2002, p. 6, p. 33, p. 31, p. 26), management that takes into account all functions of the forests and acts accordingly. Pressure is being divided by zoning of activities; the intensity of use is being regulated by influencing the activity level in specific parts of the forests (p. 15, p. 27, p. 32, p. 37). There are controls to ensure that the pressure can be divided. The level of controls are however not sufficient (at the time of the plan) as there are factors that disturb the peace and quiet (p. 27).

The Bosbeheerplan has a less restrictive or conservative tone than other plans that have been discussed. Recreation and harvesting are seen as just as important functions as nature and landscape, where by zoning and attention to locality several interests have to be combined.

### 3.3 SUMMARY.

Chapter 3 has discussed several laws and policy plans on the national and local level.

Norwegian law is very clear in its intent to give citizens a right to outdoor recreation in the Outdoor Recreation Act of 1957 (Regjeringen, 1957). People have the freedom to roam within certain limits. Local plans that are legally binding for government and citizens also stress the importance of the nature as a place of recreational activity and stresses the health benefits of these activities. Outdoor recreation in the form of 'friluftsliv' (outdoor recreation lifestyle) is an important part of Norwegian culture and is heavily represented in spatial plans and policy. Conflicts exist between extensive outdoor recreation (friluftsliv) and intensive outdoor recreation (sport). The municipality tries to address these conflicts by developing different facilities for different user-groups.

The Dutch law is, in contrast to Norwegian law much less specific when it comes to the right of people to have a place for outdoor recreation. All land in the Netherlands fall under private land rights and the unauthorised entry of them is illegal by law, even if the municipality owns the land. At the entry of Dutch natural areas and forests is a sign that notes which activities are allowed, with besides that a note that all other activities are illegal (or 'no access' to be more specific).

Some national policies emphasize the importance of nature as a place of outdoor recreation, these are however part of larger set of policy plans for the natural and built-up environment. Laws only pertain to protection of species and areas and are restricting in nature.

Local zoning plans and policy plans show a clear emphasis on the protection of nature as most important theme. Outdoor recreation is considered a secondary function of the natural areas around Arnhem. Only the Bosbeheerplan considers recreation of equal importance to nature and landscape. All the plans make it clear that zoning of recreational activities is an important tool in the protection of nature. Control by legal

officers is done to ensure that activities are in accordance with the rules and to protect the environment.

The difference between Norway and The Netherlands becomes clear in the discussion of the plans. The Norwegian context puts emphasis on outdoor recreation and considers nature protection an almost secondary objective in the Marka. This is important because the recreation is dependent on the beauty of nature, but the marka is mainly intended for outdoor recreation. It enforces few restrictions, partly because the freedom to roam is ensured by law, and tries to steer activities in a positive way. The Netherlands have a much more restrictive policy; the most important functions of the forests north of Arnhem are biodiversity and nature protection. Recreation is of secondary importance and only allowed if it is within carrying capacity of the environment, recreation is therefore limited to ensure this.

This chapter has discussed the differences in policy and law between Trondheim/Norway and Arnhem/The Netherlands when it comes to management of urban woodlands. Table 3 shows a summary of this chapter. The next chapter will explore the local management practices of the case areas through a number of interviews. It will also look at the conflicts in the case areas according to the people being interviewed.

**Table 3: key differences between policy and laws in Norway and The Netherlands**

	Norway	The Netherlands
law	Freedom to roam, but within carrying capacity of the environment	No freedom to roam. No access unless permission to do so
national policy	<u>extensive recreation</u> is the protective approach to nature management, extensive recreation important	<u>no recreation</u> is the nature protection approach, But importance of nature to society stressed
local policy	outdoor recreation key interest in management of urban forest, environmental protection of equal and constructive importance	environmental protection key interest in management of urban forests, recreation secondary function

## 4 MANAGEMENT PRACTICES: INTERVIEWS

The informal management context of urban woodlands is the way the municipalities actually translates policy plans and laws into action. Interest groups are groups outside the municipal administration that represent a certain interest and often work together with municipalities to achieve them. This chapter focuses mainly on the opinion of respondents from interest groups about outdoor recreation facilities and conflicts in the forests and about municipal management of the forests. This chapter will use the name of the interest groups or institution to identify who represent which views. A list of the actual persons being interviewed can be found in appendix E.

### 4.1 NORWAY

Norwegian respondents were selected on the basis of their involvement in a special council for the urban forests in Trondheim, called 'Markarådet' or marka council. A key informant in the municipality of Trondheim supplied the information about the people related to the marka council, the person is in charge of the management of the city forests. The respondent were from:

- FNF (Forum for nature and outdoor recreation): This is an organisation that works as a connection between 14 different sport and outdoor recreation associations. Those organisations often depend on volunteers and do not have the resources to be involved in (especially) the political processes. This organisation acts on the behalf of the member organisations towards the municipalities and the regional authorities.
- NNV (Norwegian society for the conservation of nature): The NNV is a nature protection agency that has the protection of the environment as its main focus. The respondents pointed out however that nature protection is closely related to outdoor recreation in the sense of 'friluftsliv'.
- TT (Norwegian trekking association in Trondheim): TT is the local branch of DNT (Den Norske Turistforening). DNT is the largest outdoor life organisation of Norway with more than 240,000 members in total, 18,000 of which are linked to TT.
- Skiclub Trondheim (Trondhjems skiklub): The skiclub of Trondheim is an outdoor recreation organisation that represents ski-interests. The forests of Trondheim are important ski-areas in the winter. The skiclub organises maintenance work and trips in the summer, as well as being an advocate for summer activities in the forests.

These groups are (or were) part of the marka council. Other groups of the marka council are representatives of land owners that have land within the marka areas and the Trondheim sports council (Idrettsrådet). Some parts of the interviews related to all the marka areas around Trondheim, but will be linked to Bymarka specifically here.

At the time the interviews were carried out there was a proposal for the development of an alpine skiing slope in the centre of Bymarka, close to the quietest and most protected area of Bymarka. This proposal has stirred up interest groups and can have an effect on the opinion they express.

#### **4.1.1 FUNCTION**

The function of Bymarka is the same in the eyes of all the respondents. Bymarka functions as a place of friluftsliv. Supporting that is the ecological value of Bymarka. Lastly Bymarka serves as a place for sports. It is noticeable that sports and outdoor recreation are considered to be two independent activities. The respondent from the NNV said that *"Nature and outdoor recreation often go hand in hand"*. The respondent from TT, on the other hand, put the focus on whether Bymarka was a place for sport or for outdoor recreation. The skiclub has their club building in the heart of Bymarka and works on facilities and infrastructure to make Bymarka accessible, they focus on making facilities so the natural areas can be enjoyed.

#### **4.1.2 COMMUNICATION**

The respondents were gathered from a group that has been set up by the municipality to be involved in the management of the marka areas. This marka council gathers four times per year and their input is used in the yearly management plan of the marka-areas, according to a representative of the municipality. This yearly plan is related to day-to-day management, it is send to the politicians but it does not make or call for major decisions.

The Marka council is set up in accordance to recommendations of the directorate for nature management concerning the management of marka areas. The respondents indicated that the marka council is not functioning properly. The respondent from FNF

said that: *“We are very disappointed in about how this is done [information exchange about the marka areas in the marka council] because (...) our comments [do not] get to the politicians, we don't get the information we would like to have”*. A respondent mentioned that, *“The marka council has not found its place, (...) this can be because it does not have enough power, or because there are internal conflicts in the council”*. Another respondent said that, *“I am disappointed about the information exchange, we do not get much information about municipal plans and information from us does not seem to reach the politicians”*, another one added: *“We had to hear from plans (...) from adressavisen [the newspaper]”*. A fourth respondent was not disappointed in the marka council saying *“The marka council is not set up with the intention of making decisions but of giving input. The council does therefore not need more power/influence, but we expect politicians to listen, that has not yet happened regarding main interests”*. The respondent from the skiclub had not been involved in the marka council in person. The organisation was at the moment also not represented because of both the lack of human resources and because of how the marka council was functioning. The organisation did expect influence through the marka council but was not satisfied. Instead they communicated with the people from the municipality and other actors directly. Regarding general communication with the municipality the respondent from skiclub said: *“I think it [having influence] could be better of course, but I feel they listen to us (...) and they ask us if they want the view of the public”*.

The situation with the marka council has led the FNF to consider if they should continue to be involved in the marka council. An evaluation of the effectiveness is being performed but if the position of the marka council in the municipality does not change, then there is little reason for FNF to remain in the marka council, according to the FNF respondent. Meanwhile they see that there are more powerful organisation that deduce power in the municipality based on their direct contacts with officials in the municipality.

The communication is not satisfactory for all the respondents. The marka council is set up with the intention of two-sided information supply between interest groups and the municipality. It seems however that the marka council does not function as such, and that a satisfactory degree of information requires contacts outside the marka council.

The conflict between sports and outdoor recreation has had its impact on the marka council. The council is divided along the lines of sports and outdoor recreation, the

dividing line, as indicated earlier, is the different goals of both activities. One activity requires facilities and infrastructure that is well maintained and allows for fast movement while the other one requires a low level of facilities and infrastructure.

The respondent from FNF confirms that there is discussion between the members of the marka council, the discussion revolves around the difference between sport and outdoor recreation that is the dividing line.

### 4.1.3 CONFLICTS

Outdoor sport and outdoor recreation collide because of a conflict between the goals visitors have with being in the marka area. One activity group, sport, is about exercise while the other activity group, outdoor recreation, is about being outside, enjoying nature in peace and quiet and is less about getting exercise. The respondent of the FNF summarized the policy implication of the conflict as *“a choice between facilities and remoteness”*. All the respondents agreed that there is a level of conflict between sports and outdoor recreation.

Norway, as mentioned before, has a culture in which the ‘freedom to roam’ is important. This means that new activities also should be given a place, according to several respondents. The respondent from NNV mentioned that biking did not used to be a problem but that it has become a problem in the last years, but that *“We should be open to it”*.

Most respondents propose a level of zoning and positive incentives to separate activities. This means for example that sport activities are concentrated along the edge of the areas while the rest is preserved for more quiet outdoor recreation. The respondent of NNV mentions that stronger zoning is necessary to protect the nature reserve in the middle of the area and to maintain a quiet place with little disturbance.

Regulation should be done by differentiation and regulation of different activities (The respondent from the ski club thinks the separation should be on a voluntary basis, by trying to separate activities on basis of differences in infrastructure and communication, for example through signs and making maps indicating where people should bike. But it was stressed that the Marka is for everyone and activities should not be excluded.

The respondent from TT agrees that activities should be separated more but adds that it requires investments. The municipality does not yet seem to make enough space in the

budget for such facilities. The municipal budget has one line item for the marka areas. Most money from this post however, according to the representative of TT, goes to the sport facilities. Three million NOK every year is being invested in the outdoor recreation part of the marka areas together, while seven million is being invested in the Granåsen sports arena alone, with an extra 69 million in investments intended. Interests in Granåsen sports arena could also gain support from international sport associations. Trondheim, and Norway in general, wants to be an important player when in world championships in skiing and ski jumping. The Granåsen arena has the potential to be a competitor to host these events but that requires investments. There are however no international associations that are promoting outdoor recreation interests.

The main challenge, in the view of the FNF, remains to give everybody what they want, while they have different forms of recreation. It is difficult to combine Olympic standard ski tracks with the need for cosy backcountry trails. The respondent of FNF adds to this that it is hard to regulate for example people biking because they are used to going where they want without being limited. The representative of skiclub, to conclude with, strikes upon an important idea when saying that *“The marka is about having respect to other users and the environment”*.

#### 4.1.4 FUTURE

Developments in the future, according to the respondents, will hold an intensification and diversification of recreational activities in the forest.

The representative of the skiclub in Trondheim thinks that in the future more people will use the forest in different ways. That will put more stress on trails. It is important to spread activities more evenly over Bymarka and to spread facilities and infrastructure in such a way that conflicts are avoided. At the same time the respondent from skiclub mentions that there are parts of the marka that are not used enough right now and could be developed more for recreation. This will distribute pressure more evenly, reducing impact on nature like erosion of trails. In general, the respondent from the skiclub would like to have more infrastructure and facilities being developed to spread pressure more evenly over the marka areas. The respondent from NNV disagrees with this, saying: *“There will be more people, more pressure and more stress, but we have to fight to keep the untouched areas”*. The respondent from FNF mentions that pressure will increase in the future and that activities will be more diverse, adding that more



knowledge about the environment, and what contributes to one's own health, will draw people to the marka area. The respondent from TT agrees with this while adding that more knowledge about environmental impact will cause people to want to get into nature more and without motorized transportation. The access of natural areas from the front door is therefore an important focal point for policy.

#### 4.1.5 MANAGEMENT

The management could improve in the eyes of the respondents by following the policyplans, specifically the marka plan. The representatives of TT and NVN both say it is a very good plan. The problem with the markaplan is that it lacks implementation. According to the respondent of TT, the municipality shows very little follow-up of the markaplan, the goals that have been fulfilled are the ones that were easy to accomplish or that were pressed through by 'idrettsrådet' (sports council) or the skiclub. The skiclub is the most positive of the respondents saying that in general they are very pleased with how the municipality manages the marka areas.

An important point that has not been followed up, according to NNV, FNF and TT is the accessibility from city districts. The markaplan shows the municipalities intention to make the marka areas accessible from the city, but those access ways have been poorly developed, or not at all. Instead, in the case of Bymarka, a lot of users are using the access way and parking places in the middle of Bymarka. The respondent from the skiclub however does not see this as a problem, the marka should be easy accessible and the parking places allow people to drive into the marka and be in the forest directly. Easy access is an important determinant for people to use the area. Although the skiclub is not opposed to parking places that deliver people in the heart of the marka, they also would like to see the development of paths from the city into the marka because there are a lot of students and other people without car that need easy access to the marka.

Individual citizens can, according to most respondents, be involved in management of the marka areas. They acknowledge however that the best solution is to act through organised groups. NNV for example has a legal right to protest. But they also consider public involvement to be beneficial. The skiclub says that they can voice the opinion of citizens because they have the opportunity to speak to the municipality directly and feel

they are listened to. However, they need more resources to take better advantage of that position.

Important for both public involvement and participation by interest groups is the openness of the municipality to all kinds attitudes and preferences. The marka council was initiated to give interest groups a possibility to inform the municipality and to be informed, as said before. It is important for any kind of external participation that the municipality be open to the expressed views. The respondent from the skiclub does feel that personal views sometime seem to influence the way things are handled. In some cases the municipal administration seems to be conservative because they are not always open to the positive effects of developments within the marka. In addition to this the way that things are handled within the municipality are not always clear. It is therefore not clear what affect the interest groups, or anyone outside the municipality for that matter, really has on the municipal policies. The respondent says about this that *“it is difficult to understand (...) saksgangen (the bureaucracy), sometimes it is not so easy to know who to talk to”*. The respondent from FNF says that *“the municipality listens to no others”* and that they should be more open.

## 4.2 THE NETHERLANDS

The interviewees in The Netherlands were representatives of:

- Municipality of Arnhem: Appointed official burdened with the development and management of the city’s green structure
- Community council of Schaarsbergen: An affiliate who has been part of the board for a number of years and worked with issues concerning senior policy. As such the interviewee had interests in the municipal policies regarding the forests north of Arnhem
- IVN Arnhem (association for environmental education): The IVN is an association that organises excursions in natural areas, does voluntary maintenance work and is, in general, concerned with environmental issues.
- Stichting Geldersch Landschap (foundation for protection of the landscape of Gelderland): A landscape protection foundation that has interests in nature protection. This foundation has land within the municipality of Arnhem and is tied to the zoning plan of the municipality.

There are organisations for bikers and walkers in the area, as well as another important landowner, there is however a low level of interaction between the municipality and those interest groups.

The municipality has contact with a variety of groups. These groups are mainly local inhabitants, environmental protection agencies or other environmental groups. There is little contact with interest groups of specific activities. The walking association (voet- en wandelbond) has been involved lately in issues related to road crossings in the area. There is little contact with the bicycle association although the respondent from the municipality thinks that would be a good idea.

#### **4.2.1 FUNCTION**

The respondents do not agree about what the most important function of the forests of Arnhem is. The municipal official mentioned that it is important to have an integrated nature policy in which all the functions of the forest are represented, and that separation is a matter of prioritization. This can be seen as a neutral position. The community council's respondent was very clear that the forest has an ecological function, but that it should be managed for human interests. The respondent said that: *"You can do as much as you like for nature, but it is society that you do it for in the end"*. The IVN Arnhem, on the other hand, sees the forests as the 'lungs of the city'. It has a strong recreation function but where conflicts arise, nature should be protected. Zoning should be applied to preserve vulnerable parts of the forests that have high ecological value.

The foundation Geldersch Landschap indicated that the ecological functions are the prime importance of the areas they manage. It is nature and culture protection that are important, in the interest of people.

#### **4.2.2 COMMUNICATION**

There is a very good contact between the municipality on the one hand and the IVN Arnhem and the community council on the other. The community council and the IVN indicate that if they have issues or questions they can call the municipality and talk to the persons in charge of the green structures. There is a familiar bond between the

groups and the responsible persons at the municipality, as demonstrated in the quotes below:

*“We have had new year’s receptions where elected and appointed official of the municipality would join”* – Community council Schaarsbergen

*“If we are going to do some voluntary activity, I call him [the responsible person from the municipality] and then we take a walk through the forest to plan the work we want to do”* – IVN Arnhem

This communication is two-sided. With the municipality contacting the local interest groups if there are changes that concerns them.

The reason for this informal level of interaction is the personal contact between the interest groups and the municipality. The respondent of the community council Schaarsbergen indicates that contact have been more difficult when there was another official in the municipality who had a different personality. It was also noted that there are a number of new members in the community council, and that because of this the contacts of the community council possibly have to be re-established. Both groups indicate that it is important to have a certain level of interest and commitment to participate in the management of the natural areas, or as the IVN Arnhem put it: *“If you want something and are willing to make it happen [regarding activities in the forests], the municipality will support you”*.

It became clear in the interviews that individual citizens do not have a strong position when it comes to participation in the municipality’s management of the urban forests. The municipal official stated that local participation is very important, both for public acceptance and for the quality of the plans. However, it was added. it is best to deal with organised interest groups. There have been information-evenings where individuals could voice their opinion, but to have to deal with unorganised citizens would be difficult. The community council Schaarsbergen indicated that they felt that influence of individual citizens could be beneficial to forest policy since they often have good ideas, it would therefore also be good to minimize the distance between municipality and citizens. But as said before, the personal contact between members of interest groups and municipal officials is important. Individual citizens often lack that level of contact. Both the community council and IVN Arnhem expressed that they know their way around in the municipality and that helps in having influence on the municipality’s operations.

The foundation Geldersch Landschap indicated that they act independently from the municipality in that they both own and maintain their own areas. If there are people that want something, they can easily contact the person in charge from the foundation. If necessary that person will contact the municipality.

It could be argued that interest groups will also voice the interest of their members. The community council, the middle man between municipality and people living in Schaarsbergen, however noted that it is hard to get people involved.

### 4.2.3 CONFLICTS

There are a number of conflicts in the area. First, there are conflicts between different recreational activities. Secondly, there are conflicts between recreational activities and other interests in the area. Most prominent for the comparison with Norway is that nobody is allowed in the forest between dusk and dawn. The representative of Geldersch landschap said that *“To protect nature and give animals rest [peace and quiet], there is no activity allowed after sundown”*. Nature protection is also high on the agenda of the IVN Arnhem. The organisation arranges volunteering days on which a group of volunteers does maintenance in the municipal forest. This maintenance is, for example, felling trees or clearing of undergrowth. This is done mostly in places of relatively high ecological value, while machine are used in other parts of the forest where wood is harvested.

Activities can also form a threat to the ecological values. Sometimes all activities are a threat, other times it is only specific activities. Activities that were most mentioned by the respondents are mountain biking and horseback riding. These activities have a heavier impact on the environment in eroding the soil.

Mountain biking and horseback riding are also the activities that are most involved in conflicts between users according to the people participating in the interview. According to the municipal official, there is a hierarchy laid down that prioritizes people walking followed by horsebackriders and finally mountain bikers [normal bikers are supposedly after walkers]. *“Mountain bikers can express or cause aggression”* according to the community council of Schaarsbergen, adding that it is a good idea to separate activities. That will ensure both that the infrastructure is intended for the activities that are undertaken on the paths, as well as prevent conflicts between users. The high level of

facilities at the moment is good, but there should be stricter control that people actually follow the rules and there should be more facilities for less mobile people such as seniors. The IVN Arnhem however, favours different activities using the same trails, with the assumption that people have to be considerate towards other users. The representative of Geldersch Landschap did not see any conflicts among users of the areas they control.

The municipality tries to get the separation of activities to be enacted by giving information to users about routes and on by making it obligatory to stick to the designated paths. Horseback riders have to be on the designated riding trails, just like mountain bikers and regular bikers. A failure to do so can result in a fine by controlling officers.

#### **4.2.4 MANAGEMENT**

There is no uniform answer about what values are most important in the area. All respondents agree that the ecological value of the area is important, and also that it has an important recreational function. There is disagreement about the weight the different functions have. All respondents are, however, satisfied with the level of facilities in the area and the separation of activities.

An important issue according to the community council of Schaarsbergen, is the access to some parts of the forests north of Arnhem for less mobile persons. There are roads in the area that were accessible in the past, but are no longer open to the public. At the present, the roads are only accessible for the few inhabitants that live there. The conflict with motorized traffic is a common issue in Arnhem. The municipal official notes that road crossings are an issue. There are a few communal roads that cut through the forests, these create sometimes dangerous situations between cars and people biking or walking. These roads are also an issue for toad crossings, according to the IVN Arnhem.

#### **4.3 SUMMARY**

The intention of the interviews was to get an overview of how municipalities manage urban woodlands from the viewpoint of interest groups that are connected to the municipality relating urban woodlands.

There is an apparent difference in the function of the forests in Norway and The Netherlands, according to the interviewees. The respondents in The Netherlands do not completely agree with each other, and most noticeably give the same weight to nature protection and outdoor recreation, and appear to assume that they are mutually exclusive. The Norwegian respondents indicate that the marka area is intended for outdoor recreation, that ecological function of the area is also important but that outdoor recreation and nature protection are not mutually exclusive. The Norwegian respondents regard intensive recreation, or sports activities, as colliding with both nature protection and outdoor recreation.

The respondents in The Netherlands indicate that there are tensions between users, for example people using a mountain bike or horseback riders on the one hand and normal walkers on the other. The basis for the conflict is two-folded: people practising intensive activities have a different goal for outdoor recreation, and those intensive activities have more impact on the environment because they destroy the paths. The activities are, at present, well separated and conflicts are therefore avoided, for example by mandatory trails for horseback riders and by demanding that dogs are on a leash. This separation is considered necessary and adequate. There is no need for additional facilities or rules.

In Norway on the other hand, there is no coercive separation of activities. Biking is a rather new phenomena and causes problems by aggression towards and from bikers, and because mountain biking causes erosion of trails. The respondents acknowledge that it would be good to have more separation although a form of coercive separation is difficult for legal and cultural reasons; everybody has the right of passage. A form of zoning and positive stimulation would however be an option.

The communication between the municipality and the respondents in The Netherlands is very good. The respondents indicate that they are very happy with the informal contact that exists between them and the municipality. That the contact is informal also means that it is personal; there is a good level of communication because the respondents feel they are listened to and like the people in the municipality they communicate with. The respondents indicate that if they ever want or need something, they can just contact the responsible people in the municipality. Besides that the municipality is also open towards the respondents and informs them or asks their opinion if it is of concern to the respondent. There has however been a lack of decisions

with a big impact in the past, the current policy plans are from 2002 and there have been no big projects in recent years that could have caused strong tension.

The contact between the municipality of Trondheim and the respondents is not satisfactory for every respondent. The municipality has set up a special council to inform and be informed regarding the marka areas. This council does not function properly because they feel they have no influence on the policy, and moreover do not feel they are listened to. One organisation is happy with the level of communication with the municipality. They have a strong position in the municipality and communicate via informal ways with officials and politicians. Multiple respondents indicate that these informal ways are important to 'get things done'. They say that some organisations have more power than others, based on the contacts they have rather than formal power.

Respondents in both areas think that involvement of individual citizens can be good for the quality and legitimacy of the municipal policy. However they also think that it could be difficult to handle individual citizens. Participation through organisation is the best option. Every interest organisation believes that they function as a middleman between individual citizens and the municipality in communicating the wishes of individuals.

Chapter 4 has explored the management practices in the case areas by means of exploring the opinion of representatives of interest groups. Table 4 gives a summary of the findings. The next chapter will present the results of the questionnaire and discuss the differences between respondents in Norway and The Netherlands.



Table 4: Table with key differences between management of, and user conflicts in urban woodlands according to interviewees

	Norway - Trondheim	The Netherlands - Arnhem
value	Recreational value: intensive and extensive recreation mutually exclusive	ecological values and recreational values, but mutually exclusive
conflicts	between intensive and extensive recreational use	between recreational use and other uses
separation	more separation desirable, but within the freedom to roam	enough separation and adequate level of facilities
managment / participation	comparatively restricted management, formalized contact not effective, not all interviewees satisfied	Open management and personalized contact, all interviewees satisfied

## 5 SURVEY RESULTS

This chapter will describe the results from the questionnaire. Here it is attempted to compare the data from the two case areas. The questions that are raised in this research are how visitors of forests in both countries experience other users. The motivation, degree of purism and general information about respondents have been measured with the questionnaire. This data is used to compare to the opinion of respondents and to determine what factors the level of conflicts, as indicated by the respondents, depend on the most. It also Besides that it allows for a good comparison of urban forest users in Norway and The Netherlands.

First the general information will be compared to give a general overview of the data per area and if there is a difference between the areas. After that the results of the REP scale and Purist scale will be explored and traced to the origin of the differences between data and finally the difference in opinion about the area are analysed.

### 5.1 THE RESPONDENTS

The response to the questionnaire was high enough for statistical analysis with 183 respondents in Norway and 198 in The Netherlands. This number also prevents problems with responses such as incomplete responses or untrue responses. The purist-scale for example is measured on a 7-point likert scale. If a respondent rates every statement with a 7 (strongly add), suspicion arises that the answers are not completely honest, even more so since the last question is reversed compared to the rest of the questions. Given enough respondents in both cases the effect of these respondents on the final analysis will be minimal, and is assumed to have no effect on the difference between the two areas.

The data gathered measures between-subject differences and effects. There are no inter-subjects effects such as changes through time.

### 5.2 WEATHER

The Weather in both areas is shown in Figure 16. The weather in Norway, reported by respondents, was better than the weather in the Netherlands, this difference was significant ( $\chi^2(1, 365) = 10,42$   $p = ,005$ )

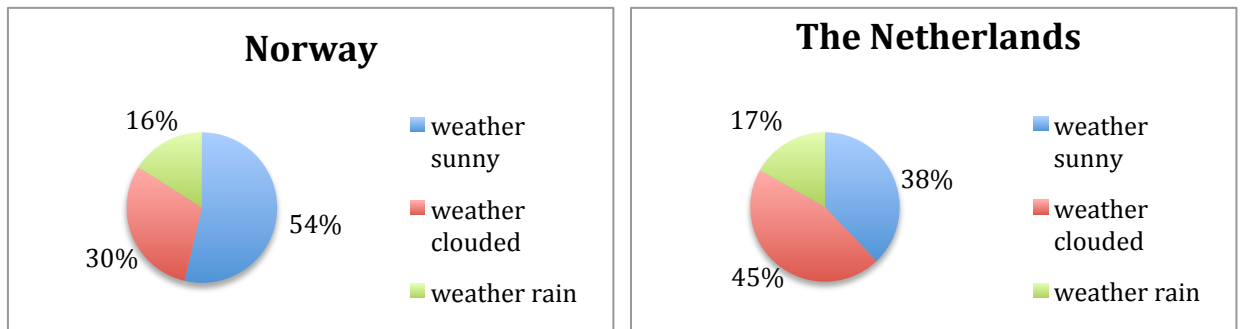


Figure 16: Weather as reported by respondents in Norway and The Netherlands

### 5.3 SEX OF RESPONDENTS

A methodological difficulty arises regarding this question. Respondents went outside the option of either male or female and answered both. In all likelihood these were combined groups, such as couples, that filled in the questionnaire together.

When entering data into the statistical program, males were entered as 1, females as 2 and these male/female combination as 1,5. Doing a cross tabulation showed that the percentage woman was higher among the correspondents in Norway. Removing missing values and '1,5' values yields a significant difference between the two countries ( $\chi^2(1,357) = 5,16, p = ,023$ )

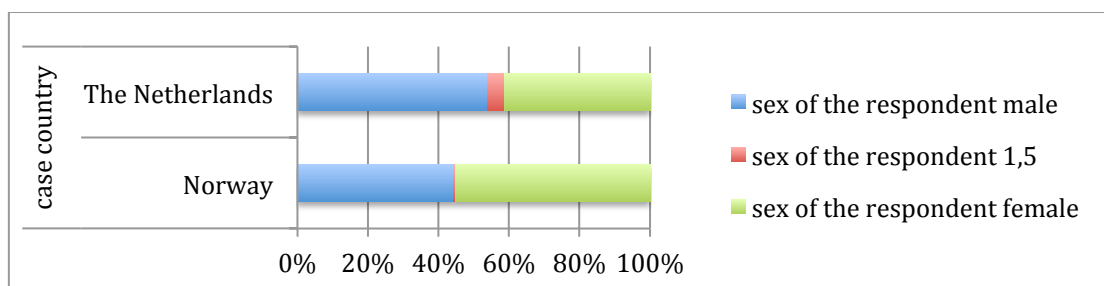


Figure 17: Sex of the respondents in Norway and The Netherlands

### 5.4 AGE

The difference in age can be seen in Table 5. This significant difference in age ( $t(360) = -4,25, p < ,000$ ) might have an effect on the data and should be taking into account when doing comparisons.

Table 5: Average age of the respondents in Norway and The Netherlands with significance level

	Mean	Std. Deviation	Sig. (2-tailed)
Norway	40,423	18,4744	,000
The Netherlands	47,901	14,9270	

## 5.5 EDUCATION

The standardized educational level of the two countries was analysed with a crosstabulation. The data provides the diagram in Figure 18. It seems that the education level is higher in Norway, which is supported by the result of a Pearson Chi-Square test ( $\chi^2(4, 358)=60,81, p < ,000$ ).

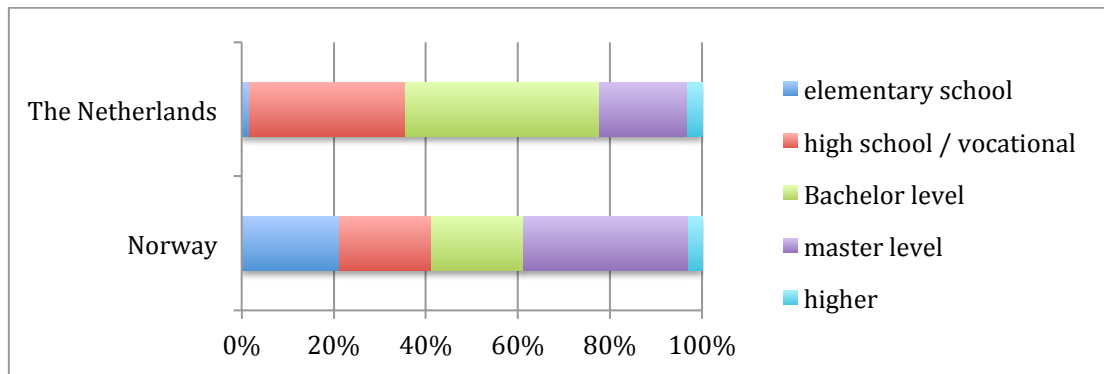


Figure 18: Highest attained education of respondents

## 5.6 FREQUENCY OF VISIT

The Frequency of visits was measured. This is useful when comparing motivation or purism. The frequency in these cases showed no significant difference between the two countries. Figure 19 gives a 100% bar showing what percentage of each country's respondent's visits the area how many times.

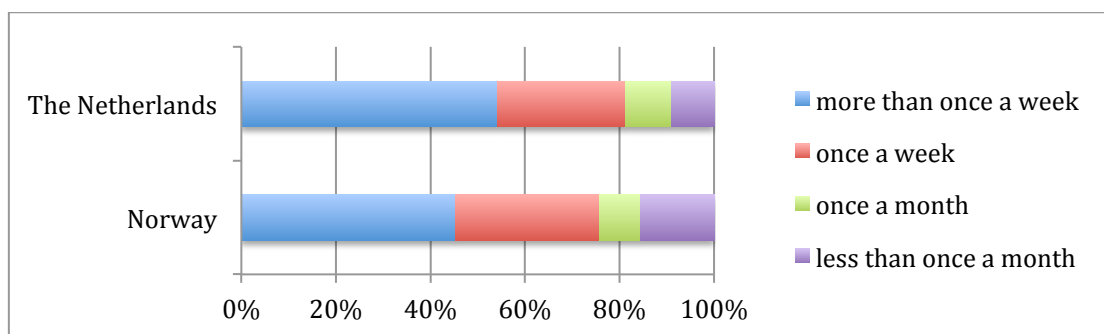


Figure 19: frequency of visits to the case areas by respondents

There was no significant difference between the two countries ( $\chi^2(3,338)=4,66, p = ,198$ )

## 5.7 ACTIVITIES

Respondents were asked which activities they had undertaken in the area the past 6 months. It was possible to give more than 1 answer to this question. Figure 20 shows what activities respondents undertook in the six months leading up to answering the questionnaire. The bars indicate percentage yes/no of total number of respondents in an area.

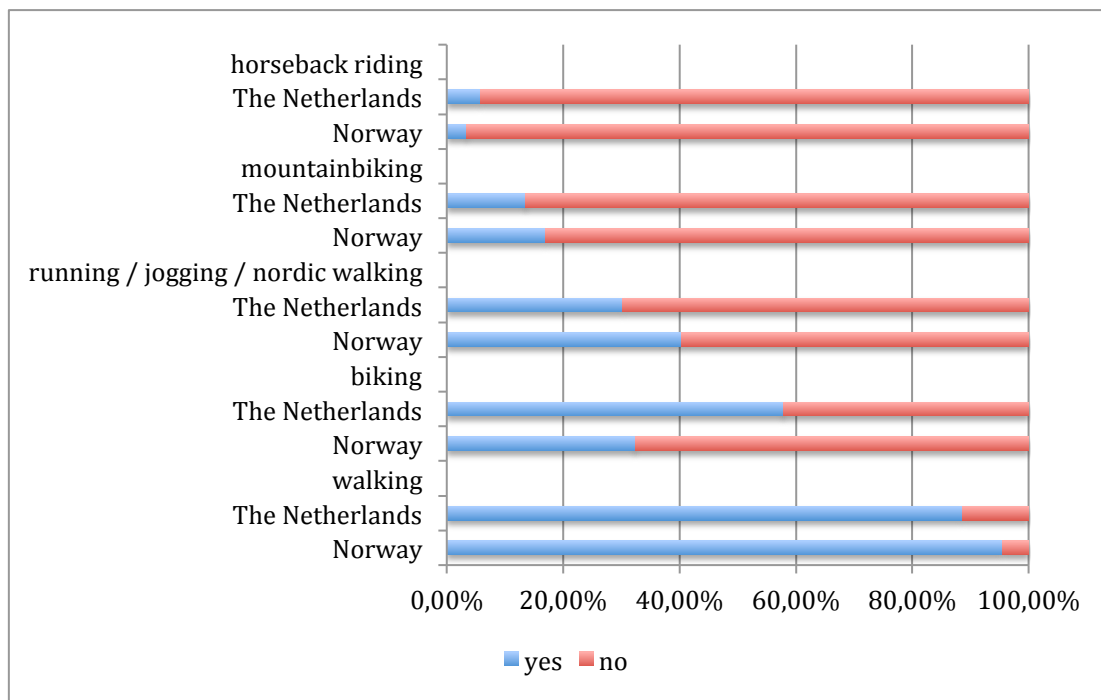


Figure 20: Recreational activities undertaken by the respondents in the six months before answering the questionnaire

## 5.8 MOTIVATION

The motivation is measured with the REP-scale, as mentioned in the methodology chapter. The REP-scale measures the underlying motivation for outdoor recreation by asking several questions that measure one underlying variable, calculating the score and finally calculating how well they correlate with each other. A high correlation will ensure reliability. This can be used both to determine respondent's motivation and as an instrument to determine the possible level of conflict between different user-groups. This section will analyse the differences in motivation between the different user groups. Difference in motivation may also be dependent on purism; this relationship will be explored later.

The first analysis is to compare the motivation between the two areas. Table 6 shows the result of an independent-samples t-test with the country as the grouping variable. There is some discussion as to whether or not variables measured on a likert-scale can be analysed using a t-test, since a t-test requires interval or scale variables. The average of multiple

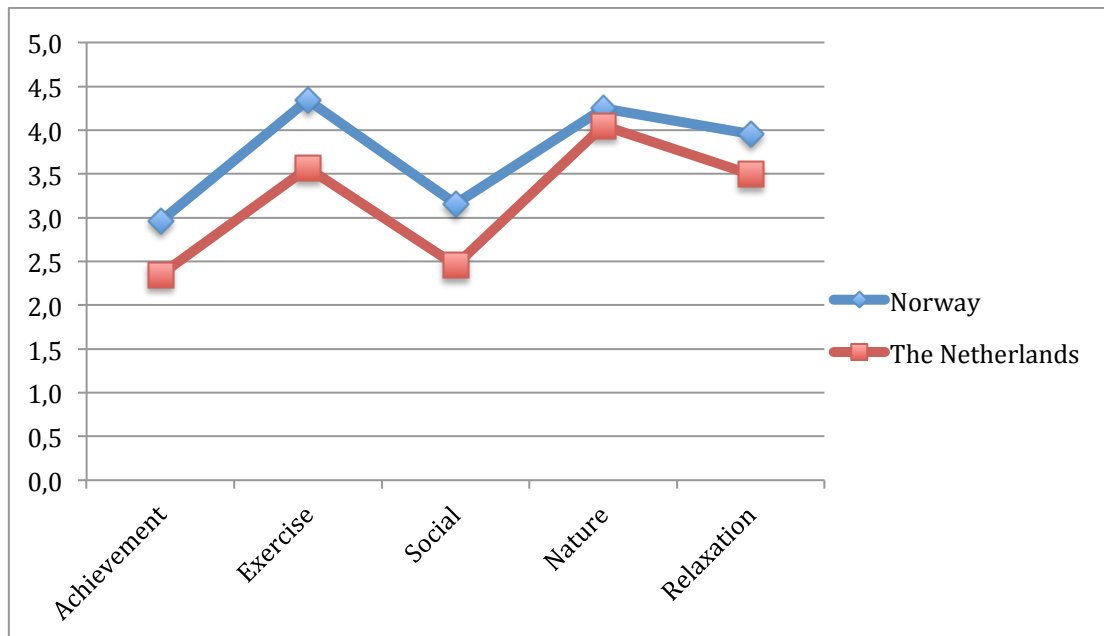
questions measured on a likert-scale give a score that is reliable and is useable with a t-test (Gliem & Gliem, 2003)

**Table 6: Independent sample t-test with a comparison of the average score of each motivation based on the two countries**

		N	Mean	t	Sig. (2-tailed)
Achievement	Norway	162	2,9588	5,109	,000
	The Netherlands	173	2,3468		
Exercise	Norway	183	4,3429	6,201	,000
	The Netherlands	199	3,5699		
Social	Norway	183	3,1594	5,379	,000
	The Netherlands	199	2,4531		
Nature	Norway	183	4,2459	1,642	,102
	The Netherlands	199	4,0486		
Relaxation	Norway	183	3,9522	3,733	,000
	The Netherlands	199	3,4954		

The results in Table 6 show that there is a significant difference between respondents in Norway and the Netherlands for four motivations. Looking at the means reveals that this difference is due to Norwegian respondents rating each motivation higher.

Table 6 can be put in a graph:



**Figure 21: score for motivation per country**

What becomes clear from the graph is the similarity between both countries. The distance is approximately the same except for Nature. As seen in Table 6 the only motivation that shows

no significant difference is ‘nature’, and the graph shows that is because compared to the difference between other motivations, ‘nature’ as a motivation stands out among Dutch respondents.

The answers on the likert-scale can range from negative to positive. The comparison of the means does not show if the respondents are significantly positive or negative, and thereby if they agree that a specific motivation is a reason for them to go recreating or not. This can be measured to see if there is a significant difference from the neutral answer, 3. All motivations are tested using a one-sample t-test and a test-value of 3. The results are shown in Table 7. The results indicate for example that there is no significant difference between neutral and the answers given by the Norwegian respondents for ‘Achievement’ and ‘Social’. This means that those respondents do not disagree nor agree with the statement that achievement or social motives are a motivation for them to go recreating outdoors. Norwegian respondents do agree that exercise, nature and relaxation are motivation to go recreating outdoors. The answers from Dutch respondents show that they do not agree with that achievement or social motives are a motivation for them, while they do agree that exercise, nature and relaxation are motivation to go recreating outdoors.

**Table 7: difference from 3, neutral for each motivation in each country**

	Norway		The Netherlands	
	Mean	Sig. (2-tailed)	Mean	Sig. (2-tailed)
Achievement	2,9588	,655	2,3468	,000
Exercise	4,3429	,000	3,5699	,000
Social	3,1594	,103	2,4531	,000
Nature	4,2459	,000	4,0486	,000
Relaxation	3,9522	,000	3,4954	,000

There can be other variables that show a significant relation with the motivations and thus explain the difference between the two countries. Table 8 shows the scores and significance levels of five statistical analyses. According to this there is no other variable that is as significant for motivations as the country of origin.

**Table 8: F- and t-values for difference between several variables and motivations. The lowest row indicates which test is used, \* indicates significant on the 0,05 level, \*\* indicates significance on the 0,01 level**

	Education	Frequency	Age	Sex	Country
Achievement	6,060**	2,874*	1,221	-,079	5,109**
Exercise	1,317	3,694*	,911	-1,180	6,201**
Social	6,757**	,170	1,35*	-2,526	5,379**
Nature	,410	,932	1,157	-3,308	1,642
Relaxation	1,122	1,419	1,520**	-1,991	3,733**
	ANOVA (F-value)			Independent samples t-test (t value)	

The introduction mentioned how conflicts can arise out of conflicting goals with outdoor recreation. The motivation for outdoor recreation is an indication for the goal. Table 9 shows the F values of a multivariate analysis using a General Linear Model to show the effect of activity on the motivation.

**Table 9: General linear analysis with effect of activity on motivation for outdoor recreation, \* indicates significance on the 0,05 level, \*\* indicates significance on the 0,01 level**

	Walking			Biking		
	total	norway	The Netherlands	total	norway	The Netherlands
Achievement	,056	,416	,243	,927	,398	1,656
Exercise	,746	,001	,011	,662	3,212	,532
Social	,088	,263	,051	,213	,226	,375
Nature	9,456**	2,095	5,167**	,035	,284	,029
Relaxation	10,753**	,508	5,322**	,349	,678	,212

	running			mountain biking		
	total	norway	The Netherlands	total	norway	The Netherlands
Achievement	,866	2,123	,875	1,607	,060	1,135
Exercise	2,188	13,767**	1,345	,737	,183	1,034
Social	2,802	,375	,710	2,262	,642	1,639
Nature	1,470	,043	2,383	,678	,505	,753
Relaxation	,789	,408	1,555	,077	,688	,227

Table 9 shows that there are no distinct differences in the motivation for recreating, per activity. The assumption based on the data is that there is no basis for conflicts due to conflicting goals between different user groups.



## 5.9 PURISM

The purism-scale measures Purism, Vistad & Vorkinn (in press) mention that purism-scales were first developed to compare wilderness as stated in government policy and the attitude of recreationists in the wilderness. The purism construct has a great relevance from a management perspective because it has “an immediate face value concerning the resource-visitor relationship” (Vistad & Vorkinn, in press, p. 6).

- Purism and country

As mentioned before, the score of the first seven questions was reversed and the total score for a respondent was averaged to come to the purism-score for each respondent. The score of each respondent was thereafter reclassified into three classes, following Vistad & Vorkinn (in press). The three classes are low purist (scores 1-3,5), medium purist (scores 3,51-4,49) and strong purists (scores 4,5-7). Figure 22 shows the scores divided into 3 classes. This classification was done based on the same criteria Vistad & Vorkinn (in press) used. The difference between Norway and The Netherlands was significant ( $t(339)=-12,14, p < ,000$ ). It is clear from the figure is that the respondents in The Netherlands are much more purist than the respondents in Norway. This might seem odd considering the geography of both countries. The results of this questionnaire seems however in line with finding of Vistad & Vorkinn (in press). The data they use from a survey in Rondane national park (Norway) in 2009 shows the same difference between Norwegian and Dutch respondents, and similar purist attitudes in general in both countries (Figure 23).

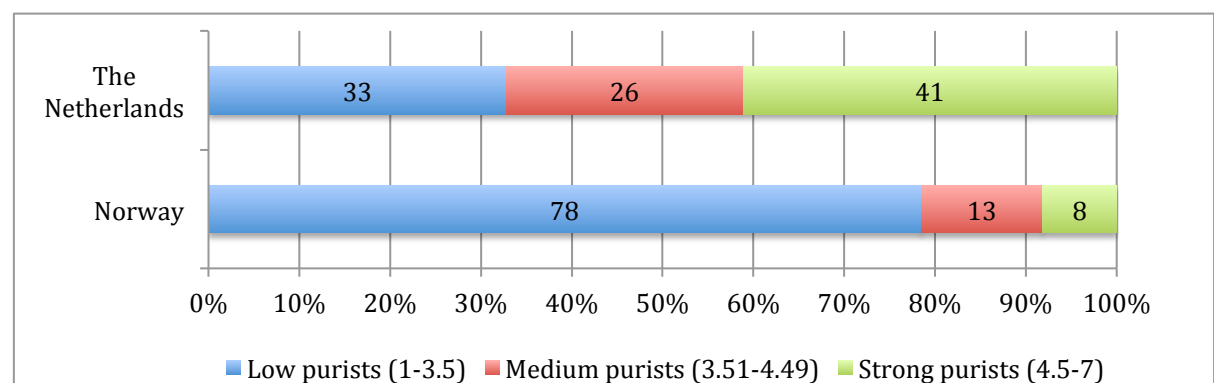


Figure 22: Purism for Norway and The Netherlands in 3 classes.

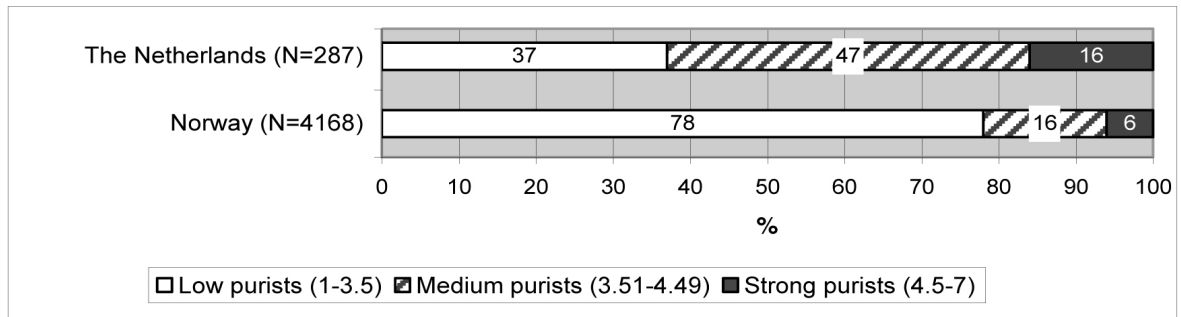


Figure 23: Purist attitude of several nationalities in Rondane in 2009 (source: Vistad & Vorkinn, in press, edited).

- Purism - Motivation

The correlation between purism and motivation for outdoor recreation has been analysed using a Pearson correlation test. Pearson correlation is used for analysing correlation of two scale/interval variables. The original questions for purism and motivation were measured on an ordinal scale, used here however is an average of several questions. The average can be regarded as an interval variable.

Looking at the result of the Pearson test for correlation between purism and motivation in Table 10, it is somewhat surprising that every motivation seems to diminish as purism is stronger, even motivations such as ‘nature’ and ‘relaxation’ are stronger among respondents with a lower purism score, although the negative correlation between purism and the motivation ‘nature’ is not significant (see Table 10)

Table 10: Pearson correlation and significance between purism score and motivations for outdoor recreation

		Achievement	Exercise	Social	Nature	Relaxation
Purist score	Pearson Correlation	-0,331	-0,287	-0,369	-,086	-0,145
	Sig. (2-tailed)	,000	,000	,000	,101	,005
	N	323	364	364	364	364

- Purism and sex

Another significant difference was found between males and females. It might be that the difference between Norway and the Netherlands is due to the difference in sex of the respondents since males have a higher degree of purism, and the share of males amongst the respondents in The Netherlands is higher.

Table 12 shows the difference per sex by country. Both times the difference between the countries remains significant (male:  $t(172)=-7,64$ ,  $p < ,000$ ; female:  $t(165)=-9,16$ ,  $p < ,000$ )

There is a significant difference between sex and purism, as well as a difference between the ratio in males and females between the two countries. A linear regression model further on (Table 15) will determine the effect of sex on purism as opposed to country of origin.

**Table 11: Difference in purism score between two sexes**

sex of the respondent	N	Mean	Std. Deviation	Sig. (2-tailed)
male	174	3,6724	1,20336	,014
female	167	3,3368	1,30213	

**Table 12: Purism score per sex per country (Independent samples t-test)**

case country	male		female	
	Mean	Sig. (2-tailed)	Mean	Sig. (2-tailed)
Norway	2,9623	,000	2,6563	,000
The Netherlands	4,1856		4,1717	

- Purism and frequency

A Kruskal Wallis test showed that there was no significant difference between the times people reportedly visit the area and their purism ( $X^2(3, N=321), p = 0,182$ ).

- Purism and age

The changes in purism with differences in age are not significant. (ANOVA,  $(71, 273 = 1,3) p = 0,72$ ).

- Purism and education

Education is divided into five classes, with a ranking from elementary school to 'PhD and higher'. Because this is an ordinal scale with more than 2 classes a non-parametric equivalent of an ANOVA was needed. A Kruskal Wallis test is such a test. The Kruskal Wallis showed that there is a significant difference in purism between different educational levels. The results are shown in Table 13

**Table 13: Kruskal Wallis test of difference in purism amongst different educational levels**

	highest attained education	N	Mean Rank	Asymp. Sig.
Purist score	elementary school	34	79,16	0,000
	high school / vocational	93	172,14	
	Bachelor level	111	194,10	
	master level	94	174,68	
	higher	11	211,91	
	Total	343		

- Purism and activity

To identify if the participation in an activity resulted in a difference in Purism, a Crosstab was made with significance tested through Pearson Chi square. This showed that there is only a significant difference between people who bike and people who don't.

**Table 14: Pearson chi-square for different activities**

		Pearson Chi square	Asymp. Sig. (2-sided)
Pursim	Walking	44,858	,436
	Biking	82,668	,000
	jogging / running / nordic walking	46,969	,352
	mountainbiking	59,924	,055
	hordeback riding	52,015	,190

It becomes clear from the results that there is a difference in purism between the respondents from Norway and The Netherlands. There are a few other variables with a significant difference, it is however presumable that the significant difference in purism score between for example males and females or bikers and non-bikers does not cause the difference in purism score between the respondents from Norway and The Netherlands. Rather it is the other way around; that the difference in purism between the two countries causes the difference between males and females and bikers and non-bikers, because for those groups there is also a significant difference between the two countries (there are more bikers and more males in The Netherlands).

Variables on their own might show in an analysis that there is a significant difference between different factors of that variable for purism score but it does not give the relative predictive value of that variable. A regression analysis can show the relative predictive value of several independent variables on one dependent variable. Table 15 shows the results of four linear regression analyses done in PASW. The R value shows that model four is the best model to predict purism, but that model is rather complex

due to the number of variables. Besides that it contains many variables that have a Beta value that is not significantly different from 0 and thereby hardly contribute to the purism score. The only two variables with a Beta value from 0 are 'country' and 'social'. Adding 'social' as a variable of measuring purism is problematic as the variable 'social' is arguably hardly independent from the dependent variable. A trustworthy model is thus only left with the variable 'country'.

**Table 15: Coefficients of a linear regression model for purism.**

	Model 1			Model 2			Model 3			Model 4		
	Beta	t	Sig.	Beta	t	Sig.	Beta	t	Sig.	Beta	t	Sig.
(Constant)		34,595	,000		16,138	,000		10,138	,000		8,711	,000
age of respondent				-,029	-,616	,538	-,026	-,535	,593	-,037	-,791	,430
Country	,540	12,202	,000	,549	11,665	,000	,546	10,815	,000	,406	7,469	,000
Sex				-,069	-1,486	,138	-,063	-1,308	,192	-,059	-1,231	,219
walking							,000	-,009	,993	-,010	-,223	,823
biking							,038	,721	,471	,028	,548	,584
running / jogging / nordic walking							,050	1,044	,297	,079	1,633	,104
mountainbiking							-,015	-,281	,779	-,027	-,528	,598
horseback riding							-,031	-,648	,518	-,029	-,644	,520
Achievement										-,025	-,389	,698
Exercise										-,116	-1,780	,076
Social										-,344	-5,760	,000
Nature										,064	1,055	,292
Relaxation										,092	1,321	,187
R Square		,291			,311			,316			,444	
F		148,886			49,712			18,786			18,176	
Sig.		0			0			0			0	

## 5.10 GENERAL ATTITUDES

The purpose of this research is to find out if there is a relationship between management of urban woodlands and satisfaction of visitors. The indicator for satisfaction is in this case the level of conflicts amongst visitors of urban woodlands. The questionnaire held a section with questions related to the opinion of the respondent about the area they were in. These questions could be answered on a 5 point likert scale, with 3 always being neutral. The difference between Norway and the Netherlands was tested using a Mann-Whitney U-test. The questions and the results of the Mann-Whitney u-test can be seen in Table 16.

The most interesting result between the respondents in Norway and The Netherlands is that the three questions asking about whether or not different users can use the same trails are all answered more negatively in The Netherlands. The question 'I think different tracks for different activities is a bad/good idea' is not answered significantly different. When the questions are more specific however, the differences become significant.

Also noteworthy is that there is no significant difference when it comes to the quality of the trails and the number of trails even though there is a clear difference between the two areas and in general between the two countries. This seems to suggest that either the number of

trails does not matter, or that the standards of respondent are different. This is discussed in the summary of this chapter.

**Table 16: Opinions of respondents, significant differences between countries highlighted, explanation based on how the mean differed from the neutral score**

Question	5 point likert-scale with 1 and 5 meaning:	Mann-Whitney U test			explanation
		Mean Rank		Ass. Sign.	
		Norway	Netherlands		
I think the number of marked trails in this area are	too few - too many	181,24	193,18	0,159	
I think the quality of the trails is	unsatisfactory - satisfactory	192,90	181,61	0,282	
I think different tracks for different activities is	a bad idea - a good idea	193,43	180,21	0,196	
I think the information (supply) is	unsatisfactory - satisfactory	164,91	205,89	0,000	Respondents in The Netherlands are more satisfied with the informationsupply (signs etc.)
I think the number of visitors in this area is	too few - too many	193,89	181,76	0,163	
There is enough separation of leisure activities	strongly disagree - strongly agree	164,90	197,58	0,001	The respondents in norway are neutral about the seperation of activities while the people in The Netherlands are satisfied
People going on foot and on a bike can use the same trail	strongly disagree - strongly agree	200,97	175,39	0,020	Respondents in The Netherlands have a more negative attitude towards bikers and walkers using the same trails
People on foot and horseback riders can use the same trail	strongly disagree - strongly agree	209,64	167,61	0,000	Respondents in The Netherlands disagree with that horseback riders and walkers should use the same trail
People on a bike and horseback riders can use the same trail	strongly disagree - strongly agree	231,66	146,38	0,000	Respondents in Norway are neutral about horseback riders and bikers using the same trail while Respondents in The Netherlands have a negative attitude towards that
Pets and other domestic animals are a threat or nuisance to me	strongly disagree - strongly agree	176,31	199,45	0,027	Respondents in Norway disagree with this statement while the respondents in The Netherlands are slightly more neutral
Bymarka/Arnhemse bos is suited to fulfill for my recreational needs	strongly disagree - strongly agree	195,42	183,26	0,206	
Regarding freedom to use the forest I feel	very restricted - not restricted at all	208,07	170,06	0,000	Respondents in Norway feel less restricted then respondents in The Netherlands, although both do not feel restricted

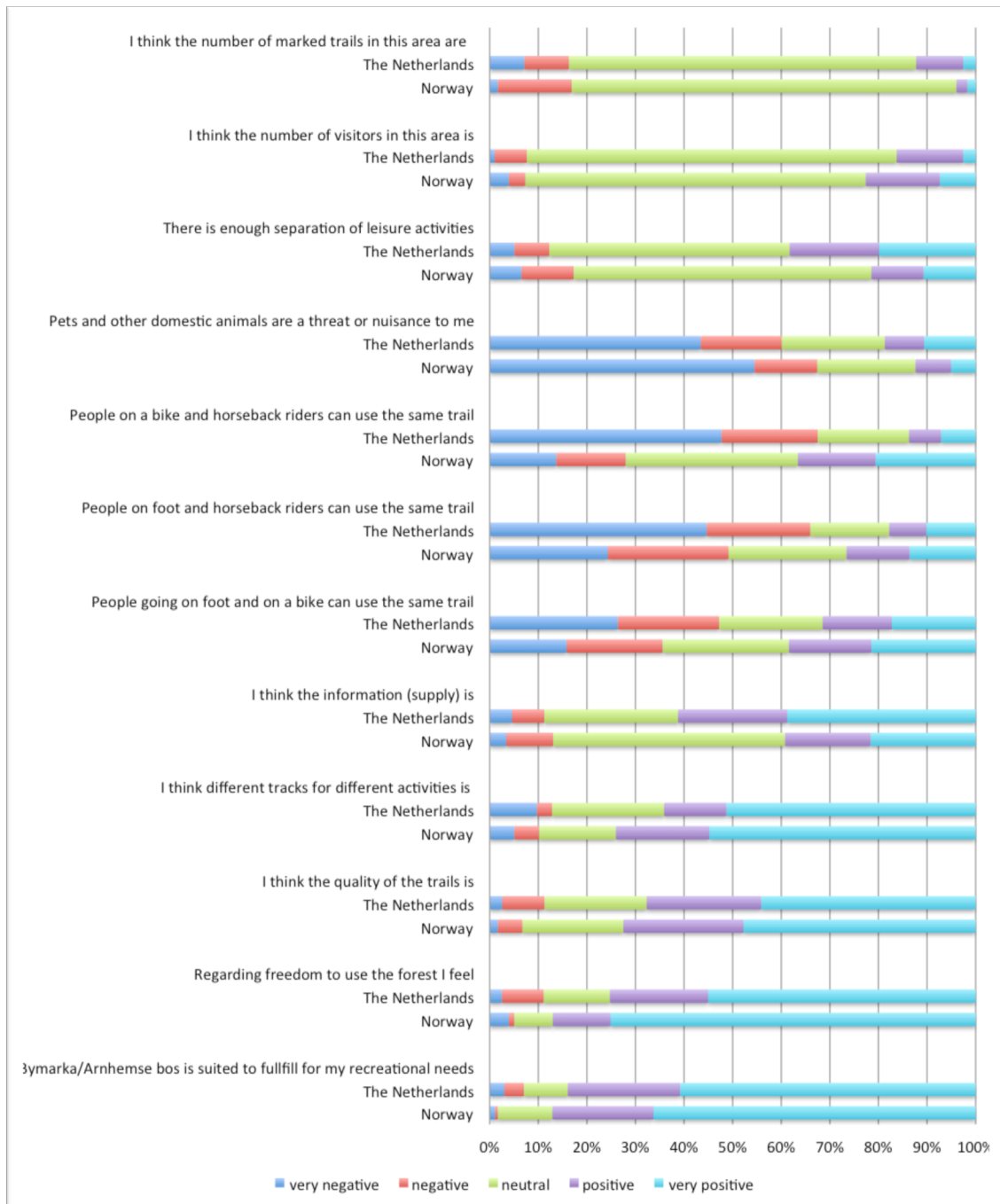


Figure 24: bargraph of the opion of respondents

### 5.11 TOLERANCE

These questions feature three questions that are related to if respondents think different activities can use the same trails. There is a significant difference between the two countries regarding these questions and all three of them seem to indicate that the Dutch respondents are less tolerant to other activities then their Norwegian counterparts. Since these questions and their outcomes are similar it might be that these

three measure one underlying variable. These questions were analysed using a factor analysis and Cronbach's Alpha to see if they are indeed measuring an underlying variable. The factor analysis of all the questions about the opinion of respondents showed that the three questions are related. A second factor analysis of only the three tolerance questions revealed that one underlying factor describes more than 62% of the variance of the data of the three questions. The component -score of each question can be seen in Table 17.

The Cronbach's Alpha of the three questions is 0,695. The Cronbach's Alpha is an indication of the internal consistency of psychometric tests. According to Gliem & Gliem (2003) a test with a Cronbach's Alpha of 0,7 is considered reliable. The three questions together have a Cronbach's Alpha of 0,695. Manfredo et al. (1996) however mention that an alpha of 0,6 is needed for a scale to be used further. A higher score indicates a more reliable instrument, in that sense 0,7 is always preferred over 0,6, the score from this test is however big enough to use the average score of the three questions (per respondent) as a 'tolerance-score'.

**Table 17: Component matrix of three questions measuring tolerance to one factor (component)**

	Component
	1
People going on foot and on a bike can use the same trail	,743
People on foot and horseback riders can use the same trail	,835
People on a bike and horseback riders can use the same trail	,787

- Tolerance and country

An independent-sample t-test showed a significant relationship between respondents in Norway and The Netherland regarding tolerance towards other activities ( $t(371)=5,845$ ,  $p<0,000$ ). Norwegian respondents are more positive towards activities sharing trails, and are therefore more tolerant regarding different users.

This outcome is in line with the expected outcome of this research: that higher user pressure leads to more conflicts, which in turn leads to lower tolerance to other people, causing a need for stricter management.



- Tolerance and motivation

Differences in motivation could potentially lead to a difference in Tolerance. Different ANOVA's showed that there is no significant relationship between the different motivations for outdoor recreation and the tolerance (Achievement (ANOVA (12, 316 = 1,284) p =,124); Exercise (ANOVA (20, 351 = 1,146) p=,301); Social (ANOVA (21, 350 = 1,343) p = ,145); Nature (ANOVA (18, 353 = 1,609) p=,055); Relaxation (ANOVA (21, 350)=1,203) p=,245)).

- Tolerance and activity

Differences in Tolerance between different activities can indicate that the (possible) conflicts are skewed, that is to say that one user groups is more hindered by another activity then vice versa. Table 18 shows the result of several ANOVA analysis between tolerance and activities. It sows that there is a significant difference in tolerance between people who go indicate that they go running and people who do not. A Pearson Correlation showed that the people who go running are more tolerant (Perason correlation (359) =,141, p = ,007)

**Table 18: Tolerance score for different activities with sifnificance level (\* indicates significant on the ,05 level, \*\* indicates significant on the ,01 level)**

	tolerance
Walking	1,914
Biking	0,005
running / jogging / nordic walking	7,262**
mountainbiking	2,376
horseback riding	2,828

- Tolerance and purism

Purism is a construct that also measures how many other people are acceptable for a respondent. The underlying idea is that somebody with a more purist attitude is seeking more reclusion than somebody that has a less purist attitude.

Analysis of the data showed that there was no significant difference in purist attitude between different levels of tolerance (ANOVA (12, 348 = 0,892) p=0,555) or the other way around, that there are not differences in tolerance between different levels of purism (ANOVA (44, 316 = 1,181) p=0,212). Both are basic attitudes of respondents so it can be problematic to claim that one variable is caused by the other (dependent and independent variable) and

therefor if there is a difference in one variable, solely based on the other. A correlation can however show if there is a relation between the variables. Table 19 shows the correlation between purism score and tolerance regarding other activities.

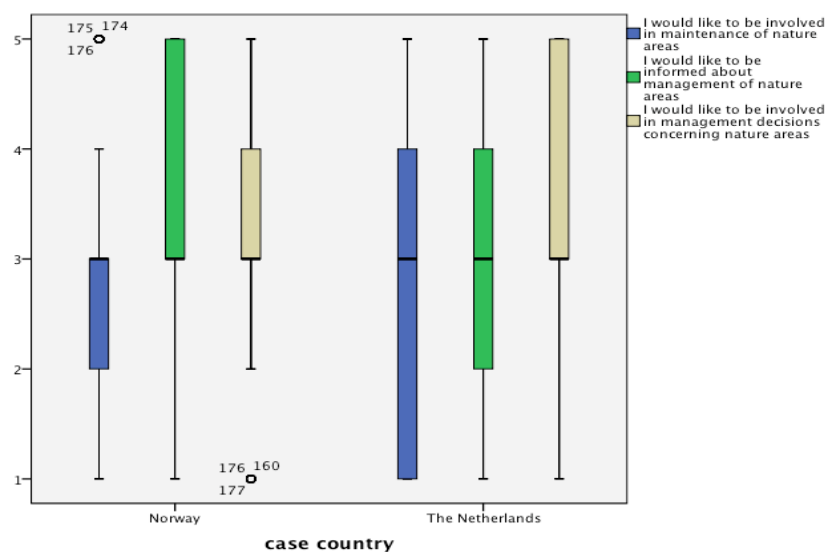
**Table 19: Bivariate correlation between purism score and tolerance regarding other activities.**

		Purist score	Tolerance regarding activities sharing trails
Purist score	Pearson Correlation	1	-,086
	Sig. (2-tailed)		,104
	N	364	361
Tolerance regarding activities sharing trails	Pearson Correlation	-,086	1
	Sig. (2-tailed)	,104	
	N	361	372

### 5.12 MANAGEMENT PREFERENCES

Figure 25 shows the results of the questions if people would like to be involved in or informed about maintenance or management of nature areas, signifying which level of participation the respondents prefer. The results show no significant difference between countries when it comes to

- Involved in maintenance (Mann-Whitney  $U=16854,5$ ,  $n_1 = 177$   $n_2 = 197$ ,  $P = ,565$ )
- Informed about management (Mann-Whitney  $U= 16222,5$ ,  $n_1 = 177$   $n_2 = 198$ ,  $P = ,199$ )
- Involved in management (Mann-Whitney  $U= 16120,5$ ,  $n_1 = 177$   $n_2 = 198$ ,  $P = ,166$ )



**Figure 25: Boxplot showing the distribution of preference of the level and sort of participation of respondents**

There is no significant difference between respondents in both countries. But it shows that people have a slightly negative attitude towards involvement in maintenance (3 is neutral), while being informed about management decisions and being involved in management of natural areas actually answered more positively.

The introductory chapter indicated that participation by interest (advocacy) groups or individual citizens can strengthen policy and gives policy a greater legitimacy. The questionnaire showed a wish among respondents to be involved in the decision process for nature areas.

To make meaning of this, it is important to know the opinion of the respondents about the present level of information or participation.

Figure 26 shows the responses to the question “I have the feeling I am able to participate when it comes to...”, Respondents were able to give multiple responses to this question. The number shows the number of respondents ticking of the box with that answer. It should be kept in mind when comparing the countries that the total respondents for all questions were 183 in Norway and 199 in The Netherlands,

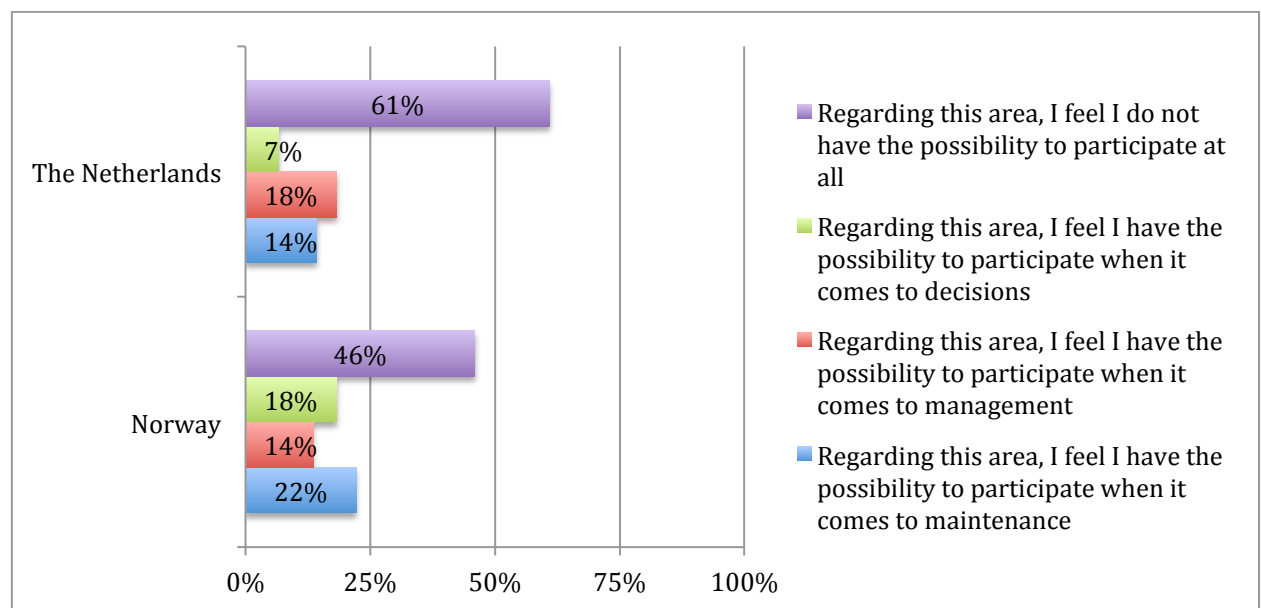


Figure 26: Bar graph showing respondent opinion about the level of participation in maintenance and management of nature areas

The bar graph shows that there is a difference between respondents in The Netherlands and Norway when it comes to respondents not feeling like they have the possibility to participate (Mann-Whitney U = 14727,5, n1 = 183 n2 = 199 , p < ,000 two-tailed). A higher proportion of the Dutch respondents feel like they cannot participate.

There was no significance between the wishes for participation in management of the areas in the questionnaire. Interviews however showed that interest groups in The Netherlands felt they had more influence on policy; this is apparently not true for the respondents.

### 5.13 SUMMARY SURVEY RESULTS

The results of the questionnaire that were discussed in this chapter show a number of differences between the respondents in Norway and The Netherlands. The first apparent difference is the difference in motivation for outdoor recreation. Every motivation was more important for the Norwegian respondents than for the Dutch respondents. There was a significant difference for four motivations, only the motivation nature showed no significant difference between respondents in Norway and The Netherlands. Comparing the results gives the impression however that this is caused by 'nature' being a relatively important motivation for Dutch respondents. It was further discovered that nationality is the strongest predictor of motivation. An important measure for conflicts is the presence of conflicting goals for outdoor recreation between different user groups (or activities). Statistical tests could not indicate a clear difference in motivation between different activities so there is no evidence of conflicting goals among the respondents.

Analysis of the purism of the respondents showed that the score for the motivations goes down as purism score goes up. There were multiple variables that showed a significant difference for purism between different factors of the variable, but the linear regression showed that country of origin is the only variable whose value has a significant effect on the purism score. The Dutch respondents had a noticeably more purist attitude than their Norwegian counterparts.

Questions about the area showed that the Dutch respondent were more satisfied with the facilities (separation of activities, information supply) while the Norwegian respondents are more tolerant (activities sharing trails, pets and other animals on the trails).

Although it has been discussed that conflicts can be skewed, there was no sign of this among the respondents. There was no significant difference in tolerance score between different user groups.

Finally, the questionnaire showed that the Dutch respondent had a stronger wish to be involved in management decisions regarding nature areas. At the same time the Dutch respondents had a relatively stronger feeling that they were not able to participate at all at the moment.

**Table 20: Key differences between countries and activities**

	motivation	purism	tolerance	perceived conflicts
country	nature' comparatively more important as motivation	Dutch Respondents have a more purist attitude	Dutch respondents are less tolerant, want more separation	no meaningful differences
activity	no meaningful differences	no meaningful differences	Few meaningful differences, people running more tolerant	-

## 6 DISCUSSION & CONCLUSION

This research began with the question of how Norway and The Netherlands compare concerning management of, and user conflicts in urban woodlands. That question was then divided into two questions; a first question about conflicts in urban woodlands, and a second one about management of user conflicts.

### 6.1 NORWAY

#### 6.1.1 CONFLICT

- Pattern from documents

Norwegian law provides the freedom to roam, as long as consideration is shown towards the environment and other people. Sundberg (2002) suggests that this freedom to roam is possible because the population pressure has been so low that conflicts barely existed. The forest as a resource for extensive outdoor recreation has never been under threat due to its abundance with respect to the people who use them. Other acts from the national level in Norway show essentially that the conservative approach to nature management allows extensive recreational activities. Conflicts have arisen the last decades in urban woodlands where the user pressure has risen and activities have diversified. The municipal policy documents from Trondheim kommune do not mention conflicts between ecological values and extensive recreational activities, they rather mention that in the marka area everybody should be able to enjoy environmentally friendly activities. The municipal plan for the marka area does acknowledge however that there are conflicts between users. Those conflicts seem to be between extensive recreational activities and intensive recreational activities.

- Pattern from interview

The interviews also indicate that the most important conflicts in the area are between intensive and extensive recreational activities. Traditional activities that fit in the Norwegian concept of friluftsliv are accepted in every part of the marka area by all interviewees. These activities collide with new forms of outdoor recreation. The conflict was summarized as a choice between facilities and remoteness. Although not all respondents are pleased with new activities in every part of the marka area, they do recognize that the marka area is open for everyone and as such they should be open to it. This attitude is in line with the Norwegian tradition of freedom to roam. Just as the

policy documents the interviewees did not want to use forced separation as an instrument but rather use positive stimulation by differences in infrastructure.

- Pattern from survey

Although the documents and the interviewees indicate that there are conflicts within the marka areas, this did not show in results of the questionnaire. Respondents were neutral to positive about the separation of activities and about the number of trails and number of visitors. Watson (2001) suggests that conflicts may arise out of goal interference or expectations about the naturalness a person finds on a trip. The survey did not show any goal interference or difference in purist attitude between different activities. Furthermore Vittersø et al. (2004) suggest that conflicts are skewed among activities. The measure of tolerance in this research however showed no convincing differences between different user groups. This suggests that the conflicts that are indicated by the interviewees and the documents, are not experienced by the respondents. A possible explanation for this is the Norwegian culture of 'freedom to roam', that even though people feel a conflict, they on the other hand feel that other users have just as much right to be there as they do.

### 6.1.2 MANAGEMENT

- Pattern from documents

The freedom to roam is an important management principle in Norwegian law and policy. It provides a legal context that limits the possibility for strict management rules in nature and forest management. The biodiversity act provides some possibilities for restrictions but is also concerned with providing people the opportunity for outdoor recreation. Management of nature areas and user conflicts is regulated by the planning and building act, this is the legal framework for the municipal zoning plan. This act includes zoning for outdoor recreation areas. The local zoning plan and plan for the marka area are based on the framework provided on the national level. The goal for the marka in these plans is as a place for outdoor recreation. Zoning has to provide the necessary separation between activities to avoid the present user conflicts in the future, strict zoning measures are however controversial.

- Pattern from interview

The zoning plan calls for a marka council to inform the municipality about the marka areas and to be informed about plans from the municipality. Interviews with

representatives of the marka council indicate that the council is not functioning properly. The respondents feel that the plan for the marka areas, including more zoning of activities, is good in its intents, but that the execution is rather poor. The zoning that is indicated in the plan is not fully achieved. From the interviewees, it becomes clear that more separation is desirable to avoid conflicts, but that it should be voluntary. The respondents are hesitant to accept strict separation because, in line with the culture of freedom of passage, they feel that everybody has the right to be in the area.

- Pattern from survey

The freedom to roam is not under threat according to the respondents of the questionnaire. Respondents convincingly indicate that they do not feel restricted in their use of the forest. The absence of conflicts experienced by the respondents might indicate that the freedom to roam is important for the same respondents, indicating that the respondents are culturally dictated to accept all kinds of uses of the forests.

## 6.2 THE NETHERLANDS

### 6.2.1 CONFLICT

- Pattern from documents

Outdoor recreation is not represented in national laws in The Netherlands. Nature areas and forests, like all other lands, are private property and as such subject to property rights. Nature areas and forests are often owned by the government, municipality or by NGO's that give visitors permission to access the area for recreational purposes. Nature areas and forests, as a recreational resource, are also a scarcer resource in The Netherlands and are therefore valued higher. Laws put emphasis on the protection of ecological values by strict separation if necessary. Policy documents also emphasize the value of nature to society, but never-the-less make clear that ecological value is the determinant for the level of activity; outdoor recreation and nature protection are considered mutually exclusive. The local policy in Arnhem shows the same level of separation between recreational activities and nature protection. The documents emphasize the importance of protecting the ecological values and not to put too much stress on the environment by means of recreational activities. This fits into the idea that a higher population pressure leads to a danger of overusing the common resource and that strict government regulation is therefore needed.



- Pattern from interview

The government restrictions are not considered oppressive. Interviews showed how the separation of activities was considered normal and was even appreciated. Not all respondents valued a strong separation of nature protection and recreational activities in the same degree, but all agreed a level of separation is needed. Moreover, nobody challenged the idea of restrictions. As in the documents, nature protection and recreational activities are considered mutually exclusive. This can be attributed to a culture in which there has always been a high population pressure and subsequent strict management of common lands.

- Pattern from survey

Conflicts between users did not play a role in the forests of Arnhem according to documents, and interviews and the results from the survey seem to support that. When asked what the opinion was of respondents about the area, it showed that most respondents think the level of separation of activities is good. There are also no negative opinions about the number of trails and the number of other visitors. Conflict, according to Watson (2001) and Vittersø et al. (2004) can arise out of goal interference and differences in purism. Besides that conflicts can be skewed. This study did not find evidence of any of these among the respondents in Arnhem; there were no meaningful differences in motivation among different user groups, or in purist attitude between different user groups. It did show, however, that Dutch respondents have a rather strong purist attitude when it comes to recreation and are rather negative in their opinion of activities sharing trails (or tolerance). Although the attitude shows that the respondents are sceptical about other users, there were no actual perceived conflicts. The absence of actual conflicts might be due to accustomed management.

## 6.2.2 MANAGEMENT

- Pattern from documents

Common lands in The Netherlands were privatized a long time ago, and access has, consequently, been restricted on private lands. There is no right of passage or access to any lands without permission. This permission is granted in many cases, be it under strict rules. Most commonly those rules dictate access only between sunrise and sundown, biking and walking only on paths and horseback riding on designated trails, and finally dogs have to be kept on a leash. Not acting in accordance with these rules is

an offence. Zoning plans and nature protection laws fit in this context by requiring a strict separation. The multitude of interest is managed through strict separation that is enforced by law.

- Pattern from interview

The strict separation between different recreational activities, and between recreational activities on the one hand and nature protection on the other, is appreciated by the interviewees. The strict set of rules however also creates challenges when they become too strict and seemingly small changes are forbidden on grounds of nature protection. The personal contact between municipality and the interests groups is appreciated and shows that the municipality is willing to meet the wishes of the respondents, thereby sometimes deviating from the rules. The interviewees feel a degree of control even though there is a strict and restrictive management regime in natural and forested areas in The Netherlands. This can be due to the personalized way the municipality communicates with the interviewees.

- Pattern from survey

The respondents of the questionnaire, like the interviewees, do not see any conflicts. When asked if the number of trails is too many or too few they answer neutral, moreover they are neutral or agree if posed with the statement if there is enough separation of activities. The high population pressure in The Netherlands has through time caused a strict zoning of activities in natural areas, both to protect the environment and to avoid conflicts between the many users. The questionnaire showed the necessity for this in the attitudes towards outdoor recreation in the respondents; it showed that tolerance to other activities is comparatively low, purism is high and 'nature' and 'relaxation' are important factors for outdoor recreation. Theory suggests that conflicts are more likely if visitors expect to find a high degree of naturalness, and visitors in the forests of Arnhem clearly have a relatively high expectation to find naturalness. So although potential conflicts are possible, management is adapt at avoiding them.

### **6.3 DIFFERENCES AND SIMILARITIES**

Norway has historically a low population density, whereas The Netherlands has historically had a high population density. Sundberg (2002) suggested that *the commons* in Nordic countries, and the freedom of passage and access to them, have remained because the low population density both avoids conflicts between users and avoid heavy

impact on the environment. *The commons* in The Netherlands, according to Hoppenbrouwers (2002) have been subject to high population pressure that has required strict management. The commons as well as the rights to access them in the Dutch situation have been privatized. This historic difference echoes in present law, policy, management and people's perception. Law in Norway provides the right to access and passage of uncultivated lands while access and passage is illegal in the Netherlands unless permission is granted. Policy in Norway incorporates the freedom to roam by allowing extensive recreation almost everywhere, extensive recreation is the Norwegian approach to nature protection. In The Netherlands however, nature protection is more restrictive and recreational activities can be banned for protection of nature, a common example is that many areas are closed at night. The interviewees in Norway and The Netherlands show that this is not just a difference between documents but rather a difference in cultural perception of what is supposed to be allowed in urban woodlands or in nature generally. The Norwegian interviewees understand that separation can solve conflicts between users but do not want to harm the freedom of people by making strict rules. The respondents in The Netherlands on the other hand accept strict rules and separation as a way of protecting both the environment and user interests. High user pressure and strict separation in The Netherlands has resulted in a high quality and quantity of infrastructure for recreational activities, as shown Elands et al. (2010 and Vistad et al. (2010) and by pictures presented in this Thesis (see Figure 14). The survey, finally, backs up the cultural differences between Norway and The Netherlands. The respondents in The Netherlands, with its higher population density, give more value to naturalness than the Norwegian respondents. Consequently, they also have a lower tolerance towards other activities and accept a higher degree of separation. In general however, it shows that in both countries management regimes of urban woodlands fit within the history and socio-cultural evolution of the countries and are therefore widely accepted. A high population density causes a greater probability of conflicts and thus requires stricter management regime. In countries with a low population density there is a better the possibility for a right to the 'freedom to roam'. That can however set a cultural standard that prevents from strict measures being accepted by the general population. The core question that needs to be answered in the future is, how can the government protect the 'freedom to roam' and all values places upon urban woodlands with rising user pressure a larger spectrum of use?

## 6.4 CONCLUSIONS

- There is a strong historical difference between Norway and The Netherlands regarding common lands that has an impact on the present day situation. Norway knows a culture of the ‘freedom to roam’ that has been laid down in law, while all lands in The Netherlands fall under the private property law and are only accessible with permission.
- Nature protection and extensive outdoor recreation are not mutually exclusive in Norwegian laws and policies, while they are strictly separated in laws and policies in The Netherlands.
- Representatives of interest groups in urban woodland management in Trondheim say that conflicts in Urban woodlands mainly consist between traditional activities (extensive outdoor recreation) and modern activities (intensive outdoor recreation). Dutch representatives think conflicts exist mainly between nature protection and use.
- There are no actual perceived conflict between different user groups in the sample, there is however a difference in potential conflicts. The respondents in The Netherlands had a more purist attitude, were less tolerant and showed that ‘nature’ was a more important motivation for outdoor recreation compared to respondents in Norway.
- Actual conflicts in both countries are avoided by a management regime that fits in the local culture

## 7 REFERENCES

- Arnstein, S.R. (1969) 'A Ladder of Citizen Participation' In: *Journal of the American Planning Association*, 35, 4, 216-224
- CBS (Centraal Bureau voor de Statistiek) (2011) *Cijfers*. <http://www.cbs.nl/nl-NL/menu/cijfers/default.htm> (retrieved april 2011)
- Cessford, G. (2003) 'Perception and reality of conflict: walkers and mountain bikes on the Queen Charlotte Track in New Zealand'. In: *Journal for Nature Conservation*, 11, 4, 310-316
- CIA (2011) *Europe*. [https://www.cia.gov/library/publications/the-world-factbook/maps/refmap\\_europe.html](https://www.cia.gov/library/publications/the-world-factbook/maps/refmap_europe.html) (retrieved April 2011)
- Clark, R.N. & G. H. Stankey (1979) *The recreation opportunity spectrum: A framework for planning, management, and research*. U.S. Department of agriculture forest service. General technical report PNW-98.
- Crang, M. & I. Cook (2007) *Doing ethnographies*. Sage, London
- Eerste kamer der Staten Generaal (2005) vergaderingnummer 25, Vergaderjaar 2004-2005.
- Elands, B., S. Bell, J. Blok, V. Colson, S. Curl, B.C. Kaae, G. van Langenhove, A. McCormack, W. Murphy, J.G. Petursson, S. Præsthholm, P. Roovers & R. Worthington (2010) 'Atlantic Region', In: U. Pröbstl, V. Wirth, B. Elands & S. Bell (Ed.) (2010) *Management of recreation and nature based tourism in European forests*, Springer
- Entente Florale Europe (2009) *Participants 1975-9009*. <https://www.entente-florale.eu/media/File/memberfiles/Participants-from-1975.pdf> (retrieved may 2011)
- Fairclough, N. (2003) *Analysing discourse. Textual analysis for social research*, Routledge, London.
- Financiën, Ministerie van (1928) Natuurschoonwet 1928. BWBR0001939

- Gemeente Arnhem (2002) *Bosbeheerplan Arnhem 2002-2012*
- Gemeente Arnhem (2004) *Groenplan Arnhem 2004 – 2007 / 2015*
- Gemeente Arnhem (2007) *Bestemmingsplan buitengebied Arnhem noord 2007*
- Gliem J.A. & R.R. Gliem (2003) *Calculating, interpreting and reporting Cronbach's Alpha reliability coefficient for Likert-type scales*. 2003 Midwest research to practise conference in adult, continuing and community education
- Groot, R.S. de, M.A. Wilson & R.M.J. Boumans (2002), 'A typology for the classification, description and valuation of ecosystem functions, goods and services', *in: Ecological Economics*, Vol. 41, pp. 393-408.
- Gundersen, V., L.H. Frivold, T. Myking, B. Øyen (2006) 'Management of urban recreational woodlands: The case of Norway' *In: Urban forestry & Urban greening*, Vol. 5, pp. 73-82.
- Guo, S., & D.L. Hussey (2004) 'Nonprobability Sampling in Social Work research: Dilemmas, Consequences, and strategies.' *In: Journal of social service research*, 30: 3, 1-18
- Hardin, G. (1968) Tragedy of the Commons. *In: Science*, 162, 1243-1248.
- Hoppenbrouwers, P. (2002) 'The management of common land in North West Europe.' *In: Moor, M. de, L. Shaw-Taylor & P. Warde 2002: The management of common land in north west Europe 1500-1850*. Brepols, Turnhout, Belgium
- Justitie, (2009) *Wetboek van strafrecht*. BWBR0001854
- Kinnear, P.R. & C.D. Gray (2010) *IBM SPSS statistics 18 made simple*. Psychology Press, East Sussex, UK.
- Konijnendijk, C.C. (2008), *The Forest and the city*, Springer, The Netherlands.  
*landschap in de 21e eeuw*.
- LNV, ministerie van (1990) *Regeringsbeslissing Natuurbeleidsplan*. Den Haag, SDU.

LNV, ministerie van (1998) *Boswet* BWBR0002357

LNV, ministerie van (1998) *Natuurbeschermingswet 1998*, BWBR0009641

LNV, ministerie van, (2000) *Natuur voor mensen, mensen voor natuur, Nota natuur, bos en*

LNV, ministerie van, (2002) *Wet op de openluchtrecreatie*. BWBR0006548

LNV, ministerie van, Bosschap & Unie van bosgroepen (2010)

<http://www.natuurbeheer.nu/Wet- en regelgeving/Nederland/Natuurbeschermingswet/>

(retrieved april 2011)

Manfredo, M.J., B.L. Driver & M.A. Tarrant (1996) 'Measuring leisure motivation: a meta-analysis of the recreation experience preference scales', In: *Journal of leisure research*, 28, 3, 188-213

Mitchell, B. (2002) *Resource and environmental management*, Prentice hall

Ostrom, E. (1990) *Governing the commons*. Cambridge university press, United Kingdom

Randrup, T.B, C. Konijnendijk, M.K. Dobbertin & R. Prüller (2005) The concept of urban forestry in Europe. In: Konijnendijk, C.C., K. Nilsson, T. Randrup & J. Schipperijn (Ed.) 2005, *Urban forests and trees*. Springer

Regjeringen (1996) *Act of 28 June 1957 No.16 Relating to outdoor recreation*

<http://www.Regjeringen.no/en/doc/Laws/Acts/Outdoor-Recreation-Act.html?id=172932#>

(retrieved april 2011)

Regjeringen (2005) *Act of 14 June 1985 No. 77, with amendments in force 1 April 2005*

Regjeringen (2009) *Act of 19 June 2009 No. 100 relating to the management of biological, geological and landscape diversity (nature diversity act)*

<http://www.Regjeringen.no/en/doc/laws/Acts/nature-diversity-act.html?id=570549>

(retrieved may 2011)

- Schramm, W. (1971) *Notes on case studies of infrastructural media projects*. Working paper for the Academy for Educational Development. In: Yin, R. K. (2009) *Case study research, design and methods* (4<sup>th</sup> ed.). Sage, Thousand Oaks, CA
- Shafer, E.L. (1969) *The average camper who doesn't exist*. U.S. department of agriculture, research paper NE-142, Upper Darby, PA
- Silverman, D. (2009) *A very short, fairly interesting and reasonably cheap book about qualitative research*. Sage, London
- SSB (statistisk sentralbyrå) (2011) *Befolkning* <http://www.ssb.no/befolkning/> (retrieved may 2011)
- Sundberg, K. (2002) 'Nordic common lands and common rights, some interpretations of Swedish cases and debates.' In: Moor, M. de, L. Shaw-Taylor & P. Warde 2002: *The management of common land in north west Europe 1500-1850*. Brepols, Turnhout, Belgium
- Trondheim kommune (2002) *Markaplan, del 1 visjon – mål – retningslinjer, kommunedelplan for markaområdene*, Trondheim kommune
- Trondheim kommune (2007) *Arealplan 2007-2018 kort innføring, retningslinjer og bestemmelser*. Trondheim Kommune.
- Trondheim kommune (2011) *Befolkningsendringer første kvartal 2011 – Tabell- og figursamling*
- Tyrväinen, L., S. Pauleit., K. Seeland, & S. De Vries (2005) 'Benefits and uses of urban forests and trees.' In: C.C. Konijnendijk, K. Nilsson, T.B. Randrup, & J. Schipperijn (Ed.) 2005, *Urban forests and trees*. 81–114. Springer, Berlin.
- UN (1987) *Report of the world commission on environment and development*. New York
- Van Herzele, A., E. M. De Clerq, T. Wiedemann, (2005) 'Strategic planning for new woodlands in the urban periphery through the lens of social inclusiveness.' In: *Urban forestry & Urban Greening*. 3, 177-188



- Velarde, M.D., G. Fry & M. Tveit, (2007) 'Health effects of viewing landscapes – landscape types in environmental psychology.' In: *Urban forestry and urban greening*. 6, 199-212
- Vistad O.I., J. Erkkonen & D. Rydberg (2010) 'Nordic region.' In: U. Pröbstl, V. Wirth, B. Elands & S. Bell (Ed.) (2010) *Management of recreation and nature based tourism in European forests*, Springer
- Vistad, O.I. & M. Vorkinn (in press) *The Wilderness purism construct – experiences from norway with a simplified version of the purism scale* (Unpublished)
- Vittersø, J., Chipeniuk, R., Skår, M. & Vistad, O. I. (2004) 'Recreational conflict is affective: The case of cross-country skiers and snowmobiles. In: *Leisure Sciences* 26(3), 227-243. Taylor & Francis, New York
- VROM, ministerie van (2006) Wet Ruimtelijke Ordening. BWBR0020449
- Watson, A.E. (2001) 'Goal interference and social value differences: understanding wilderness conflicts and implications for managing social density' In: W.A. Freimund & D.N. Cole (2001) *Visitor use density and wilderness experience: proceedings; 2000 June 13; Missoula, MT*, 62-67
- Wilson, M.A. & R.B. Howarth (2002) 'Discourse-based valuation of ecosystem services: establishing fair outcomes through group deliberation.' In: *Ecological economics*, 41, 431-443. Elsevier.
- Yin, R. K. (2003) *Applications of case study research* (2<sup>nd</sup> ed.). Sage, Thousand Oaks, CA
- Yin, R.K. (2009) *Case study Research: Design and methods*, Sage, Thousand Oaks

## 8 APPENDICES

### APPENDIX A: SCHEMATIC MODELS OF THE DUTCH AND NORWEGIAN EDUCATION SYSTEM

Figure 27 and Figure 28 show the Dutch and Norwegian education system, respectively. The scale for education has been standardised by re-coding the education scale from the Dutch questionnaire. Figure 29 shows how the scores have been recoded.

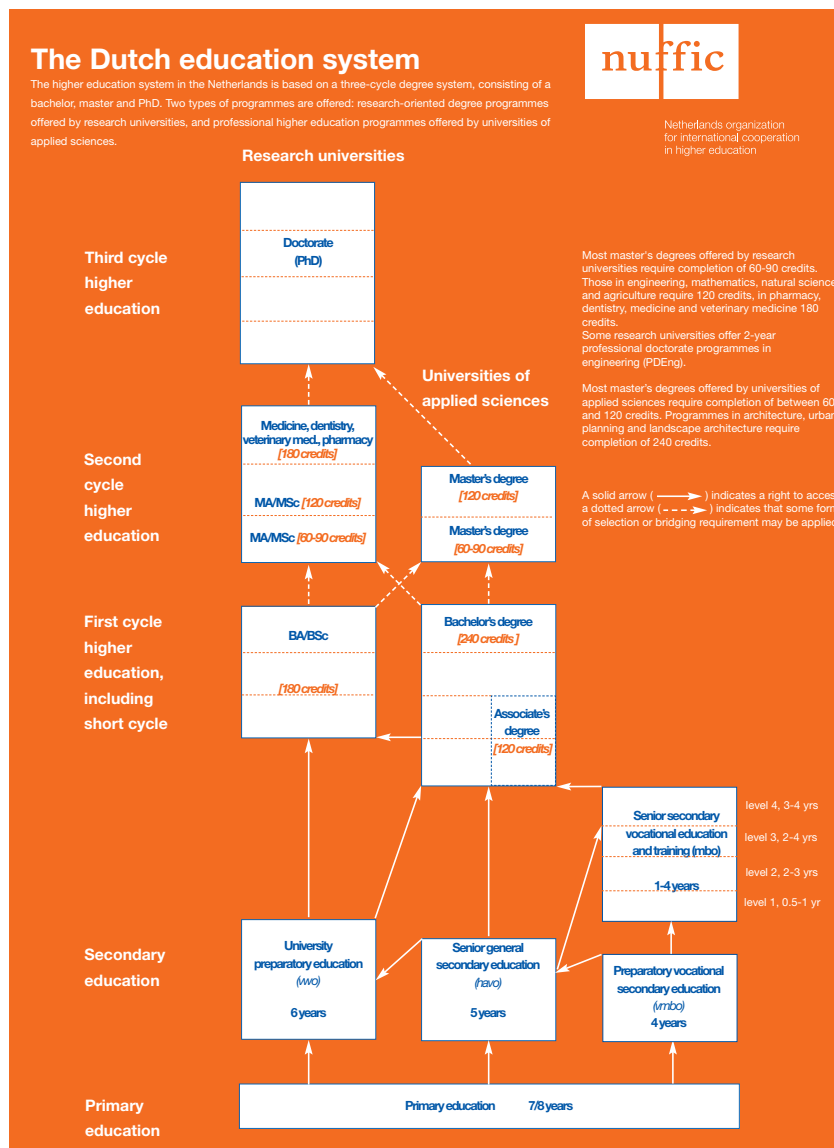


Figure 27: Education system in The Netherlands (source: [www.nuffic.nl](http://www.nuffic.nl))

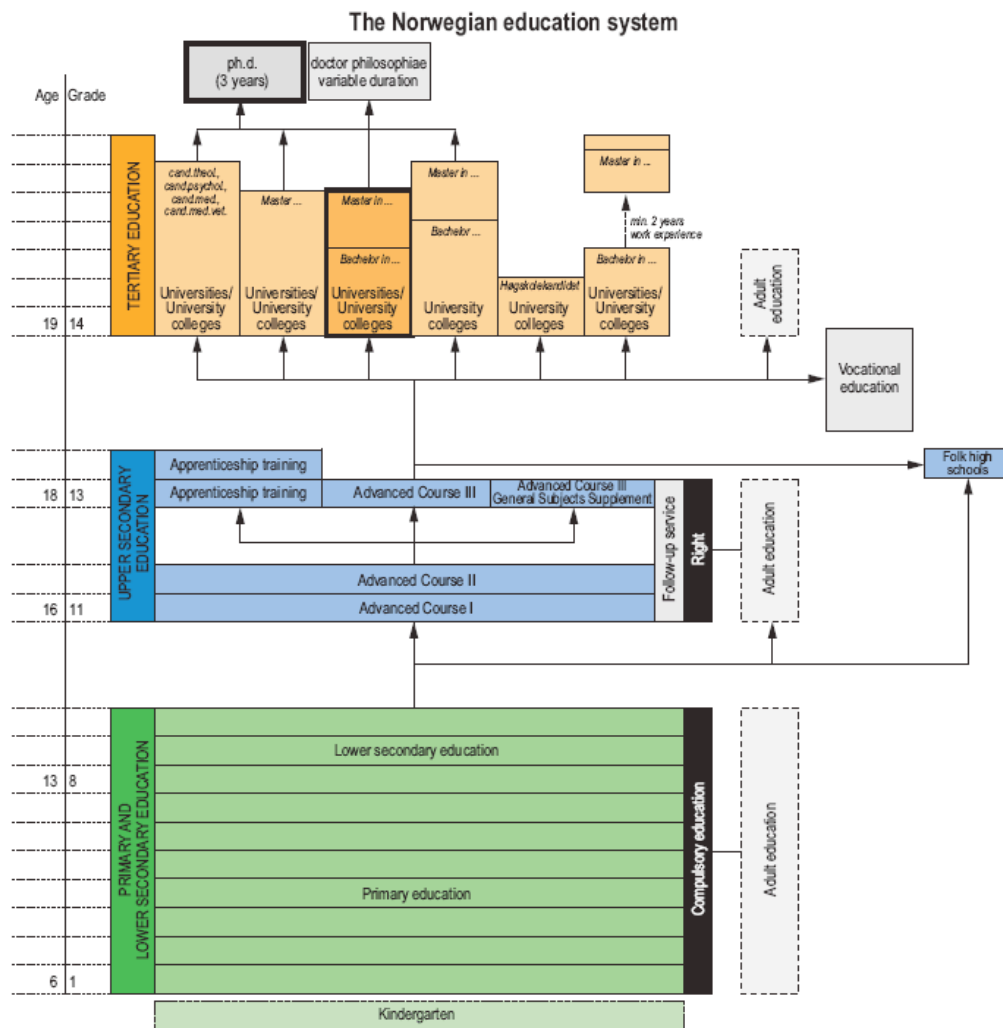


Figure 28: The Norwegian education system (source: <http://www.ibe.unesco.org/>)

Hoogste voltooide opleiding:		
Basisschool	<input type="checkbox"/>	→ 1
VMBO/MAVO o.i.d.	<input type="checkbox"/>	→ 2
HAVO/VWO o.i.d.	<input type="checkbox"/>	→ 2
MBO	<input type="checkbox"/>	→ 2
HBO/Bachelor	<input type="checkbox"/>	→ 3
Universiteit/Master	<input type="checkbox"/>	→ 4
Hoger	<input type="checkbox"/>	→ 5

Figure 29: Education in the Dutch questionnaire and which scores it has been recalculated to.

**APPENDIX B: ADDITIONAL INFORMATION ABOUT USAGE OF THE REP SCALE**

Figure 30 shows the answers of respondent #160 to the questions on the REP scale for measurement of motivation for outdoor recreation and the subsequent average score per motivational class.

<b>Motivation</b>		1. Please answer how much of a motivation the stated reason is for your visit.					average score per motivation
The purpose of my visit is to:		Strongly disagree	Neutral		Strongly agree		
Achievement	Gain self-confidence	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1,33
	To be recognized for doing it	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	To develop skills/practise a hobby	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	To be challenged	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Social	To do something with the family	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3
	To be with friends	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
	To be around people with the same interests	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	To meet new people	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Nature	To Experience landscape and nature	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	4,25
	To get a feeling of belonging in nature	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	To be in a natural setting	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
	To experience Norwegian/Dutch landscape	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Relaxation	To relax mentally	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3
	To gain perspective on life	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	To get away from noise and pollution	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
	To get away stress	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Exercise	To get a workout / exercise	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	3,75
	To improve my health	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	To be physically active	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
	To get in shape	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

**Figure 30: Answers of a respondent to questions about motivation and average score per motivation**

## APPENDIX C: ANSWERS ON THE PURIST-SCALE.

Figure 31 shows the answers of respondent #160 to the questions on the purist scale, the re-coded score, the average score and the purist class of this respondent.

<b>11. Imagine that you are going on a trip for several hours in forests or mountain areas in the summer. Imagine that the area is just the way you prefer it to be – the “ideal area” for a trip into nature</b>							<b>Purism</b>		
<i>Would the following items detract or add to your experience of the “ideal” trip?</i>	<i>Strongly Detract</i>		<i>Neutral</i>		<i>Strongly Add</i>		<i>score</i>	<i>purism score</i>	
... there are plain campsites with toilets, firewood, fire rings and bins	1	2	3	4	5	6	7	5	3
... you can dispose litter in bins along the way	1	2	3	4	5	6	7	6	2
... there are marked trails in the area	1	2	3	4	5	6	7	7	1
...trailheads and crossroads are well signposted	1	2	3	4	5	6	7	7	1
... boardwalks are provided in wet marshes	1	2	3	4	5	6	7	7	1
... there are huts/lodges where food are served and where you can stay overnight in made beds	1	2	3	4	5	6	7	4	4
... you meet a lot of other outdoor recreationists during the trip	1	2	3	4	5	6	7	4	4
... you can hike for hours without meeting anyone else	1	2	3	4	5	6	7	4	4
average purism score								2,5	
purism class								1	

**Figure 31** Answers to questions on the purist scale from a respondent with standardised scores, average score and class of purism

APPENDIX D: MAP OF BYMARKA WITH RECREATIONAL INFRASTRUCTURE

Map from the Markaplan (Trondheim kommune, 2002) showing planned facilities and paths.

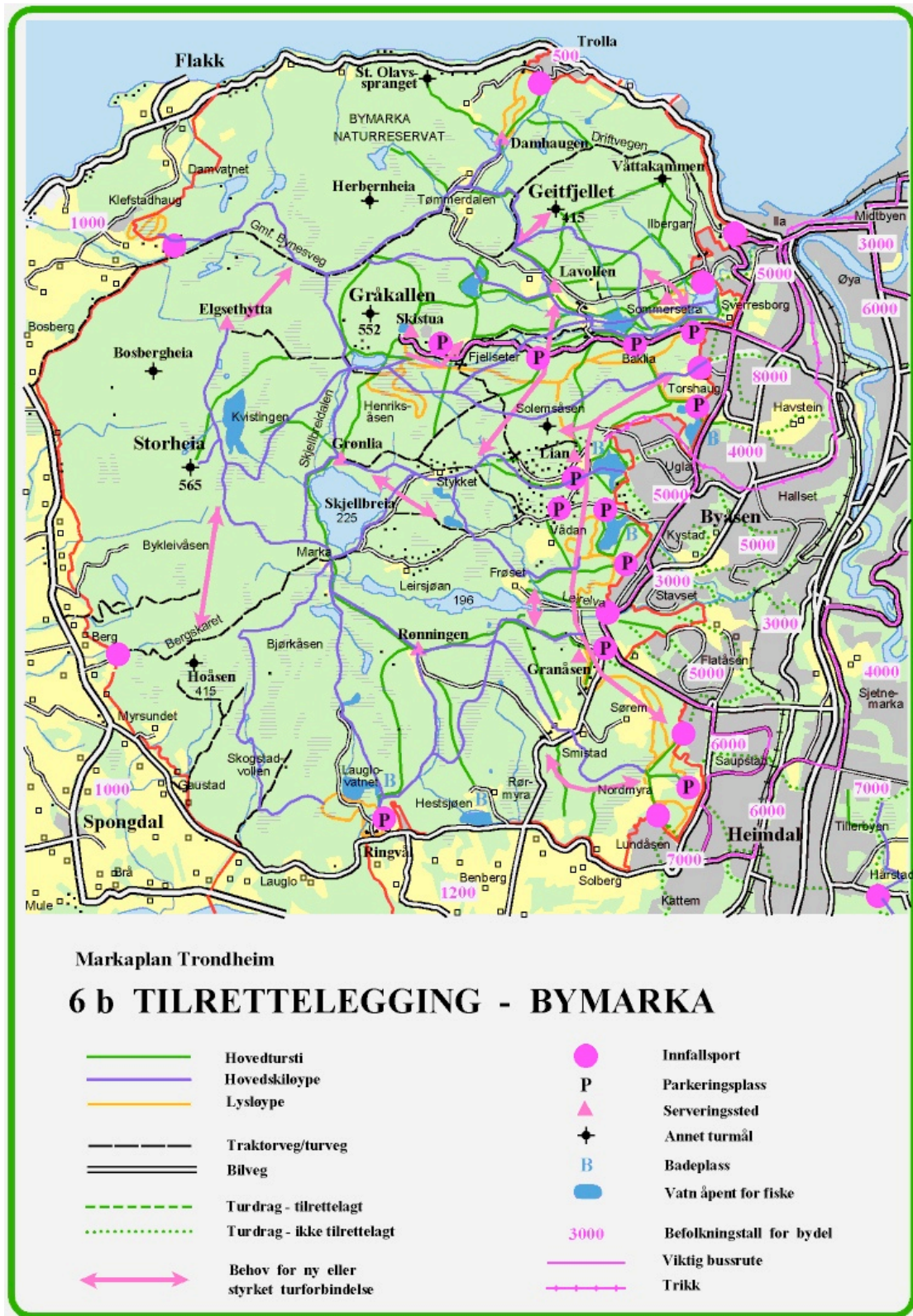


Figure 32: map of Bymarka with planned facilities (source: Trondheim kommune, 2004)

## APPENDIX E: LIST OF INTERVIEWEES:

Bart Lichtenberg	Gemeente Arnhem
Jolanda Dirksen	IVN Arnhem
Hans Klaver	Dorpsraad Schaarsbergen
Ben Oosting	Stichting Gelderland mooi / Geldersch Landschap
Nelly Maske	Trondhjems Skiklub
Staffän Dovärn	Forum for Natur og Friluftsliv I Sør-Trondelag
Steinar Nygaard	Naturvernforbundet
Erik Stabell	Trondhjems Turistforening

